

Honourable Founder Chairman



Dr. M.S. Ramaiah, FIAE

(1922 -- 1997)

"A True Karma Yogi"

RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)

BANGALORE



Gokula Education Foundation (GEF) was founded in the year 1962 by Late Dr. M S Ramaiah, a great visionary and philanthropist. Ramaiah Institute of Technology (RIT) is an esteemed and well known Autonomous institute founded in the year 1962 by Dr. M S Ramaiah as one of his bold ventures to serve the society through self-financed educational system. RIT, as well as 28 other reputed institutions offering Medical, Dental, Pharmacy, Hotel, and Business Management and Legal Education are managed by the Gokula Education Foundation.

The institution, which commenced with only two disciplines, has grown by leaps and bounds over the years. At present the institution proudly offers 13 UG programmes and 15 PG disciplines. All the UG programmes and a few PG programmes are accredited by the NBA. The institution has been awarded "A" grade by NAAC. The institution offers M.Sc. (by research) and Ph.D. programmes in all the disciplines.

RIT is one of the few institutes with faculty- student ratio of 1:15 and achieves excellent academic results. The institute is a participant in the Technical Education Quality Improvement Programme (TEQIP), an initiative of the Government of India. All the departments are full with competent faculty, over 100% of them being postgraduates or Ph.D holders. Some of the distinguished features of RIT are: State of the Art Laboratories, Individual computing facility to all faculty members, Campus-wide networking connecting all 2000 systems to the internet. All research departments are active with sponsored projects and more than 160 scholars are pursuing Ph.D. The Centre for Advanced Training and Continuing Education, Centre for Research and Industrial Consultancy and Entrepreneurship Development Cell have been set up on campus.

RIT has thus marched towards carving itself a distinctive place in the area of imparting engineering education par excellence in the country. It is recognized as a premier educational institution in India and abroad. VTU & UGC have conferred the prestigious status in the year 2007. RIT has celebrated its 50th year of existence. It is Ranked 60th among the top 100 Engineering Institutions across the country released by NIRF 2018 by MHRD, Govt. of India.

Chairman's Message



I am Pleased to learn that Ramaiah Institute of Technology is organizing **PRADARSHANA 2018** - An Open Day Project Exhibition.

PRADARSHANA has been a unique experiment which encourages the young and the aspiring minds to think, innovate and excel in their chosen domain and one can safely say the experiment has been successful.

We at Ramaiah Institute of Technology have been continuously channelizing our efforts towards development of essential infrastructure, technology, curriculum and extracurricular activities. Our objective is to instill in our students confidence, self-motivation, research and problem solving skill sets by imparting value added education.

As we look into the future one thing is certain - knowledge. knowledge will be a key resource and will be highly sought after in india and around the world. We at Ramaiah Institute of Technology Prioritize knowledge and discipline and believe in application of the same for societal progress and upliftment.

I wish to congratulate all the students who have strived hard on their innovative to make this event a great success.

Best Wishes

A handwritten signature in black ink, which appears to read 'Dr. M.R. Jayaram'.

Dr. M.R. Jayaram

Chairman,
Gokula Education Foundation

Vice Chairman's Message



I am pleased to hear that Ramaiah Institute of Technology (RIT) is organizing **PRADARSHANA 2018** - An Open Day Exhibition for the students.

The objective behind organizing open day project exhibition is to give platform to the final year students to showcase their creativity and hard work they have put in the past one year, in terms of their final year project work. Each project is the product of individual work, using the skills acquired over the course of four years in Ramaiah Institute of Technology (RIT).

I wish the students and staff who have participated in **PRADARSHANA 2018** a great success.

Best Wishes

A handwritten signature in brown ink, reading 'M.R. Seetharam'.

Sri. M.R. Seetharam

Hon'ble Vice Chairman - GEF,
Minister for Planning, Statistics,
Science and Technology, Govt of Karnataka

Secretary's Message



It is indeed a pleasure to know that Ramaiah Institute of Technology is organizing **PRADARSHANA 2018** - An Open Day Project Exhibition .

Our institution has been striving consistently to establish ourselves as pioneers in development and implementation of the next generation teaching and learning techniques and to promote individual excellence in the entire array of curricular, extra-curricular and cultural activities in our students while making them societally responsible.

PRADARSHANA is relevant in this regard as it brings out the best in our students and gives a platform to showcase the same. I wish to convey my felicitations to the faculty, staff and to all the participating students.

I wish **PRADARSHANA 2018** all the success.

Best Wishes

Sri. M.R. Ramaiah

Secretary, Gokula Education Foundation and Director,
Ramaiah Institute of Technology

CE's Message



Ramaiah Institute of technology has always welcomed the students with open arms to pursue their dreams. It gives them wings of hope to fly high with pride. It offers them the best of infrastructure facility and dedicated faculty to prepare them for the challenges ahead in their chosen career by suitably equipping them with the advances in technology.

Pradarshana remains a mile stone event that provides an opportunity to students to exhibit the knowledge, commitment, creativity and talent.

I wish the event a grand success and extend warm greeting to the organizers, faculty and Students.

Best Wishes

A handwritten signature in black ink, appearing to read 'Sri B.S. Ramaprasad'.

Sri B.S. Ramaprasad

Chief Executive, GEF

Principal's Message



We at RIT work sincerely to realize the dream of our visionary founder chairman M S Ramaiah to achieve excellence in the field of Engineering education to enable students identify, analyze and architect solutions to the challenging problems of the world.

PRADARSHANA serves this purpose by providing an opportunity to showcase the innovative ideas among the students from various disciplines and to engage and excel in confronting real world design problems every year. It provides a means for students to put to work various skills acquired in their undergraduate study, including project management, multi-disciplinary teamwork, design skills, and fabrication techniques. Students can demonstrate their creative skills in identifying real world problems, formulating alternative solutions, and systematically arriving at final designs that satisfy various professional standards and realistic design constraints.

I invite students, parents and common public to the Open Day Project Exhibition to witness the work done by our students and appreciate their efforts.

The faculty along with the staff members, students and organizers deserve my heartiest congratulation for taking this wonderful initiative forward. I wish that this event – **PRADARSHANA 2018** achieves its intended purpose and wish a great success.

A handwritten signature in black ink, which appears to read 'N.V.R. Naidu'. The signature is fluid and cursive, written on a white background.

Dr. N.V.R. Naidu

Principal, Ramaiah Institute of Technology

GLIMPSE OF PRADARSHANA 2017



GLIMPSE OF PRADARSHANA 2017



GLIMPSE OF PRADARSHANA 2017



GLIMPSE OF PRADARSHANA 2017



About the OPEN Day

Pradarshana brings together all the students from different branches, professionals from industry, venture capitalists and angel investors all onto a single platform.

Scope of the exhibition goes beyond what is on display as it not only helps showcase the technical prowess of the students but also supports to realize and implement ideas which can be of great good to the society. The event also has participation from the industry to exhibit the latest tools and technology that they have to offer.

The event has received huge footfall over the years and is expected to only increase this year with dignitaries from various educational institutions, delegates from the industry, media personnel, parents and people from all across Bangalore in at the event.

I extend my warm greetings to all and wish the event a grand success.

Dr. Lingaraju G M

Professor, ISE Department
Co- Ordinator (Pradarshana 2018)

About Entrepreneurship Development Centre (EDC)

Entrepreneurship Development Centre at RIT Bangalore is a Platform dedicated to development of multidimensional skills of the students. Creating a forum where we can bring Interdisciplinary students to bring the heterogeneous culture together. It invites various eminent entrepreneurs to deliver lectures to educate students about the joys and hardships of entrepreneurship.

Guest Lectures, Workshops, Case Study, Group Discussions are conducted throughout the year to involve students in activities that are essential to be an entrepreneur. EDC also actively incubates startup ideas by creating required eco system to be an entrepreneur.

Wishing everyone the very best.

Dr. Chethan Kumar C.S

Associate Professor, Dept. of IEM
Co-ordinator EDC

OPEN-DAY Project Exhibition 2018

PATRONS

Dr. M.R. Jayaram

Chairman, GEF

Sri M.R. Seetharam

Hon'ble Vice Chairman - GEF,
Minister for Planning, Statistics,
Science and Technology, Govt of Karnataka

Sri M.R. Ramaiah

Secretary- GEF, Director- RIT

Sri B.S. Ramaprasad

Chief Executive- GEF (Engg.)

Sri G. Ramachandra

Chief of Finance, GEF

ADVISORY COMMITTEE

Dr. N.V.R. Naidu

Principal, RIT

Dr. T.V. Suresh Kumar

Registrar (Academics), RIT

Sri Ramesh Naik S

Registrar (Admn.), RIT

Organizing Committee



Dr. Lingaraju G. M

Professor, Dept of ISE
Co-ordinator Pradarshana

Dr. Chethan Kumar C.S

Associate Professor, Dept. of IEM
Co-ordinator EDC

Members of Pradarshana 2018

Dr. V. Ramachandra Murthy (Maths)
Dr. S. Seema (CSE)
Dr. Annapurna P Patil (CSE)
Dr. K.R. Shobha (Telecom)
Dr. M.K. Pushpa (EIE)
Mrs. S. Dawnee (EEE)
Mr. C.G. Raghavendra (ECE)
Dr. B.G. Jagadeesha Kumar (CIVIL)
Dr. C.K. Narayanappa (Med. Elns.)
Dr. M.N. Chandra Prabha (Biotech)
Mrs. R. Surekha (ARCH)
Dr. P.B. Nagaraj (MECH)
Mr. M.R. Shivakumar (IEM)
Dr. M. Sumana (ISE)
Mr. K.N. Venu (Telecom)
Dr. Viswanath Talasila (Telecom)
Mr. J.S. Sagar (CHEM)
Dr. Rashmi Niranjana (ARCH)
Mrs. Punya Prabha (ECE)
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Dr. G.M. Siddesh (ISE)
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Mrs. Suguna Rao (Civil)
Dr. A. Mahalakshmi (MBA)
Dr. J. Sumalatha (CIVIL)
Dr. R.R. Siva Kiran (CHEM)
Mrs. Apoorvalaxmi (Arch)
Dr. Manish Kumar (MCA)
Mr. Vinayak V. Rao (EEE)
Mrs. M.R. Jyothi (CIVIL)
Mrs. S.B. Rashmi (MBA)
Mrs. Sowmya B J (CSE)

Project Abstracts

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School of **Architecture**



Project Abstracts

2017 - 2018

Business Convention Centre, Mysore		
SL.NO	USN NO.	NAME
1.	1MS13AT001	Aditi Shankar
Mentor Name	Internal Mentor: Ar. Kusum Singh, Ar. Vishwas Hittalmani	
ABSTRACT		
A convention centre is a large building that is designed to hold a convention, where individuals and groups gather to promote and share common interests. A functional space where business and leisure blend in harmony. Serves as large venue suitable for major trade shows offering floor area to accommodate several thousand attendees. It may aesthetically be demarcated into zones catering to different moods- boardrooms, restaurant, entertainmentzones etc		

Institute of Culinary Arts and Hotel Management		
SL.NO	USN NO.	NAME
2.	1MS13AT002	Aishwarya. M
Mentor Name	Internal Mentor: Ar. LavanyaVikram, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>Culinary Institute is an institute which caters to culinary arts and hotel management. Culinary arts peaking at this moment assures that there is an existing market for technology and expertise. The course being in demand creates viable reason for private investors or companies or even hotels to develop facilities to accommodate a school /institute on this emerging trend. It is a good avenue for design exploration, still allowing fast possibilities under this category. Design aims at providing international facilities and modern techniques/equipment in an explorable environment by creating transparency of spaces between both public and private usage allowing both sectors to take away an architectural and culinary learning experience.</p>		

Applied Arts Institute, Mysore		
SL.NO	USN NO.	NAME
3.	1MS13AT004	AkshataRawoorker
Mentor Name	Internal Mentor: Ar. SudhaKumari, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>The institute will teach students fields such as graphic design, curatorial design, industrial design etc. The site selected is in Mysore as it is known as the cultural capital of Karnataka but there is much need for the revival of the visual arts in the region. Along with the institute itself, exhibition spaces would also be included in the campus to get the public involved in the arts.</p>		

Animation Institute, Kochi		
SL.NO	USN NO.	NAME
4.	1MS13AT006	Amal K Ashokan
Mentor Name	Internal Mentor: Ar. KanikaBansal, Ar. Vishwas Hittalmani	
ABSTRACT		
Animation can be considered as the soul of today's movie industry. Kochi being art capital of India provides many opportunities to Film enthusiasts. This Institute is basically a combination of both studio and school. Being a career-oriented institution, students are exposed to the outer world of movie industry through studios. Kochi being a hot and humid region where it rains half of the year, climatological aspects are considered. This design is a combination of both vernacular architecture of the locality with a contemporary design approach.		

Multispecialty Hospital, Varkala		
SL.NO	USN NO.	NAME
5.	1MS13AT007	Anand Rajan
Mentor Name	Internal Mentor: Ar. PreethiAnn Cherian, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>Varkala is a coastal town located towards the southern end of Kerala, and has recently shown a growth in accident rates. The frequency of hospitals is rather paltry, despite this recent rise in rate. The hospital is located such that it's well accesible from the transit points (railway, bus stations) and simultaneously maintains a distance from the hustle and bustle of the centre. The hospital shall accommodate for the humid conditions of the area and shall provide natural lighting and ventilation to the required extent. It shall possess characteristics of modern design, with certain vernacular features.</p>		

International Fashion Hub, Doddaballapur		
SL.NO	USN NO.	NAME
6.	1MS13AT010	Anusha P.M.
Mentor Name	Internal Mentor: Ar. Jyotirmay Chari, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>The project serves as an international forum and fashion stop in India for all fashion-related activities. It program includes learning, designing, production and sampling of products within a suitable environment. The aim is to create a ‘fashion city’ in Doddaballapur in the integrated textile industrial area sanctioned by the government, it is a functional space where business, education and entertainment blend in harmony. Comprises of a fashion institute, an exhibition centre and a retail mall.</p>		

International Convention Centre, Bengaluru		
SL.NO	USN NO.	NAME
7.	1MS13AT011	Apeksha B Ronad
Mentor Name	Internal Mentor: Ar. RajshekarRao, Ar. Vishwas Hittalmani	
ABSTRACT		
Convention market necessitates creating a commercially viable, revenue generating convention destination with an ability to attract large international and national conventions by providing exhibition facilities, shopping plazas, cluster of hotels, adequate parking, to and fro connectivity with international airports, mass transit systems. It should cater to different user groups and must be able to hold larger gatherings including larger events, meetings, rallies, seminars, public shows, trade shows, summits, art and local interest, etc.		

Multi-purpose Flood Mitigation Centre, Morigaon		
SL.NO	USN NO.	NAME
8.	1MS13AT014	Ashwin Nambiar
Mentor Name	Internal Mentor: Ar. Preethi Ann Cherian, Ar. VishwasHittalmani	
ABSTRACT		
The aim of the project is to provide infrastructure to a developing city in Assam that can act as a safe-hub for the people of the city without relying heavily on external support from the Government and other NGO's during the floods in Assam. A primary school, a health-care center, and a mandi/market area that are well interconnected such that during the floods, these areas act as the shelter for people/cattle, provider of health facilities to prevent an outbreak of an epidemic and a storage facility for agricultural produce respectively. This will ensure that the users are of prime importance and the design evolves solely out of the need of the people ,to cater to their necessities and to ensure that the facilities are maintained throughout the year.		

Institute for sports education and training, Dehradun		
SL.NO	USN NO.	NAME
9.	1MS13AT015	Avantika Srivastava
Mentor Name	Internal Mentor : Ar. Anjali C, Ar. Vishwas Hittalmani	
ABSTRACT		
Aim of the project is to provide an open platform for the children above the age of 5 and for the senior citizens to play, learn and brush up their skills as a sports person in their desired field of sports. Furthermore, this institution facilitates other rejuvenating activities like yoga and meditation. The objective of the design is to meet the levels of well-planned and environmentally sustainable institutions for the users.		

National Institute of Drama, Mysore		
SL.NO	USN NO.	NAME
10.	1MS13AT016	Bindhu Shree VL
Mentor Name	Internal Mentor: Ar. Shiv Deepti Reddy, Ar. VishwasHittalmani	
ABSTRACT		
<p>The project aims at providing an educative environment for performing and exhibiting activities along with other areas. It is essential to create and nurture the bond between society, culture and art. Since the country has only two drama schools with potential for providing the necessary facilities located in the Delhi and Trissur both at opposite ends providing unequal opportunities to understand the universally appealing nature.To explore public realm it provides an opportunities to understand the universally appealing nature. Since, Mysore is a Cultural and Heritage city, need for one such institute to develop and remind the most heritage. Significance of heritage and tradition can't be ignored, along with diverse manifestation produced.</p>		

Film Institute, Amaravati		
SL.NO	USN NO.	NAME
11.	1MS13AT017	Bodapati Neerisha Bhaskar Naidu
Mentor Name	Internal Mentor: Ar. Apoorva Lakshmi, Ar. VishwasHittalmani	
ABSTRACT		
<p>Films and media area a part of our daily life and have a huge impact on us based on the kind of films we watch. The proposed thesis is to design a film institute in Amaravathi, the capital city of Andhra Pradesh, the state with a huge fan base for films. Films and architecture are very similar, we see them and feel them. The thesis attempts to design a space that will create an inspiring creative motivating experience so that the students can learn the art and science of film and media in the apt spatial environment.</p>		

Facility for Manufacturing and Export of Safety Matches, Sivakasi, Tamilnadu		
SL.NO	USN NO.	NAME
12.	1MS13AT020	Govardan R U
Mentor Name	Internal Mentor: Ar. Apoorva Lakshmi, Ar. Vishwas Hittalmani	
ABSTRACT		
The thesis is development of an industrial facility for manufacturing and export of safety matches, located in Sivakasi, TN. It is an industrial project to cater to the product, production and the producer and aims to be flexible for future development, be motivational to the users thus creating revolutionary design of industrial Architecture.		

Community Club, Mysore		
SL.NO	USN NO.	NAME
13.	1MS13AT021	Haasini Casukhela
Mentor Name	Internal Mentor: Ar. SudhaKumari, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>Gokulam in Mysore is a well-established neighborhood, which lacks an interaction hub for its residents. The community club will not only provide necessary facilities to people but also activate the edges of unsafe zones. The aim is to create activities that will contribute to the society 24/7 while keeping security in check.</p>		

International cricket stadium and academy, Mangalore		
SL.NO	USN NO.	NAME
14.	1MS13AT023	Karthik B Achar
Mentor Name	Internal Mentor: Ar. Jotirmayi Chari, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>My Project is cricket academy and stadium. Stadium is the main structure of the project. It is located in Kenjaar, Mangalore. Since, coastal region does not have proper cricket facilities, it was essential to start an academy in Mangalore. Project consist of majorly stadium and academic block. An academic ground is also provided separately and consist of indoor and outdoor facilities of training. Stadium is the main attraction of the project.</p>		

Intermodal Transit Hub		
SL.NO	USN NO.	NAME
15.	1MS13AT024	Kiran B
Mentor Name	Internal Mentor : Ar. Naga Jyotsna, Ar. Vishwas Hittalmani	
ABSTRACT		
Transportation is one of the main objectives of land. Planned transportation helps in better movement of goods and passengers from one place to another. Growth of public transportation has direct impact over the city's growth and its development. A transit hub is a place where passengers and cargo are exchanged between vehicles or between transport modes. Public transport hubs include train stations, rapid transit stations, bus stops, tram stop, airports and ferry slips.		

Astronomical Research Centre		
SL.NO	USN NO.	NAME
16.	1MS13AT028	Madhu Adhyapak
Mentor Name	Internal Mentor: Ar. Shiv Deepti Reddy, Ar. Vishwas Hittalmani	
ABSTRACT		
The main intention of this design is to encourage astronomical research and technology. Aim of the project is to develop a climatically responsive, self-sustainable, economically viable design parallel to create an understanding of archaeoastronomy among people. The project also aims at creating a tourist attraction at the meteorite crater.		

Extreme sports centre, Bangalore		
SL.NO	USN NO.	NAME
17.	1MS13AT029	Maria Faustina
Mentor Name	Internal Mentor: Ar. JeenoSoa Grace, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>The extreme sports centre located in the sub-urb's of bangalore consists of a BMX and skateboard stadium along with an indoor and outdoor games centre. The built structure will be culmination of science and creativity. The scientific aspect covers the safety part of the design and creativity in design captures the attention of the user as the scale of the project is classified as monumental.</p>		

Fire Station and Museum, Bangalore		
SL.NO	USN NO.	NAME
18.	1MS13AT031	Mohammed Junaid Ahmed
Mentor Name	Internal Mentor: Ar. Kusum Singh, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>The design caters to two thematic units, namely the part dealing with the Fire Station and all its services that is tailored to the distinctive scale of clarifying the functional requirements of fire stations including a training institute to train firefighters. The second part, is dedicated to the Fire Museum and Gallery in the relevant resolution scale, detail and Public accessibility. This work includes in addition to the very issue of fire stations, and associated problems of non-autonomous functions of the museum of firefighting equipment exhibits along with educational facility for the general public for awareness and First aid. The thesis highlights and answers questions concerning the functional relationships of components within the workplace as well as between them. At the end, the work gives us a view on the issue of location, situation display, size, functional relationships and connections in the levels of Fire station Design.</p>		

Institute For Differently Abled, Chikmagaluru		
SL.NO	USN NO.	NAME
19.	1MS13AT032	Mokshashree H C
Mentor Name	Internal Mentor: Ar. Rajshekar Rao, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>Aim of the project is to design educational infrastructure for differently abled people to facilitate them to be a part of mainstream society; rehabilitate differently abled people so they can earn for their livelihood and be part of society; and to help them emotionally, mentally, physically and psychologically. The main focus is on the multisensory elements and not just explore the different tactile effects given to a building for visually impaired. Examine and understanding the different ways in which the differently abled navigate through and experience the built environment will be used to develop architecture that enhances the specific characteristics which help differently abled.</p>		

Wood Research and Recycling Institute, Channapatna		
SL.NO	USN NO.	NAME
20.	1MS13AT033	Muthamma M C
Mentor Name	Internal Mentor: Ar. RajshekarRao, Ar. VishwasHittalmani	
ABSTRACT		
<p>In the wood based industry, only 11.5% of the raw wood obtained from the trees turn out to be the end product. The rest is considered waste. Wood Research and Recycling institute located in Channapatna, Karnataka aims at recycling the wood waste of various forms to produce a varied range of products such as, furniture, wall panels, toys, etc with local traditional aid.The institute also focuses on research for sustainable timber plantation with open forest to support the study.</p>		

Centre For Public Interaction And Rehabilitation Of Transgender		
SL.NO	USN NO.	NAME
21.	1MS13AT034	Nancy Alexander
Mentor Name	Internal Mentor: Ar. Anjali C, Ar. VishwasHittalmani	
ABSTRACT		
Main aim of the project is to divert transgenders from sex work, begging etc. and to provide them shelter and employment. It will be a space for showcasing and developing their talents by providing vocational training. It is also a centre to remove the orthodox mindset of the people by creating a path of interaction. Aim is to design structure where they feel safe in their own skin and this can be achieved with the help of architectural inputs.		

Centre For Illumination Technology, Bangalore		
SL.NO	USN NO.	NAME
22.	1MS13AT036	Nidhi Shivaraj Patil
Mentor Name	Internal Mentor: Ar. LavanyaVikram, Ar. VishwasHittalmani	
ABSTRACT		
With an urge to create awareness on the possibilities of production of electrical energy through renewable resources, this project aims to throw light on the judicious use of it to the best of it's potential in an infrastructure-driven urban development. The design of the museum will attempt to enhance the characteristics of light while generating a poetic experience.The museum of experiential illumination is a building with multiple galleries in which the primary subject is 'Light' that communicates mood and meaning.		

Coworking Campus, Bangalore		
SL.NO	USN NO.	NAME
22.	1MS13AT038	Nihal A Saldanha
Mentor Name	Internal Mentor: Ar. Apoorva Lakshmi, Ar. VishwasHittalmani	
ABSTRACT		
The project is a Co-Working Campus, integrated with the energy of the public and fuelled by the thinkers of tomorrow. Situated in Jakkur, a combination of shared office spaces and student living interwoven with social infrastructure- amenities, restaurants and retail creates an environment of infectious energy and stimulation. A community for startups or freelancers that embodies the essence of entrepreneurial spirit. The thesis aims to encapsulate the core values of co-working- realised by architecture and intensified by sustainability.		

Centre and Institute Of Oceanography, Malvan		
SL.NO	USN NO.	NAME
23.	1MS13AT039	Nikita
Mentor Name	Internal Mentor: Ar. WaqarAbid, Ar. Vishwas Hittalmani	
ABSTRACT		
<p>The thesis is aiming to facilitate conservation of serene waters of Malvan, Maharashtra which would be achieved through a research, development and conservation centre, with state of the art on and off-field facilities. Built-form of this institution, cradled in nature, would instigate interaction and exchange of knowledge between scientists and researchers.The project aims to emotionally move and spur one into action to protect the oceans. Each space stimulates a distinct emotion in the user, through the creation of spatial atmospheres.</p>		

Educational Institution For Rural Children, Medchal		
SL.NO	USN NO.	NAME
24.	1MS13AT042	Nikitha Roy
Mentor Name	Internal Mentor: Ar. Karishma Susan Kurian, Ar. Vishwas Hittalmani	
ABSTRACT		
The Educational institute that is proposed will provide education from KG1- 12th grade.An educational institute not only helps develop the child's mind but will also provide job opportunities to many people living in the area. Hence it is a necessity for this developing world.		

Mixed Use Complex		
SL.NO	USN NO.	NAME
25.	1MS13AT044	Pallavi H.S
Mentor Name	Internal Mentor: Ar. KritiBhalla, Ar. VishwasHittalmani	
ABSTRACT		
<p>The mixed use complex means it is integrated by residential, commercial, recreational and institutional uses, where those functions are physically and functionally integrated, and that provides pedestrian connections. The benefits of these type of projects include, greater housing variety and density, reduced distances between housing, workplaces, retail businesses, and other destinations, more compact development, stronger neighborhood character, pedestrian and bicycle-friendly environments. Walkable, bikeable neighborhoods increased accessibility via transit, both resulting in reduced transportation costs. this project creating greener structures, the common objective of green building is to reduce the overall impact of the built environment on human health and the natural environment.</p>		

Psychiatric and Neuro Disorder Rehabilitation Centre		
SL.NO	USN NO.	NAME
26.	1MS13AT046	Pramodini M M
Mentor Name	Internal Mentor: Ar. WaqarAbid, Ar. Jotirmay Chari	
ABSTRACT		
<p>The neurological disorder in clinical scale can help to examine the impact in the neuro-recovery process, but for stroke survivors, it needs certain amount of time for recovery. For such recovery, a community space with a friendly atmosphere is much needed. Hence the main aim is to provide an atmosphere where the patients get to interact with each other and are involved in activities with nature for their speedy recovery</p>		

Fine arts institute and design technology		
SL.NO	USN NO.	NAME
27.	1MS13AT047	Praveen Kumar S
Mentor Name	Internal Mentor: Ar. Preethi P Cherian, Ar. Jotirmay Chari	
ABSTRACT		
Fine arts institute and design technology. Aim is to develop sensitivity towards campus planning for tangential education perspective and concept of interactivity. Understanding the ideology of the design and translating into built form.		

Centre for building Integrated Agriculture		
SL.NO	USN NO.	NAME
28.	1MS13AT048	Prithiv Vignesh P
Mentor Name	Internal Mentor: Ar. Jotirmay Chari	
ABSTRACT		
The project aims at providing advancement in the field of agriculture, needed to meet the urban needs of the future by fusing Architecture and Agriculture.		

Traffic and Transit Management Centre		
SL.NO	USN NO.	NAME
29.	1MS13AT049	R Sruti
Mentor Name	Internal Mentor: Ar. Jotirmay Chari	
ABSTRACT		
Bangalore has experienced an exponential growth in vehicular population. It has become necessary to establish traffic management centers. A TTMC is an integrated transport facility with a bus depot, bus terminal, centralized user amenities and park and ride facility. It helps to reduce traffic congestion, vehicular population and pollution and will encourage use of public transport systems.		

Heritage Hotel and Resort		
SL.NO	USN NO.	NAME
30.	1MS13AT050	Raksha K
Mentor Name	Internal Mentor: Ar. KanikaBansal, Ar. Jotirmay Chari	
ABSTRACT		
<p>Designing and planning the basic facilities of the heritage hotel and resort. Tourism can have a significantly positive impact on the environment and social development of the area. The demand for a new hotel and resort that integrates green strategies in Mysore is much appreciated due to its blooming tourism. With this kind of outlook, a new facility that can accommodate not just the people from the metro but also tourists from different parts of the country is needed. People are very proud of their local history but don't always express how much they value a place until it's threatened because it adds character and distinctiveness to that area. Heritage is a fundamental in creating a sense of a place for a community</p>		

Nalanda Heritage Center		
SL.NO	USN NO.	NAME
31.	1MS13AT051	Raksha VH
Mentor Name	Internal Mentor: Ar. KritiBhalla, Ar. Jotirmay Chari	
ABSTRACT		
<p>“What is more important in a library, more than anything else, more than everything is that it exists” - Archibald MacLeish. For centuries, the Nalanda ruins, that enriched the Buddhist culture has allured many. This project seeks to reconstruct and highlight the story of forgotten knowledge- the massive library, the stupas and viharas that were burnt down by the Khilji dynasty by creating a knowledge (library) and interpretation center.</p>		

Retail and commercial		
SL.NO	USN NO.	NAME
32.	1MS13AT052	Rashmit S
Mentor Name	Internal Mentor: Ar. LavanyaVikram, Ar. Jotirmay Chari	
ABSTRACT		
<p>A fast growing city needs a node that can fulfill the retail, commercial and cultural needs of a community. The project is located in the green belt of Bangalore and will cater to the needs of the population of the area with retail, hospitality and commercial blocks. The design aims to tackle disparity caused by design to evolve an updated version of a traditional Indian bazaar.</p>		

Para Athletes Sports Training Center		
SL.NO	USN NO.	NAME
33.	1MS13AT054	S Gaurav
Mentor Name	Internal Mentor: Ar. Kusum Singh, Ar. Jotirmay Chari	
ABSTRACT		
The victims of 'Bhopal Gas Tragedy' were innumerable and the number only continues to increase by the year. The factual increase in the quality and quantity of para athletes at international stages (despite the utter lack of facilities for the differently abled) influence this project. This facility is meant to serve as a symbol of hope for the differently abled is Bhopal and the rest of the country.		

Agricultural University and Research Center		
SL.NO	USN NO.	NAME
34.	1MS13AT055	Sahana D
Mentor Name	Internal Mentor: Ar. Naga Jyotsna, Ar. Jotirmay Chari	
ABSTRACT		
The Agriculture University and Research Center is proposed in a small agricultural town, Mandya, Karnataka. The project aims at uplifting the local agricultural and irrigation conditions, also providing its users the best campus experience. The campus features a public museum, encouraging tourism and awareness based on their field of study.		

I.T Park		
SL.NO	USN NO.	NAME
35.	1MS13AT056	Sai Ujjwala Vemuri
Mentor Name	Internal Mentor: Ar. Karishma Susan Kurian, Ar. Jotirmay Chari	
ABSTRACT		
<p>Information technology is a vast field and requires a vast space for people to work. Proposal for I.T PARK is located in Mangalagiri, Andhra Pradesh – to develop the capital of the new state after bifurcation. An office to be designed in a way which caters to the flexibility and freedom to move around for employees rather than a confined space. A space which will encourage the employees towards good efficiency of work. To design a self-sustainable campus by obtaining green methods. To reduce and energy and water consumption. An idea of designing multiple work zones for employees to work where they feel comfortable with.</p>		

Silk Reeling Industry & Training Hub, Bangalore		
SL.NO	USN NO.	NAME
36.	1MS13AT057	Saif Ur Rahman
Mentor Name	Internal Mentor: Ar. Kusum Singh, Ar. Jotirmay Chari	
ABSTRACT		
A revolution in modernizing the silk sector in Peenya, Karnataka. Aim is to seamlessly integrate indoor and outdoor spaces for better working environment and positive human health of the employees.		

Western Ghats Development Centre		
SL.NO	USN NO.	NAME
37.	1MS13AT058	Samaya
Mentor Name	Internal Mentor: Ar. WaqarAbid, Ar. Jotirmay Chari	
ABSTRACT		
<p>The Western Ghats is one of the eight biodiversity hotspots in the world that is need of protection and regeneration in some places. The project is set to explore the design and function of a Biodiversity Research Centre and Interpretation Centre through sustainable building design and the ability to communicate the importance of the rainforest through different architectural elements.</p>		

Bengaluru International Circuit		
SL.NO	USN NO.	NAME
38.	1MS13AT059	Sangam K R
Mentor Name	Internal Mentor: Ar. Karishma Susan Kurian, Ar. Jotirmay Chari	
ABSTRACT		
<p>Bengaluru International Circuit is dedicated circuit for welcoming motorsports to the country and providing safer ground for people who love the speed. The circuit is ready to host all kinds of motorsports events including cars and bikes and also acting as a test ground for the automobile manufacturers in India and a step up for the Country in the field of motorsports.</p>		

Rehabilitation Centre For Drug Addicts		
SL.NO	USN NO.	NAME
39.	1MS13AT060	Sanjana S Hallad
Mentor Name	Internal Mentor: Ar. Preeti Ann Cherian, Ar. Jotirmay Chari	
ABSTRACT		
The project introduces the concept of an integrated community rehabilitation in one of the major drug transit point GOA. Architectural theories regarding spatial experiences that are mainly concentrated towards the stimulation of human sense is adapted, In order to formulate an interaction with the nature. In addition, to create a vacation like ambience to ensure a pleasant stay and complete recovery.		

School for the Visually Impaired		
SL.NO	USN NO.	NAME
40.	1MS13AT061	Sanjana Shetty B
Mentor Name	Internal Mentor: Ar. Naga Jyotsna, Ar. Jotirmay Chari	
ABSTRACT		
School for the visually impaired, training center and residential units. Location: Tumkur main road, Yeshwanthpur, Bangalore. Society acts as a barrier for the differently abled. A barrier free society and safer environment would help the visually challenged to connect with the world. The aim of the school is to help the visually impaired to cope up with the present lifestyle.		

Transit Hub		
SL.NO	USN NO.	NAME
41.	1MS13AT062	Sarah Maryam
Mentor Name	Internal Mentor: Ar. LavanyaVikram, Ar. Jotirmay Chari	
ABSTRACT		
Transit hub consisting of a metro station, bus station, commercial complex and public space with general public amenities, located in Marathahalli, Bangalore.		

Skill Development Centre		
SL.NO	USN NO.	NAME
42.	1MS13AT063	Sejal Sanjay Shanbhag
Mentor Name	Internal Mentor: Ar. KritiBhalla, Ar. Jotirmay Chari	
ABSTRACT		
Skill Development Centre is designed to become a progressively viable, self-sustaining institution, dedicated to the advancement of attitudes, skills and knowledge, necessary for survival in global working environment. A social initiative to catalyze the vocational training, provides a platform for quality practical training of the unskilled and unemployed masses in their field of interest.		

Multipurpose Stadium & Sports Centre		
SL.NO	USN NO.	NAME
43.	1MS13AT064	SharanChandran
Mentor Name	Internal Mentor: Ar. KanikaBansal, Ar. Jotirmay Chari	
ABSTRACT		
The project aims at providing a sports facility for athletes to train and showcase their talents and encourage the younger generation to take up sports. Building such a project in a city, helps to improve the city's infrastructure and has a positive impact on the economy, development and tourism. The multipurpose stadium can host concerts, functions and various sporting events, this way the stadium is used often and stays functional through the year.		

Ayurvedic Hospital and Research Centre		
SL.NO	USN NO.	NAME
45.	1MS13AT065	SherwynZeniyaadh
Mentor Name	Internal Mentor: Ar. Preeti Ann Cherian, Ar. Jotirmay Chari	
ABSTRACT		
The project proposed is an ayurvedic hospital and research center. The project gives a better hospitality to the public with better facilities. Aim is to develop a barrier-free design.		

IT Park		
SL.NO	USN NO.	NAME
46.	1MS13AT066	Shravya N
Mentor Name	Internal Mentor: Ar. KanikaBansal, Ar. Jotirmay Chari	
ABSTRACT		
<p>The intent of the IT Park is to aid private development in the creation of a high quality and aesthetically unified business park development within Bangalore. Encourage superior project design that will attract a wide variety of appropriate businesses to the community that will stimulate job growth and economic vitality and also helps in the development of the locality considering the present needs and issues. Encourage visual continuity of the architecture in terms of climate, mass, scale, materials.</p>		

Cultural Interpretation Centre		
SL.NO	USN NO.	NAME
47.	1MS13AT067	Shreeya Nandhini U
Mentor Name	Internal Mentor: Ar. Kriti Bhalla, Ar. Jotirmay Chari	
ABSTRACT		
<p>India being a culturally diverse nation has many art forms. Though being rich in culture, it is being depleted due to various reasons. The aim of this cultural interpretation center is to enhance the art forms by creating a platform for the artisans to conduct and display their art work, by providing a museum, comfortable work, environment, institute, library, archives and architecturally follow all the principles of Indian architecture in a modern form. The location of Amravati, where the site is located is the new capital being set up for the state- Andhra Pradesh is very ideal as it has need for the restoration and display of all its art, history and culture in a larger scale.</p>		

Multi – Specialty Hospital		
SL.NO	USN NO.	NAME
48.	1MS13AT068	Shruti Kishor
Mentor Name	Internal Mentor: Ar. Preeti Ann Cherian, Ar. Jotirmay Chari	
ABSTRACT		
<p>This multi – specialty hospital is a 200 bed hospital with 10 specialties. The hospital is located in Thrissur. Thrissur is a small budding town and has the capability of becoming one of the major cities of Kerala. It doesn't have many good hospital facilities thus, a need to keep a hospital was a main priority since, after all health is wealth.</p>		

Hospital		
SL.NO	USN NO.	NAME
50.	1MS13AT069	Sindhu Anthony
Mentor Name	Internal Mentor: Ar. Anjali C, Ar. Jotirmay Chari	
ABSTRACT		
The project aims at providing advancement in the field of Health Care by creating something that is approachable & something that leaves a mark of its own.		

Interpretation and Cultural Centre		
SL.NO	USN NO.	NAME
51.	1MS13AT070	Sindhu M
Mentor Name	Internal Mentor: Ar. Anjali C, Ar. Jotirmay Chari	
ABSTRACT		
<p>The thesis proposed is Interpretation and Cultural center, located in Champaner, Gujarat. The design of Interpretation and cultural center intends to enhance the architecture and the local cultural aspects of the place, which seems to be lost in the midst of the modern era. This is going to be achieved through interactive spaces and spaces that help people relate and understand the importance of the place.</p>		

Information Technology Park		
SL.NO	USN NO.	NAME
52	1MS13AT071	Sindhu R
Mentor Name	Internal Mentor: Ar. Anjali C, Ar. Jotirmay Chari	
ABSTRACT		
Information Technology Park in Biomimicry Architecture style where the building acts as a living organism by connecting, responding and becoming a part of the nature. There is demand for IT Parks in Bengaluru and designing a sustainable office space is necessary for the better future and better living conditions.		

Rehabilitation Centre for the Mentally Challenged		
SL.NO	USN NO.	NAME
53.	1MS13AT072	Sitara S
Mentor Name	Internal Mentor:Ar. JeenoSoa George, Ar. Jotirmay Chari	
ABSTRACT		
<p>The aim of the project is to provide an infrastructure which enables a holistic approach towards promoting the psychological well-being of mentally challenged children and their parents. The project addresses specific treatment of the disabled, educational programs for the parents/affected family members, sensory garden which is a platform of varied exercises to improve sensory/motor/social well-being.</p>		

Cultural Centre		
SL.NO	USN NO.	NAME
54.	1MS13AT074	Smera Rose Jacob
Mentor Name	Internal Mentor:Ar. KanikaBansal, Ar. Jotirmay Chari	
ABSTRACT		
<p>This proposal for a Cultural Centre, along the Sabarmati River, Ahmedabad is a conscious effort to reconnect the city to its river through the one thing the state is known for, its Culture. Hence, creating a cultural link between the city and its river will create a platform to embrace the fraying history and culture of the state and will restore the missing link between artists and the public. The site chosen for this project is on the western banks of Sabarmati River, Ahmedabad, Gujarat.</p>		

Naturopathy Healing Centre		
SL.NO	USN NO.	NAME
55.	1MS13AT075	Smitha H B
Mentor Name	Internal Mentor: Ar. RajshekarRao, Ar. Jotirmay Chari	
ABSTRACT		
<p>Naturopathy is natural approach to health and healing that recognizes the integrity of whole person. Aim of the project is to explore how architecture can inform healing or provide spaces and events where healing can take place. To design a healing center that act as the space for well-being, self-sustained built environment that provokes mental and physical healing.</p>		

Luxury Hotel (5 Star), Bengaluru		
SL.NO	USN NO.	NAME
56.	1MS13AT076	Sowmini Suresh
Mentor Name	Internal Mentor: Ar. Anjali C, Ar. Jotirmay Chari	
ABSTRACT		
<p>The hotel aims on serving several different clients with different uses such as travelers visiting the city on work or for leisure with state of the art luxury rooms and amenities to make their stay comfortable. Local residents with banquet halls for their personal use, restaurants and a place for them to shop and unwind at. The site also happens to be located next to Manyata Tech Park, this is an added advantage as this increases the base of clients in the vicinity.</p>		

Art and Culture Centre run by NGO's		
SL.NO	USN NO.	NAME
57.	1MS13AT078	Srivastav Ravi
Mentor Name	Internal Mentor: Ar. LavanyaVikram, Ar. Jotirmay Chari	
ABSTRACT		
<p>The project being proposed is an Art and Cultural Centre run by NGO's, located in Rachenahalli, Bangalore. The project intends to act as a space of congregation for NGO's volunteers and as a space for individuals to come and take part in the different activities organized by the NGO's. The center would aim to bring Indian art forms easily approachable by the people. The center would house various activities undertaken by the NGO, which will be planed across various blocks with distinct features and Indian ornamentation features in modern abstract sense.</p>		

Naturopathic Healing Center		
SL.NO	USN NO.	NAME
58	1MS13AT079	Sunayana R Shreedhar
Mentor Name	Internal Mentor:Ar. Kusum Singh, Ar. Jotirmay Chari	
ABSTRACT		
<p>Establishing a Naturopathic Center in Sagar will help in creating employment to the tribal/ethnic community who reside there. The aim of this facility is to provide a unique environment where patients can seek care and treatment that a conventional hospital would not offer. The medical care given will follow the principles of naturopathic medicine as will the architecture of the facility, by responding to and interacting with the natural environment. The therapies rely on the response of the senses of human body, so the programmatic organization of spaces will also relate to the responses of the senses.</p>		

Urban Centre		
SL.NO	USN NO.	NAME
59.	1MS13AT080	A R Sunidhi
Mentor Name	Internal Mentor: Ar. SudhaKumari, Ar. Jotirmay Chari	
ABSTRACT		
Today's cities require urban centers to cater to leisure and pleasure needs of the people. Design aims at creating a satisfying space, to reduce travel time, increase efficiency and facilitate links among users on and off at the same time address the needs both current day and needs of the future.		

Business convention Cum Recreational center		
SL.NO	USN NO.	NAME
60.	1MS13AT081	Supreetha R Dasappa
Mentor Name	Internal Mentor:Ar. JeenoSoa George C, Ar. Jotirmay Chari	
ABSTRACT		
<p>The aim of the project is to create a leisure environment for people of all age groups, an environment which relaxes their mind and body. This is clubbed along with a Business convention center, which will have visitors from national and international level. Hence the site is located in Hebbal, which is close to the airport, making it convenient for the visitors.</p>		

Multi-Specialty Hospital		
SL.NO	USN NO.	NAME
61.	1MS13AT082	Suraksha J
Mentor Name	Internal Mentor:Ar. Apoorva Lakshmi, Ar. Jotirmay Chari	
ABSTRACT		
<p>Healthcare is the basic need and right of every citizen. India has a huge and growing population and less number of hospitals. The proposed thesis is a 150 bedded Multi-Specialty Hospital located in Kyathsandra, Tumkur with around 10 Specialties. The Design is based on various layers such as Functionally, Climatology, Acoustics and Sustainability and provides exceptional service and treatment in an environment where nature is never far from view with design elements that can aid treatment by bringing the 'Outside In'. It aims to foster better healing through connect with nature.</p>		

Veterinary Hospital and Institution		
SL.NO	USN NO.	NAME
62.	1MS13AT083	Sushmitha S
Mentor Name	Internal Mentor:Ar. Kriti Bhalla, Ar. Jotirmay Chari	
ABSTRACT		
<p>India has only about half the veterinary doctors that it needs, and not enough veterinary colleges to address this shortage. There is a stark lack of training and basic equipment. And also for serving animals, to conserve them and to encourage veterinary education in India. The project will have both built for and open interactive spaces. Built form having operating rooms, examination rooms, laboratory and lecture halls. The design will incorporate user friendly environment for the pets, animals, owners and the staff.</p>		

Mixed Commercial Development		
SL.NO	USN NO.	NAME
63.	1MS13AT084	Tangella Sai Surya Krishna Praneeth
Mentor Name	Internal Mentor : Ar. Jotirmay Chari	
ABSTRACT		
The topic is shopping mall with commercial high rise building. It is located in Rajahmundry, Andhra Pradesh, because there is a scarcity of shopping malls in this region and high rise space always helps for the footfall of the mall.		

Multi Art Centre		
SL.NO	USN NO.	NAME
64	1MS13AT085	Thressia Paul Kattookaren
Mentor Name	Internal Mentor:Ar. Apoorva Lakshmi, Ar. Jotirmay Chari	
ABSTRACT		
<p>The thesis proposed is a Multi art center, located in Dwarka, Delhi. The design of the multi art center intends to bridge the gap between art and society and attempts to bring together cross cultural dialogues and interaction of students, artists and patrons in a single space. This is going to be achieved through interactive designs in facades as well as by creating inviting interactive spaces that act communal spaces in bringing people together.</p>		

Resort with a Convention Centre		
SL.NO	USN NO.	NAME
65.	1MS13AT086	Tripuramallu Mounica
Mentor Name	Internal Mentor:Ar.SudhaKumari, Ar. Jotirmay Chari	
ABSTRACT		
A resort with a convention center in Amaravathi city which is the new capital city of United AP as it attracts tourism and has no proper facilities for accommodating the tourists and a convention center for all the delegates that attend the meeting in the capital.		

Multispecialty Hospital		
SL.NO	USN NO.	NAME
66.	1MS13AT087	Vinay Kumar A M
Mentor Name	Internal Mentor:Ar. JeenoSoa George, Ar. Jotirmay Chari	
ABSTRACT		
<p>Due to the rapid growth of the city, life style of the people has changed. This leads to the diseases, to overcome this a good hospital is required. A multi-specialty hospital is essential part of urban mass for good and a healthy environment to provide best medical support or medical aid to the people. The site is located in Kenchanahalli, RR Nagar, Bangalore.</p>		

Institute of Physical Medicine and Rehab		
SL.NO	USN NO.	NAME
67.	1MS13AT088	Y Sree Ankitha
Mentor Name	Internal Mentor: Ar. KritiBhalla, Ar. Jotirmay Chari	
ABSTRACT		
<p>The aim of the project is to bring together all the requirements and services needed by the physically challenged from getting personalized prosthetics to rehabilitation and occupational therapy. Our country has the second largest number of amputations taking place over a year but the resources available are few. Centers providing both prosthetics and rehab are very scarce in South India, which became the base for my site selection. I chose a site in Bangalore, a well-connected city to its neighboring states through various transportation. So many patients undergo traumatic experiences which become their reason for amputation, hence my design will present a natural environment that is both sensitive and calming to the patients. The reason I chose this project is because I am one of those family members who had the chance to understand the need for an institution like this when my brother underwent amputation due to an accident.</p>		

De-addiction and Rehabilitation Centre for the Substance Abuse		
SL.NO	USN NO.	NAME
68.	1MS13AT089	Yashaswini S Dath
Mentor Name	Internal Mentor : Ar. Nagajyotsna, Ar. Jotirmay Chari	
ABSTRACT		
More than 70% of the youth under the age of 30, in Punjab are affected by substance abuse. Even though there are many de-addiction centers cropping up, the patients are victimized and are under brutal care. This de-addiction center will be a holistic place for them to recover and get them trained in vocational activities.		

Integrated Senior Care Facilities		
SL.NO	USN NO.	NAME
69.	1MS12AT060	Shanthanu S Ashok
Mentor Name	Internal Mentor: Ar. Karishma Susan Kurien, Ar. VishwasHittalmani	
ABSTRACT		
<p>The thesis aims at designing an off- grid senior care facility, via the architectural integration of the concepts of sustainability, community living, communal harmony, personal luxury, & personalized medical care. The idea was to not only cater to the users' medical & therapeutic necessities, but also incorporate the cultural & recreational aspects as well.</p>		

DEPARTMENT OF **BIOTECHNOLOGY**



Project Abstracts

2017 - 2018

Liver targeted delivery of anti-cancer agents from Polyalthialongifolia

SL.NO	USN NO.	NAME
1	1MS14BT007	Arul Yuthika
2	1MS14BT013	Harshini N
3	1MS14BT018	KavyaVeera
4	1MS14BT054	Supriya K
Mentor Name	Internal Mentor: Dr. Ravikumar. Y. S	

ABSTRACT

Hepatocellular carcinoma is one of the most common human malignancies worldwide with high morbidity. Though chemotherapy is always the ubiquitous strategy, it lacks adequate selectivity and targeting efficacy. Thus, novel drug delivery systems for the treatment of liver cancer have been developed and investigated. Research shows that surface functionalization of nanomaterials using glycyrrhetic acid (GA) as a drug delivery targeting ligand was beneficial to the defined receptor recognition on the surface of hepatoma cells. Acetogenins are important long-chain fatty acid derivatives found exclusively in the Annonaceae family. The Annonaceousacetogenins offer a unique mode of action (ATP depletion) against Multi Drug Resistant (MDR) tumors. Targeted drug delivery to defined cells enhances therapeutic effects and minimizes side-effects of therapeutic drugs. It can be achieved via specific recognition processes, including ligand-receptor, antibody-antigen recognition and vehicle transport. Targeted drug delivery systems also protect the drug from rapid degradation or clearance and enhance drug concentration in target tissues. In view of this we have first designed synthesized liver specific drug carriers by conjugating BSA (Bovine Serum Albumin, drug carrier) with glycyrrhetic acid (liver specific ligand). Later, we have loaded this liver targeted BSA with seed extract of Polyalthialongifolia containing Annonaceousacetogenin and characterized drug loading efficacy of BSA using UV and IR spectroscopy. Finally, the liver specific BAS loaded with anticancer extract was tested for the liver specific anticancer effect on hepatoma cells using MTT assay.

Investigating the association between cell surface glycosylation patterns and breast cancer progression

SL.NO	USN NO.	NAME
1	1MS14BT004	Anagha Srinivas
Mentor Name	External Mentor : Dr Ramray Bhat Internal Mentor : Dr Abhijith S R	

ABSTRACT

One of the most common type of cancers leading to approximately 571 000 deaths globally is breast cancer. Breast cancer is a heterogeneous group of neoplasms originating from the epithelial cells lining the milk ducts. Breast tumors evolve via sequential progression through defined stages, starting with epithelial hyperproliferation and progressing to in situ, invasive, and metastatic carcinomas. Accumulation of genetic abnormalities in the breast tissues over time, leads to aberrant mutations that eventually initiate development of a colony of cells that are pathologically abnormal. Changes in glycosylation associated with oncogenic transformation were first described over more than six decades ago. Tumour cells display a wide range of glycosylation alterations compared with their non transformed counterparts. The four major alterations seen are the changes in sialylation, fucosylation, O-glycan truncation and N, O – glycan branching. This altered glycosylation pattern is responsible for many events which facilitate cancer development and progression. My project focusses on studying the altered glycosylation pattern in breast cancer progression. The cell lines representing progressive stages of breast cancer were stained with specific carbohydrate binding proteins called lectins (FITC conjugated) and imaged using confocal microscopy and fluorescence assisted cell sorting to analyse the glycosylation alterations in terms of the sugars and spatial conformation. Currently I am focussing on the changes in fucosylation pattern in breast cancer progression along with the related functional changes by the quantitating the expression of fucosyltransferases and fucosidases. This would provide a clue about the tumour microenvironment in breast cancer progression and would serve as an efficient prognostic tool.

Molecular & Serological diversity of Mungbean Mosaic virus CP gene		
SL.NO	USN NO.	NAME
1	1MS14BT030	Naomi Sanjana Sharath
2	1MS14BT010	Farheena Tabassum
Mentor Name	External Mentor : Dr Anitha Peter Internal Mentor : Mrs. Bhavya S G	
ABSTRACT		
<p>Mungbean (<i>Vigna radiata</i>) is one of the most important legumes grown in India. The major constraint for the cultivation of mungbean is Mungbean Yellow Mosaic Virus (MYMV) disease. This disease is caused by a virus called Mungbean Yellow Mosaic Virus. MYMV disease causes major yield loss & available control methods are not efficient to control the disease. Development of plants resistant CP gene helps in control of this. Our current baseline is to study the molecular diversity of CP gene of MYMV isolates from 3 different places i.e. Dharwad, Bidar & Belgaum. The mungbean leaves were taken and the MYMV genomic DNA was isolated using SDS method. Molecular characterization of CP gene was carried by amplification using specific primers after DNA isolation from infected leaf samples. Then amplified product was cloned into PTZ vector & transformed into competent E.coli DH5α cells followed by selection of recombinant colonies which was done by blue white colony screening and PCR using gene specific primers then sequencing. The sequence analysis and identity conformation of the collected viral strains is done using bioinformatics tools. Our work also includes the assessment of serological relatedness of strains against the Bengaluru isolate's polyclonal antibodies by indirect ELISA plate technique.</p>		

Secondary Metabolite Quality Assessment of Organic Food		
SL.NO	USN NO.	NAME
1	1MS14BT002	AbhijeetJagadeeshKulkarni
2	1MS14BT041	S SanchaliPreethi
Mentor Name	External Mentor : Dr. K N Chidambara Murthy Internal Mentor : Dr. Bindu S	
ABSTRACT		
<p>Amidst the crisis regarding deteriorating quality of food, a raging topic has been organicfood stuffs and their potential benefits. Organic food has been a debatable topic fordecades. Largely, it is claimed to be safer, beneficial and effective as nutrient and healthpromoter yet expensive. Through our survey that included organic growers and retailers,we observed the widespread societal notion that gives organically grown crops an upperhand at being the healthier option. Its apparent benefits have been reported, yet, conclusiveproof does not exist to claim regarding its superiority in terms of both nutritional andhealth promotion. In our study, we compare the most commonly used organically grownvegetables and fruits to the conventionally grown ones in terms of quantity of healthpromoting compounds such as flavonoids, carotenoids, saponins and phenolics. We used spinach, fenugreek, coriander, cabbage, onion, garlic and guava in our study. Additionally, we test for antioxidant potential ofboth, organic and conventionally grown fruits and vegetables as primary indicator of health benefit. By our analysis we aim at arriving at a definiteconclusion regarding the health benefits of organic foods and bring about public awarenessinvolving the myths associated with organic foods over conventional counterparts.</p>		

Delineation of Cellular Signaling Pathways during Fungal Infections

SL.NO	USN NO.	NAME
1	1MS14BT038	Raksha P
Mentor Name	External Mentor : Dr. K.N. Balaji Internal Mentor : Dr. Y.S. Ravikumar	

ABSTRACT

Infectious diseases caused by various pathogens are major sources of mortality and morbidity around the world. Fungal infections are a major concern to health in the developing and under developed nations. Global Action Fund for Fungal Infections estimates over 300 million people with serious fungal infections and 25 million run the risk of losing their life/eyesight. These fungal diseases are majorly preventable. In spite of the risks posed by fungal pathogens, there is a dearth in the understanding of the host-pathogen interaction with respect to eukaryotic pathogens. Elaborate understanding of host-pathogen interactions is important to comprehend disease pathologies and design effective therapeutics. The proposed study aims to understand the mechanisms regulating cellular processes in macrophages upon fungal infections. The eventual results from the study would help understand the diverse molecules implicated during fungal diseases. The effect of curdlan on macrophages was assessed by comparing the expression pattern of the molecules NICD (Notch Intracellular Domain), Jagged-1 (a ligand for NOTCH) and Hes1 (nuclear protein) with untreated controls at the protein level by Western Blotting at various time intervals and the same will be validated at the transcript level by quantitative real-time PCR. The project is aimed at elucidation of the key mechanisms at the host-pathogen interface that aid the pathogen's establishment and its subsequent growth and proliferation within the host cellular milieu.

Lipid Mobilization in *Caenorhabditis elegans* gut under abiotic stress

SL.NO	USN NO.	NAME
1	1MS14BT016	Jyothi.B.R
Mentor Name	External Mentor : Dr. Varsha Singh Internal Mentor : Dr. P.Dhamodhar	

ABSTRACT

Caenorhabditis elegans is a free-living microscopic nematode which dwells in soil and rotting vegetation. They are non-pathogenic, non-parasitic, non-infectious worm which measures about 1mm in length and survives by feeding on microbes, primarily bacteria. *C. elegans* is used as a model organism to answer various questions in biological research including immunology, genomics, cell biology, neuroscience and aging. The intestine is the major metabolic organ for *C. elegans*, and performs numerous functions including food absorption, incorporation of nutrients into metabolic pathways, fat storage and utilization, detoxification, pathogen defense and more broadly, the management of energy flow over the lifetime of the animal. Many pathways that are involved in energy homeostasis regulation are conserved in humans and in *C. elegans*. Genetic conservation allows ancient features of fat storage endocrine pathways to be explored in them. The current study deals with answering how lipid homeostasis is regulated in *C. elegans* during abiotic stress. This is done so by exposing the synchronized culture of *C. elegans* containing young adults to different abiotic stress like Heat stress, Cold stress, Osmotic stress and Oxidative stress for different time points. After the exposure, the lipids are stained using Oil Red O stain and quantified using the software ImageJ. These survival assays measure worms' resistance against various abiotic factors. Under all these stress lipid mobilization was observed and it could possibly be to combat the stress. The resultant data from these assays could lead to better interpretation of abiotic stress tolerance in *Homo sapiens*.

Igfbp2 Induced B-Catenin Dynamics In Glioblastoma Cells		
SL.NO	USN NO.	NAME
1	1MS14BT029	Nanda Kumar S
2	1MS14BT015	Joyson Verner D'costa
Mentor Name	External Mentor : Prof. Paturu Kondaiah Internal Mentor : Dr. Abhijith.S.R	
ABSTRACT		
<p>Glioma or Glioblastoma is a tumor of the brain or spine. Glioblastoma (GBM) comprises 45% of all glioma and is associated with the poor prognosis. The serum concentration of Insulin-like growth factor-binding protein 2 which is encoded by the IGFBP2 gene is found to be upregulated in GBM patients. C-terminal domain of IGFBP2 has a RGD motive which interacts with cell surface integrins and results in the stabilization of β-catenin. This IGFBP-2 induced β-catenin activity could be a major contributor in determining IGFBP2 mediated aggressiveness of GBM. The stabilized β-catenin has important role in cell cycle progression, apoptosis and cellular transformation. It is found that the accumulation of β-catenin helps in the growth of tumor. Interestingly it was observed that IGFBP2 stabilized β-catenin mostly remain localized to cytoplasm. This observation has put forth an interesting question, "is it because of nuclear-cytoplasmic shuttling of β-catenin? or is there a prominent degradation of β-catenin in the nucleus?". We have started testing our first hypothesis whether IGFBP2 stabilized β-catenin is shuttling between nucleus and cytoplasm. To test that we have looked at putative β-catenin target expression at transcript level at early time points. Towards that objective RNA has been isolated from IGFBP2 treated LN229 cells at different time intervals, followed by the construction of cDNA , qPCR and gel electrophoresis. To validate the presence of β-catenin in cell, western blot was carried out. However our study is focused on validating the activation of gene transcripts by β-catenin involved in the progression of glioma.</p>		

Behavioral deficits for quantifying attention deficits in Alzheimer's disease		
SL.NO	USN NO.	NAME
1	1MS14BT023	M Vaishnavi
Mentor Name	External Mentor : Prof. Sridharan Devarajan Internal Mentor : Dr. Dhamodhar P	
ABSTRACT		
<p>Attention and working memory deficits commonly occur in Alzheimer's disease (AD), and manifest even in patients with mild cognitive impairment (MCI). MCI patients are able to perform simple attention tasks, but show specific deficits in complex attention tasks that require them to allocate attentional resources efficiently. Here we applied a recently developed multi-alternative attention task to quantify deficits with sub optimal attentional allocation in MCI/AD. Subjects monitored and reported a change in the orientation of one of two gratings, located on opposite visual hemifields. Subjects' attention was cued with a spatial arrow cue. We quantified the subjects' psychometric functions of accuracies and false-alarm rates, and the reliability of these behavioral metrics was confirmed. The paradigm was tested with 70 elderly volunteers who varied widely in their cognitive test scores. We observed systematic correlations or trends between key behavioral metrics in our task and scores in a variety of established tests of executive function (Stroop test), language (ACE-III Fluency), working memory (Digit Span/Backward) and learning (Auditory Verbal Learning). Subjects, who performed poorly on these test scores, consistently exhibited a lower proportion of correct rejections, and a higher proportion of false-alarms toward the attended (cued) location.</p>		

Identification and growth characterization of Marine Endophytic Fungi with reference to bioactive potential

SL.NO	USN NO.	NAME
1	1MS14BT019	Krupa Ramachandran
2	1MS14BT024	Malathi. D
Mentor Name	External Mentor : Prof. C Jayabaskaran Internal Mentor : Dr. K.N Lokesh	
ABSTRACT		

Cancer is a major health problem due to its high rate of morbidity and mortality. Severe side effects are associated with most of the available anti-cancer drugs, hence we are focusing on natural compounds with minimal toxicity. Certain secondary metabolites produced from endophytic fungi show potent bioactivity.

Endophytic fungi are a potential source of pharmacologically important and bio-active molecules. Especially marine endophytic fungi have the ability to synthesize novel metabolites due to its high salinity, high stress and unexplored marine environmental status. With this view, in this study, two endophytic fungal strains were isolated from marine algae (GCoSS-35, CASS-44) and CR-11 fungal strain was obtained from IISc-CJB laboratory. All fungi were subjected to growth optimization using different media. Identification of these fungi was carried out by molecular techniques (ITS 1 and ITS 4).

Further these fungal extracts were subjected to cytotoxicity test against HeLa cancer cell line using MTT assay and anti-bacterial activity tests were performed. The crude extracts were analyzed by TLC to understand the class of secondary metabolites using spray reagent like Terpanoids, Phenolics, Amines etc. These active fractions will further be partially purified and subjected to LC-MS analysis.

Therefore, the identification of bio-active natural products capable of cytotoxic activity in cancer cells and antibacterial activity has become an important goal of research.

Ecological assessment of *Gymnacantharacanicarica*

SL.NO	USN NO.	NAME
1	1MS14BT047	ShreyaSatagopan
2	1MS14BT027	Sri HarshaVishwanath
Mentor Name	External Mentor : Dr. G. Ravikanth Internal Mentor : Mr. Gokulakrishna M	
ABSTRACT		

Gymnacantharacanicarica is a revered species of the sacred groves in the Western Ghats. It is an economically important nutmeg species. The *G. canarica* species in particular, are highly specialized and conditioned to their habitat. Our study was to confirm the increasing threats of the habitat fragmentation and land extraction, on the genetic structure of the obligate swamp species, specifically, *G. canarica*. The following population diversity indices: mean number of alleles per locus (A), expected (HE) and observed (HO) heterozygosity, inbreeding coefficient (FIS) across all loci and allelic richness (AR) were calculated for each population. Our work involves isolation and amplification of genomic DNA from *G. canarica*, by using the 18S ribosomal DNA as molecular markers. Through genotyping and scoring, the allelic frequencies for the populations are determined for further analysis. Therefore, the studies are conducted to develop conservation strategies.

11-Over Expression and Purification Of SIRT1 for Development of SIRT1 ELISA Kit		
SL.NO	USN NO.	NAME
1	1MS14BT017	K Sulochana Swathi
Mentor Name	External Mentor : Ramesh M Internal Mentor : Dr. Sharath R	
ABSTRACT		
<p>SIRT1, initially identified as a histone deacetylase also directly deacetylates several other proteins using NAD+ as a substrate. It acts as a global regulator of several cellular functions like metabolism, inflammation, cell cycle, cell survival and aging. Yet another factor which has a systemic influence is Yoga. There is a convergence of Yoga and SIRT1 in the functions/process they regulate. Understanding if Yoga regulates afore mentioned functions by regulating SIRT1 has immense importance for health sciences. A cost effective and robust technique to quantitatively evaluate SIRT1 is ELISA. Commercial ELISA kits for sirt1 evaluation are readily available, but are not cost effective for a research lab. The project I have undertaken endeavors to develop an in-house ELISA kit for SIRT1 estimation. My part in the project will be to overexpress sirt1 using bacterial expression system and to purify the overexpressed protein. I will be starting with sourcing plasmid with IPTG inducible sirt1 gene (with 6X his tag) from a commercial source. This will be followed by transformation of the plasmid into an E.coli strain and culture & overexpression by IPTG induction. This will be followed by three step purification using HPLC, first with his tag followed by ion exchange and size exclusion purification.</p>		

Isolation & Identification of Tardigrade sp. from IISc campus and analysis of its stress tolerance in various extreme conditions		
SL.NO	USN NO.	NAME
1	1MS14BT055	Swathi Prakash
Mentor Name	External Mentor : Dr. Sandeep M Eswarappa Internal Mentor : Dr. Sravanti V	
ABSTRACT		
<p>Tardigrades are microscopic, water-dwelling animals found all over the Earth. They belong to phylum Tardigrada which comes under the superphylum, Ecdysozoa. They are well known for resisting different stress conditions like ionizing radiations, different temperature, pressure and solvent exposure. Certain tardigrades can endure complete desiccation by entering into a state called 'Tun'. The tun formation is achieved through the process of anhydrobiosis and in this state tardigrades are capable to resist different stress conditions. As a part of this project, we were successful in isolating tardigrades from moss samples growing on tree barks inside IISc campus. Using morphological and molecular methods, the isolated specimen was found to belong to the genus Paramacrobiotus. The hydrated and tun state of the newly isolated tardigrade were exposed to various stress conditions like UV radiation (UV-C) and different temperatures (-200C and 650C). We have found that Paramacrobiotus sp., showed resistance towards UV-C radiation and exposure to -200C when compared to a less tolerant species, Hypsibius dujardini. The next step is to identify the possible mechanisms for UV radiation tolerance in Paramacrobiotus sp. Tardigrade survival in space vacuum and low Earth orbit conditions indicates that they can be used as a model system for Astrobiology. This can provide an insight into the possibility of the existence of life, elsewhere in the Universe. Also, understanding the molecular mechanisms of tardigrade stress tolerance can unveil different technological innovations that can be used in various aspects of human life.</p>		

Punica granatum derived nano ZnO: DNA protection from oxidative damage and cytotoxic effect on cancer cells.

SL.NO	USN NO.	NAME
1	1MS14BT001	Aayush K. Singh
2	1MS13BT012	Debanjan Datta
3	1MS14BT021	Lokesh Kumar Singh
4	1MS14BT049	Omkareshwar Sonawane
Mentor Name	Internal Mentor : Mr. Samrat K	

ABSTRACT

ZnO has a wide variety of applications, much of current industry and day-to-day lives critically rely upon this inorganic compound. However, with the advent of nanotechnology it is possible to explore new properties of ZnO at nanoscale dimension which has led to a renewed interest in this material. Thus, ZnO in nanoscale has shown antimicrobial properties and potential applications in food preservation. ZnO is a bio-safe material that possesses photo-oxidizing and photo catalysis impacts on chemical and biological species. Recently, ZnO nanoparticles have been incorporated in polymeric matrices in order to provide antimicrobial activity to the packaging material and improve packaging properties. The interaction of nanoparticles with microorganisms and biomolecules is an expanding area of research, which is still largely unexplored yet. In this study, ZnO nanoparticles have been synthesized via green synthesis route using pomegranate (*Punica granatum*) peel extract. The synthesized particles are black in colour which is very unique to the usual white coloured ZnO nanoparticles obtained through the green synthesis route. This unusualness of ZnO nanoparticles are being studied and explored for its potential benefits in antimicrobial, anticancer and also as a DNA protectant.

Adsorptive removal of textile dye using activated coffee husk as a low-cost adsorbent

SL.NO	USN NO.	NAME
1	1MS14BT005	Aparna Umesh Shetty
2	1MS14BT020	Kruthi M
Mentor Name	Internal Mentor : Krishna Murthy T P	

ABSTRACT

Dyes are the one of the major pollutants found in the industrial effluents responsible for water pollution. Effectiveness of adsorption for dye removal from the waste water has made it an ideal alternative to other expensive method. Objective of this study is to investigate the adsorption potential of activated carbon prepared from coffee husk, pre-treated with sulphuric acid for the removal of malachite green dye from the aqueous solution. Prepared activated carbon was analysed for the surface charge, functional group, surface topography by zero point charge, FTIR and SEM respectively. Batch adsorption studies were performed for the adsorption of dye by varying different parameter viz. adsorbent dosage, initial dye concentration, pH, temperature, contact time. Response surface methodology was performed to determine the optimum condition for adsorption. Experimental data were analyzed by isotherm equations such as Langmuir, Freundlich, Dubinin Radishkovich, Temkin, Redlich and Peterson, Sips. Kinetic studies were performed using different models. Thermodynamic parameters were also calculated for the adsorption process. It is inferred from the results that activated carbon prepared from the coffee husk is very effective and economically viable adsorbent for the removal of malachite green from the aqueous solution.

Elucidating the fate of thinning agents on stoichiometric combination of oil mixtures for biodiesel production

SL.NO	USN NO.	NAME
1	1MS14BT012	Gowthami B M
2	1MS14BT045	Sanmitha S J
3	1MS14BT046	Shreya M
Mentor Name	Internal Mentor : Dr.Lokesh K. N	

ABSTRACT

At present, most of the biodiesel production protocol reported rely on natural plant-based resources and more over many reports have highlighted that kinematic viscosity and flash point as a major drawback for commercialization of biodiesel on large scale. In the present investigation we are trying to improvise kinematic viscosity of biodiesel by reducing degree of saturation with the help of novel concept, i.e. thinning agents (sodium ascorbate, citric acid among other) during pre-processing stage which includes acid treatment, alkaline transesterification process and finally thinning process. We are also interested in carrying out biodiesel production with the help of standardized stoichiometric ratios of oil mixture (castor, neem and pongamia oil). Outcome of this process may be used to compensate burden on plant-based resources and generate revised technology for biodiesel production.

Standardization of a PCR Protocol to determine number of CGG Repeats in FMR1 Gene in Lung Samples

SL.NO	USN NO.	NAME
1	1MS14BT027	Mridula A. Srinivas
Mentor Name	External Mentor : Dr. Arjun Guha Internal Mentor : Dr. Ahalya N	

ABSTRACT

A 2015 WHO report states that lung diseases account for 11% of total deaths in India. The lung has moderate expression of Fragile X Mental Retardation gene (FMR1). FMR1 is located on the X chromosome and has a triplet CGG repeat in its 5' untranslated region. When the expansion of this repeat is over 200, there is no production of FMR protein (FMRP), whose function in the lung is unclear. The lung also highly expresses the Cytoplasmic FMRP Interacting Proteins (CYFIP1/2), which interact exclusively with FMRP. Studies have reported FXS-affected individuals to have higher incidence of respiratory problems. Further, studies conducted by my lab show that FMRP expression in lung helps greater tolerance to oxidative stress and faster repair of damaged tissue. This project aims to standardize a PCR protocol, based on established protocols, to determine the number of CGG repeats in FMR1. This protocol could then be used for large-scale, rapid initial screening of CGG-repeat expansion in FMR1 in Indian lung samples. As a correlation between FMRP expression in lung and lung disease has not been reported, this study serves to establish a relationship between the two, which could help determine risk and early diagnosis of lung disease.

PCR Amplification and Transformation of Glycoside Hydrolase enzyme in Bacteria		
SL.NO	USN NO.	NAME
1	1MS14BT039	Ranjani S
Mentor Name	External Mentor : Dr. Geetha Hiremath Mendez Internal Mentor : Dr. Ahalya N	
ABSTRACT		
<p>Enzymes found in nature have been exploited in industry due to their inherent catalytic properties in complex chemical processes under mild experimental and environmental conditions. The desired industrial goal is often difficult to achieve using the native form of the enzyme. Novozymes has delivered many of the major innovations within industrial enzymes for the last 40 years. In this study, we were interested in improving the properties of glycoside hydrolase enzyme. Glycoside hydrolases are enzymes that catalyzes random hydrolysis of carbohydrates or between a carbohydrate and a non carbohydrate moiety For this purpose, DNA variants of the wildtype protein were generated by introducing mutations via PCR based site directed mutagenesis. The DNA variants were transformed into a suitable Bacterial expression host. The hits with significant improvement factor (IF value) in comparison with the wildtype protein were obtained from supernatant assay. These hits were fermented for 72 hours at 37°C. Expression of glycoside hydrolase variant was studied using 4-20% SDS-PAGE, where a band is seen at 55kDa corresponding to the glycoside hydrolase enzyme. The cumulative results thus far provide an idea of important positions that if mutated leads to increase in properties of the engineered protein when compared to the wild type protein.</p>		

To relate the effects of multitrophic interactions on soil microorganisms and their activity via plant responses		
SL.NO	USN NO.	NAME
1	1MS14BT034	Patil Utkarsha Atulya
2	1MS14BT052	Subarna Thakuria
Mentor Name	External Mentor : Dr. Sumanta Bagchi Internal Mentor : Dr. Sravanti V	
ABSTRACT		
<p>Ecosystem dynamics are changing constantly and understanding them is important, as its functions are vital for maintaining balance in the nature. Above-ground and below-ground biota and their interactions with each other play a crucial role in these functions. Soil microorganisms and their activities can be linked to these interactions and their impacts are analysed via plant responses. Also the study of effects of variations in climate and rainfall on these interactions is important. We used the trophic cascade approach, by eliminating one trophic level each from the enclosures in an ecosystem, to study the changes in these interactions. The soil samples from each of these enclosures were collected over a period of five months and were extracted in 0.5 M K2SO4. Ammonia and nitrate analyses were then performed to determine the amount of inorganic nitrogen present in the soil samples. We also estimated the amount of organic carbon and nitrogen present in the soil. The results from the above analyses give an idea about the microbial activity of the soil. It also elucidates the effect of above-ground biota on soil microorganisms. The study of these plant mediated interactions can be further extended for developing sustainable crop protection strategies and novel crop varieties by selecting specific beneficial plant traits.</p>		

Role of lithium chloride as modulator on Alkaline phosphatase specific activity in malignant brain tumor (glioblastoma) cell lines.		
SL.NO	USN NO.	NAME
1	1MS13BT066	Prajwala S D
2	1MS15BT400	Bharath kumar H N
3	1MS15BT401	Lavanya
4	1MS15BT402	Sahana S N
Mentor Name	External Mentor : Dr.K N Chidambara Murthy Internal Mentor : Dr. Prabha M	
ABSTRACT		
<p>Glioblastoma (GBM) is malignant Brain tumor, it is transformed form of astrocytes star shaped cells that supports and protects neurons of the brain. One of the reasons for cancer cell survival is the activation of oncogenes, cancerous protein content and their expression. Therefore, it is essential to study various proteins, enzymes and their expression levels in cell lines.</p> <p>Alkaline phosphatase (ALP) is the membrane bound, cell surface marker and lysosomal hydrolytic enzyme that removes phosphate groups from other molecules such as proteins and nucleotides. It is known that lithium chloride, a chemical modulator was found to increase the activity of hydrolytic enzymes (carboxyl esterase anticancer drug metabolizing enzyme) in glioma cell lines. So we aim to study the specific activity and expression of alkaline phosphatase by using lithium chloride as modulator. We are able to extract the ALP from cell lines and have got the highest ALP activity for 25 minutes with substrate incubation. Therefore from this study the effect of enzyme levels related to Lithium will be known and also behavior of tumor cell to the enzyme modulator may provide an answer for understanding the cancerous cell properties.</p>		

Green synthesis of nanosulphur using orange peel extract & evaluation of antifungal & anticancer activity.		
SL.NO	USN NO.	NAME
1	1MS14BT006	Aravind Kumar J
2	1MS14BT037	Rajath R
3	1MS14BT048	Shudhodhan Bangera
4	1MS14BT053	Suhas S
Mentor Name	Internal Mentor : Mr. Samrat K	
ABSTRACT		
<p>Sulfur is an important element, essential for life. Elemental Sulfur has many applications. Its versatility can be attributed to its unique properties. Powdered sulfur is found as an active ingredient in lotions and skin cream. Due to overuse of Sulfur and also its requirement in larger quantities for various agrochemical applications, it has made targeted microbial species to acquire resistance with reduced efficacy. In order to resolve aforesaid problems and to explore its unique properties for various biomedical applications, bottom up approach of nanotechnology is the most appropriate tool. Various methods were used to synthesize nanosulphur such as liquid phase chemical precipitation water-in-oil microemulsion technique, reverse microemulsion technique using biodegradable iron chelate catalyst from H₂S and acid catalyzed precipitation using aqueous surfactant assisted route. The above said methods of synthesis of nanosulphur has many disadvantages such as, difficulty in separation and purification of nanoparticles from microemulsion system, scale up of process and consumption of large amount of surfactant. In this regard, as green synthesis method is simplest of all. In this study, nano sulfur is synthesized via green route using orange peel extract and further studied for its anticancer and enhanced anti-fungal properties.</p>		

Comparison Study of Chemical and Green Synthesis of ZnO Nanoparticles and its Biological Activity

SL.NO	USN NO.	NAME
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2	1MS14BT028	Namitha Sunny
3	1MS14BT035	Ponnamma A.G
Mentor Name	External Mentor : Dr. Sharath R Internal Mentor : Mr. Samrat K	

ABSTRACT

Nanoparticles have properties that bridge the gap between bulk materials and atomic structures, giving them various industrially and biologically important properties. The existing technologies allow for the synthesis of metal and metal oxide nanoparticles using various chemical methods, but these have shown to be unsustainable and provide products that cannot be classified as Generally Regarded As Safe (GRAS) compound for food and pharmaceutical applications. Zinc oxide nanoparticles have an abundance of applications in the biological industry due to its non-toxic and antimicrobial properties, but the current synthesis technique using colloidal methods leaves behind toxic residues in the product and also requires further purification techniques. To overcome such industrial disadvantages, ZnO nanoparticles have been synthesized using *Annona reticulata* (Bullock's heart or Ramphal) as the precursor during the precipitation process via green synthesis route. Ideally the use of *Annona reticulata* has also allowed us to study the Anti-cancer activity and DNA protection property of the fruit extract along with the synthesized nanoparticles, giving us an overall profile of the precursor and end-product. In the present study, a comparative analysis between the chemical and biosynthesized ZnO nanoparticles are carried and this allowed us to understand the GRAS properties of end products.

Construction of a reporter plasmid to assess role of splicing factors in *S.pombe*.

SL.NO	USN NO.	NAME
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Mentor Name	External Mentor : Dr. Usha Vijayraghavan Internal Mentor : Dr. Chandraprabha MN	

ABSTRACT

RNA splicing involves two transesterification reactions by which intronic regions of a transcript are excised and exons are ligated. It is carried out by a ribonuclear protein known as spliceosome and several transcription factors. One factor, Prp18 has been chosen as the focus of this study largely due to its essentiality in splicing which has been reported in *S.cerevisiae* (budding yeast). It has also been shown in the lab to have a role prior to the second step catalysis in *S.pombe* (fission yeast). Using global splicing microarray analysis, the intronic features which contribute to Prp18 dependence were previously identified in the lab. In order to validate the dependence of these mini genes on the splicing factor Prp18, a reporter plasmid is constructed in this study using the strategy of cloning. The commonly used reporter genes are β -galactosidase, β -glucuronidase, Luciferase, Green fluorescent protein etc. The novelty of this study is the use of the gene URA4 as the reporter gene as it allows for counter selection of genes (dependent on the splicing factor prp18) with a chemical known as 5-FOA. This reporter will serve as a means to test the dependence of a variety of genes both in their wild type and mutant forms on the splicing factor Prp18.

Adsorption of Orange G on to Chana and Toor Dal husks		
SL.NO	USN NO.	NAME
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3	1MS14BT057	Tharan A Joseph
4	1MS14BT058	V Priyanka
Mentor Name	External Mentor : Dr. Chandrababha MN Internal Mentor : Dr. Ahalya N	
ABSTRACT		
<p>Disposal of agricultural by-products such as Toor Dal and Channa Dal husks are currently a major economic and ecological issue, and the conversion of these by-products to adsorbents, represents a possible alternative. Dyes are used extensively in industries including textiles, paper and leather and their effluents are often highly colored. The complex aromatic molecular structures of these dyes, make them very stable and difficult to biodegrade. They may also show toxic and genotoxic effects on the environment. The main focus of our study is to evaluate the biosorption capacity of a novel, low cost, and renewable biomass i.e Toor Dal (<i>Cajanus cajan</i>) and Channa Dal (<i>Cicer arietinum</i>) husks for the removal of Orange G. The operating variables studied are initial solution pH, initial concentration, contact time and adsorbent dosage. The maximum adsorption of Orange G dye was found to be at 479 nm. The optimum operating variables using Toor Dal was found to be: pH-3 (73.96 %), Initial concentration – 5 ppm (77.94%), contact time – 5 minutes (76.20%), and Adsorbent dosage – (%). Determination of the optimum operating variables using Channa Dal husk is still in progress.</p>		

Urinary Proteomics Study of Hydronephrotic Patients		
SL.NO	USN NO.	NAME
1	1MS14BT026	Monica B G
2	1MS14BT031	Nasthayeen
3	1MS14BT036	Pragya Sahni
Mentor Name	External Mentor : Prof. Utpal S Tatu Internal Mentor : Dr. Bindu S	
ABSTRACT		
<p>Urinary proteomics has been a useful source of study in kidney related issues. The urine is a valuable source of protein and peptides with a relatively stable composition, ease of availability and quantity. It serves as a non-invasive technique for the discovery of biomarker in many kidney related issues such as hydronephrosis , whose only source of treatment currently are invasive in nature. Hydronephrosis, is a secondary condition arising due to an underlying disease, leading to the swelling of the kidney and improper drainage of the urine. Hydronephrosis affects 1 in every 100 babies and is a major concern that needs to be addressed in a non-invasive pattern, through the discovery of biomarkers and by analyzing the variation in concentration of various proteins in the urine of stable and affected pediatrics with the help of high-throughput liquid chromatography in tandem with Mass spectrometry(LC-MS), along with standardized techniques such as Bradford assay for protein concentration, Zip tip method for desalting and trypsin digestion for protein digestion into peptide for better analysis through LC-MS. Hence the gathered data, helps in understanding the protein profile variation and the discovery of novel protein biomarkers for the treatment of Hydronephrosis.</p>		

DEPARTMENT OF **CHEMICAL ENGINEERING**



Project
Abstracts

2017 - 2018

Synthesis and Application of Epoxy/TiO₂ Doped Nano Composites

SL.NO	USN NO.	NAME
1	1MS14CH001	Aashish Jain
2	1MS14CH021	Jagrat Shah
3	1MS14CH023	Lipika Vig
4	1MS14CH026	Mudit
Mentor Name	MR. SAGAR J.S.	

ABSTRACT

Titanium dioxide nanoparticles have been prepared by hydrolysis of titanium isopropoxide. Aqueous solution with various pH and peptizing the resultant suspension has been applied for preparation of the TiO₂ nanopowder with narrow size distribution. Synthesized powder is characterized by X-ray diffraction, scanning electron microscopy (SEM). TiO₂-epoxy nanocomposites were fabricated by using an innovative ultrasonic dual mixing process (UDM) process consists of ultrasonic mixing with simultaneous impeller stirring. TiO₂ nanoparticles were used as reinforcement in epoxy resin with weight percentages 2, 4, 6, 8 and 10% respectively. Mechanical properties of each group of composite material were identified using tensile and dynamic mechanical measurements. The dispersion condition of TiO₂ content in epoxy matrix has been thoroughly investigated by using scanning electron microscopy (SEM) analysis. Tensile tests and thermal gravimetric analysis (TGA) were performed on each group of TiO₂-epoxy composite to determine their tensile strength, toughness and thermal stability. The effect of TiO₂ nanoparticles addition on dynamical mechanical properties of epoxy matrix in the terms of electrical breakdown voltage were studied.

Process simulation and optimization of Furfuryl alcohol production by pyrolysis of sunflower seed hulls using ASPEN PLUS.

SL.NO	USN NO.	NAME
1	1MS14CH002	Abubakkar Siddiq
2	1MS14CH009	Anoop P Pushkar
3	1MS14CH039	Ronak Ramachandran
4	1MS13CH009	Basavaprabhu M
Mentor Name	Dr. Ramasivakiran Reddy	

ABSTRACT

Utilization of lignocellulosic biomass for production of Furfural and other value added compounds has gained a lot of importance. Production of Furfural involves two main steps: One, acid hydrolysis of sunflower seed hulls. Second, Pyrolysis of sunflower seed hulls. Furfural thus produced can be catalytically hydrogenated to get Furfuryl alcohol, which has many industrial applications such as synthesis of furan resins, adhesives, corrosion resistant fiber reinforced plastics and others. Palladium was used as the catalyst for the hydrogenation process. In this work simulation of production of Furfuryl alcohol from sunflower seed hulls has been done using ASPEN PLUS, followed by detailed process design, sensitivity analysis has been carried out and major unit processes and operations were optimized. Process thus designed consists of two reactor systems, namely pyrolysis and hydrogenation reactors and three distillation systems namely flash drum, furfural column and Furfuryl alcohol column. Reactor systems were optimized using equilibrium based approach and optimized temperature was found to be 620 K for the pyrolysis reactor and 451 K for hydrogenation reactor. Distillation columns were optimized and no of trays for Furfural column was 10 and for Furfuryl alcohol column to be 30. Reflux ratio values were found to be 1 and 4.11 respectively for the columns. Optimized pressure and temperature for flashing were identified as 0.0325 atm and 115.955 K. It has been identified from previous research that overall conversion of Furfural to Furfuryl alcohol achieved was 0.65, while present work gives a conversion of 0.78 for the same.

Degradation of Mordant black -11 by Hydrodynamic Cavitation

SL.NO	USN NO.	NAME
1	1MS14CH003	Adithyaram K.S.
2	1MS14CH024	Manasa gangotri
3	1MS14CH029	Neha S. Kulkarni
4	1MS14CH035	Ramakant
Mentor Name	Dr. Mahendra Chinthala	

ABSTRACT

Various dyes are released through textile industries into water bodies which are harmful to human beings and aquatic life. Recent pollution control norms forcing textile industries to treat their waste effluent to an increasingly high standard. In the present study, degradation of Mordant Black 11 dye has been tried using hydrodynamic cavitation. Hydrodynamic Cavitation refers to the procedure of evaporation, creation of bubble and bubble collapse, which happens when liquid passes through a constriction-diverging device, such as throttling valve, orifice plate, and venturimeter. During the collapse of the bubbles, high temperatures of 1000–10000K, high pressures between 100 and 5000 bar, and high speed micro jet (102 m/s magnitude) can be formed as a consequence, some highly reactive free radicals, such as HO \cdot , H \cdot , HOO \cdot , HO $_2\cdot$, and H $_2$ O $_2$ generate. Various operating parameters like initial concentration of dye, operating pressure, effect of catalyst on the degradation of Mordant Black 11 have been studied. Degradation percentage of the dye with and without hydrodynamic cavitation was also compared.

Simulation of Silane Production Using Reactive Distillation Column in Aspen Plus

SL.NO	USN NO.	NAME
1	1MS14CH004	Aditya Narayanan
2	1MS14CH036	Rayes Thomas George
3	1MS14CH019	IshanMathur
4	1MS14CH022	Kundan Kumar
Mentor Name	Mr. K.A.Badrinarayana	

ABSTRACT

Solar cell manufacturing is based on solar grade silicon which can be obtained using silane as precursor. Silane is produced by redistribution reactions of trichlorosilane. The aim of the present work is to study the properties of a multitasking reactive distillation column to produce silane, dichlorosilane and monochlorosilane. For the purposes of this project, we simulate the process in Aspen Plus. The kinetics of the reactions involved would be taken from literature and the simulation would be run by inputting a custom-built kinetic regime, defined in FORTRAN language as the default Aspen Plus methodology is not usable for our purposes. Using a combination of Aspen Plus, Intel FORTRAN Compiler, Aspen Custom Modeler, and Aspen Dynamics, we would perform a study of results obtained and compare with those in available literature.

Optimization of Process Parameters for Enhanced Production of Azolla

SL.NO	USN NO.	NAME
1	1MS14CH006	Akash Astkar M
2	1MS14CH010	B M Aashish Raj
3	1MS14CH032	Sourabh Patil
4	1MS15CH402	Channakeshav G
Mentor Name	Dr. RAMASIVAKIRAN REDDY	

ABSTRACT

The present study deals with the importance of vertical farming, optimizing the distance between the trays to observe the growth of azolla with varying light intensity which is the optimizing parameter. The distance between the trays were varied and it was observed that the growth of azolla takes place at 10000 lux and when the lux is reduced to 5000 then the growth of azolla is stopped. The growth curve was done by using MATLAB image analysis based on the observations made by varying the process parameters responsible for growth of azolla of which one is light intensity. It was observed that growth of azolla takes place exponentially with reference to the time. The concentration gradient in the tray is measured using conductivity meter which we relate to the Fick's law of diffusion. It was seen that the concentration at the bottom and at the top is less and it varies in between the top and bottom to the higher most value. The spreading rate on a larger scale is observed and is done to reduce the error. It was observed that the growth or spreading of azolla takes place even without any media requirements. The growth of azolla both in X-Y directions are performed which can be scaled up to a very larger area.

Sustainable Fertilizer Release Studies for Reduction in Toxicity of Soil

SL.NO	USN NO.	NAME
1	1MS14CH008	Anirudh V Prahlad
2	1MS14CH016	G Sriram
3	1MS14CH053	Sumanth
4	1MS14CH059	Y Shrikanth
Mentor Name	Dr. G M Madhu	
Funded By	Karnataka State Council for Science and Technology (KSCST)	

ABSTRACT

The agrochemical industry today is very much dependent on fertilizer to sustain the growth it has been experiencing the past few decades. Fertilizers such as urea have become a prominent chemical in the industry. Owing to the huge threat to the environment controlled release of fertilizers is needed. Firstly, water soluble microspheres/beads were prepared by homogeneously mixing urea and sodium alginate. The analysis for these microspheres was done using a UV-visible Spectrophotometer and included developing an absorption-concentration profile as well as the concentration time profile. The release rate as well as the slow release characteristics of these beads was studied using the spectrophotometer. Various parameters such as time, temperature, degree of water absorbency and ratio of urea to sodium alginate were studied for these microspheres. The influence of changing bead size was studied as well. The diffusion mechanism was observed and kinetic modeling was done. The swelling measurements of the urea-alginate beads were studied. Optimization of urea release is done using Box-Behnken and central composite designs.

Chemical and Enzymatic Conversion of Glycerol to Acetins		
SL.NO	USN NO.	NAME
1	1MS14CH011	Bhagyalakshmi C
2	1MS14CH030	Nidhi R Herle
3	1MS14CH054	Syed Saqline
4	1MS14CH900	Deeksha Anand
Mentor Name	Dr. Rajeswari M Kulkarni	
Funded By	Karnataka State Council for Science and Technology (KSCST)	
ABSTRACT		
<p>Undeterred progress towards development and advancement of society has been made only due to the availability of energy. Recently, there have been major developments in the methods and technologies adopted to obtain renewable energy sources, one of them being Biofuel Production. Owing to the increase in biofuel production, the by-product Glycerol is also gaining importance in the recent years. Researchers are exploring viable alternatives for effective utilization of the crude glycerol produced. Glycerol esterification produces mono, di and tri acetins which have a wide range of applications in industries. The present study deals with the esterification of glycerol with acetic acid over synthesized SO42-/CeO2-ZrO3 and unsulphated CeO2-ZrO3chemical catalysts. It also proposes to explore the viability of using biological Lipase enzyme procured from different sources .The CeO2-ZrO3chemical catalysts were prepared by combustion method and the surface modified by sulphation. The effect of different process parameters such as mole ratio (1:3 - 1:10), temperature (70 - 110 °C) and catalyst loading (1% - 9%) on esterification of glycerol were analyzed. For the enzymatic route, similar experiments were carried out to determine the effect of temperature on esterification reaction using different Lipase enzymes. Characterization of sulphated and unsulphated chemical catalysts and modeling of the glycerol esterification process to produce acetins were done. Both the enzymatic and chemical routes were compared and their efficiencies for glycerol conversion were assessed. Using the conditions established by the previous experiments, a similar batch experiment was carried out with crude glycerol obtained during biodiesel production to determine its effect on glycerol conversion and triacetin selectivity. Thus, a viable strategy has been proposed for glycerol conversion to value-added products which can be scaled up to commercial production.</p>		

Comparison of Models of Methane Generation by Kitchen Waste Degradation		
SL.NO	USN NO.	NAME
1	1MS14CH025	Mohamed Khizer Lateef
2	1MS14CH027	N. Aravindh
3	1MS14CH043	Shashank. R
4	1MS14CH055	T. Vamsi Priyatham Reddy
Mentor Name	Dr. Mahendra Chinthala	
Funded By	Indian Institute of Chemical Engineers	
ABSTRACT		
Bio gas generation from kitchen waste degradation has been carried out with emphasis on methane generation and collection. Various experimental models were set up to study the rate of kitchen waste degradation with varying parameters. Mathematical model based on first order carbon generation and degradation was applied to estimate the biogas generation rate. Results obtained from the experimental and theoretical model were compared and discrepancy in compared results, if any, were analysed and explained		

Treatment of Lignocellulosic Biomass of Coconut Coir Fibers to Produce Paperboard

SL.NO	USN NO.	NAME
1	1MS14CH013	Dain Jacob Mathews
2	1MS14CH015	Ekta D Kotian
3	1MS14CH034	R Vandana Reddy
4	1MS14CH045	Shivangi Agarwal
Mentor Name	Dr. Archna/ Mrs. V Sravanthi	
ABSTRACT		

Coconut can be grown in a variety of soils and hence has been produced in over 92 countries on about more than 10 million hectares. In the last decade Asia has been the leading producer of coconut of which Indonesia, Philippines and India account for almost 75% of world coconut production. The coconut fruit yields 40 % coconut husks containing 30 % fiber, with dust making up the rest. Global production of coconut husks has been estimated to be 23 million tons annually. The coconut husk is composed of lignin (30%), cellulose (45%), pectin (3%), hemicelluloses (7%) and ash (3%). High cellulose content could be a good source of value added products. Cellulose and lignin are tightly bound making the extraction of cellulose extremely difficult. Pretreatment of coconut husk is done for delignification. Alkaline Pretreatment method is employed here which uses 1% Sodium Hydroxide to break the lignocellulosic bonds in the coir fibers. The efficient extraction of cellulose in such a case becomes very important. For this, five stages of extraction of the pretreated coir are done using 2% Sodium Hypochlorite solution. The goal of the treatment of lignocellulosic biomass of coconut is to reduce the lignin content and to efficiently separate out cellulose by breaking down the lignin structure. This project details the pretreatment and the solvent extraction of the coconut coir fibers. The compositional analysis of the pulp at various stages of pretreatment and extraction is presented. After the fifth stage of extraction, the lignin content was brought down to 9.4% and the thickness of the paperboard produced was approximately 1mm.

Production of Sodium Gluconate In a 3 Phase Slurry Reactor Using Cerium Oxide as the Catalyst

SL.NO	USN NO.	NAME
1	1MS14CH048	Shubham Verma
2	1MS14CH060	Yash Rawat
3	1MS14CH031	Palash Dutta
4	1MS14CH056	Tanishq Vijay
Mentor Name	Internal Guide: Dr.Brijesh External Guide: Mr.Ravi Sadasivan	
ABSTRACT		

The oxidation of glucose to gluconic acid plays an important role in chemical technology. Recent development in heterogeneous catalysis using a variety of novel catalysts in three phase slurry reactors have shown promise in replacing biological production methods. Catalyst research is aimed to develop new catalysts to make processes more efficient. A new class of catalysts Cerium Oxide (CeO_2) in very fine particulate form have shown promise as they are expensive and regenerable. The catalyst was used in the oxidation reaction of glucose to gluconic acid to study the effect of catalyst loading, temperature, pH, reactant concentration, agitation speed, co-current and counter current operation. The results were analyzed using HPLC, Polarisation estimation, Volumetric estimation & Conductometric estimation. The data obtained was used in modelling the reactor and to study the kinetics of the reaction. The efficacy of the synthesised catalyst in the proposed work would materially advance the field of operation of three phase slurry reactors.

Synthesis of Fuel Additives from Glycerol Using a Heteropoly Acid

SL.NO	USN NO.	NAME
1	1MS14CH028	Navitha R
2	1MS15CH404	Kiran D Shetty
3	1MS15CH407	Rakesh Kumar S
4	1MS15CH410	Sudarshan C S
Mentor Name	Mrs. V Sravanthi	
Funded By	Indian Institute of Chemical Engineers	
ABSTRACT		

In recent years, due to the increased biodiesel production, glycerol, its by-product is also gaining significance importance. Various useful reactions are studied to convert glycerol into value – added products. Esterification of glycerol is one among them and the products obtained are glycerol esters, namely mono, di and tri-acetins. Another is ketalization of glycerol and the product obtained is solketal, which have wide range of applications especially as fuel additives. The present work deals with the study of esterification of biodiesel-derived glycerol with acetic acid and ketalization of biodiesel derived glycerol with acetone over synthesized Phospho Molybdic Acid (PMA) solid acid catalyst. The solid acid catalyst was prepared by co-precipitation method and was modified by addition of Cerium Nitrate ions. Both the modified and unmodified catalyst was characterized by means of XRD, BET, FTIR and the results were compared. From the characterization result, it was found that the addition of cerium nitrate significantly enhanced the surface acidity of heteropolyacid catalyst. Interestingly, the PMA solid acid showed higher surface area and acidity as well. The cerium exchanged PMA was applied for esterification of glycerol and acetic acid and ketalization of glycerol and acetone. The reaction was studied for different temperatures, different mole ratio of glycerol to 'acetic acid & acetone' and varying amount of catalyst. The results showed that cerium exchanged PMA catalysts are the promising heterogeneous catalysts for esterification & ketalization of glycerol. The kinetic model was developed to determine the reaction rate constants and the activation energies.

A Parametric Study and Model Development for Metabolism of Diabetes Mellitus (Type 2)

SL.NO	USN NO.	NAME
1	1MS14CH033	Piyush lashkari
2	1MS14CH040	Satish guraddi
3	1MS14CH050	Sourabh kumar
4	1MS14CH051	Srinjan saha
Mentor Name	Mr. Neelesh Singhal	
ABSTRACT		

The chronic metabolic disorder leading to diabetes mellitus (Type 2) has been a fast growing global problem with huge social, health and economic consequences. This project is aimed at quantitatively studying & developing a rigorous model of β -cell mass, insulin and glucose dynamics [β IG model] which is used to investigate the normal glucose regulatory system behavior. Three distinct pathways to diabetes are developed and put to test using simulation software. The effects of parametric changes associated with glucose, insulin and β cell mass dynamics on global behavior are studied. The behavior of the developed model is consistent with the results available through existing literature. An attempt to analyze the severity and complexity of hypoglycemia is made. An extension of our model and the findings would hence help us to develop a realistic understanding of endocrinal metabolism leading to diabetes mellitus type 2, and predict remedies or suggest further possible work.

Mathematical Modelling and Reduction of Fouling in Submerged Membrane Bio Reactor (SMBR)

SL.NO	USN NO.	NAME
1	1MS14CH037	Reshma Radhakrishnan
2	1MS14CH047	Shrinidhi Sambamurthy
3	1MS14CH052	Sukanya Raghuraman
4	1MS14CH061	Zubin K Mahin
Mentor Name	Dr. G.M. Madhu	

ABSTRACT

Municipal waste water treatment demands the reduction of not just carbon nutrients but also microbes like bacteria and viruses to a great extent. Furthermore, tighter controls on discharge limits have increased the need for more elaborate solutions than the conventional biological treatment processes. An efficient modification in the conventional treatment is the replacement of the secondary sedimentation tanks by membrane unit, Membrane Bioreactors (MBRs). Although SMBRs are more efficient and leaves a lesser footprint, one of the major problems faced by designers and operators is membrane fouling. In the present study, the fouling characteristics of the submerged ceramic membrane bio reactors was analyzed. Ceramic membranes were fabricated at Ceramic Technological Institute (CTI), Bharat Heavy Electricals Limited (BHEL), Bangalore. Activated Carbon being a good adsorbent can be used to adsorb the biofoulants to increase the life of membranes, but removal of activated carbon from the reactor is a tedious process. Hence, novel solid support materials (Chitosan with activated carbon, Polyvinyl acetate with activated carbon) were used to immobilize the activated carbon for reduction of fouling. Water characteristics such as turbidity, pH, COD, DO were tested for both the influent and effluent to determine the quality of water. By varying the quantity of each support material, various experiments were conducted such as determination of optimum quantity of support material required for effective reduction of fouling, variation of permeate flux with time and the comparison of results with and without the support material. After each set of experiments, regeneration of membrane is done using acid-base backwash or by heating the membranes in a muffle furnace at 600°C. A significant reduction was noted in COD and turbidity while DO increased prominently. It was also observed that the effluent characteristics were better and permeate flux was higher when support materials were used.

A Study of Rheological Behavior of Non-Newtonian Shear Thickening Suspensions and Their Applications

SL.NO	USN NO.	NAME
1	1MS15CH38	Revathi M
2	1MS15CH400	Akshaya Kumar
3	1MS15CH401	Bharath
4	1MS15CH403	Jessy P J
Mentor Name	Mr. Neelesh Singhal	

ABSTRACT

Shear thickening is a type of non-Newtonian behaviour in which the stress required to shear a fluid increases faster than linearly with shear rate. Many concentrated suspensions of particles exhibit an especially dramatic version, known as Discontinuous Shear Thickening in which the stress suddenly jumps with increasing shear rate and produces solid-like behavior. In this research we are developing different shear thickening suspensions using silica, ethylene glycol and cornstarch and analysing their rheological behaviour. The obtained rheological data is used in power law model and pecelet number model to study the mechanism causing shear thickening and to determine critical or onset stress of the suspensions respectively. The developed suspension can be prospectively employed in applications such as body Armor, shock absorbers, protective clothing and devices.

**Removal of Congo Red Dye from Aqueous Solution Using Bentonite Clay:
Equilibrium, Kinetics, & Thermodynamic Studies**

SL.NO	USN NO.	NAME
1	1MS14CH046	Shrinidhi Kulkarni
2	1MS14CH041	Shahnawaz Alam
3	1MS14CH049	Shuvam Jaiswal
4	1MS14CH057	Tushar Shukla
Mentor Name	Mrs. Annapurna S M	

ABSTRACT

Effluent water from dyeing industries has now for long been a taxing issue of the various dyes which are extremely toxic, Congo Red which is used in the dyeing industry is known for its Carcinogenic nature. The present study deals with the removal of Congo Red (CR) by Adsorption using Bentonite Clay. Experiments were performed to find the effect of initial pH (2.0-10.0), contact time (10min-300 min), adsorbent dosage (0.1g/l-5g/l), initial dye Concentration (100ppm-500ppm) and temperature (308-318 K) on the CR adsorption. Further continuous adsorption of CR was carried out in a fixed bed column. Bentonite powder was used as the column packing. The breakthrough time is to be found. The saturation time for bed is to be found.

Development of Equipment for the Conversion of Wet Waste to Dry Powder Manure Using Microwave Oven

SL.NO	USN NO.	NAME
1	1MS15CH405	Mayura
2	1MS15CH406	Nishanth H Shetty
3	1MS15CH408	RitheshSequeira
4	1MS15CH409	Sachin G Amin
Mentor Name	1. Dr. G.M. Madhu 2. KoteswararaoJammula	

ABSTRACT

Composting is a conventional way to treat green wastes. Currently, sanitary land fill composting method is in use, but it would occupy a lot of land. Thus, this needs to be solved by developing technologies. Microwave oven has a wide range of advantage such as short processing time, lower operating cost, and reduction in energy consumption, enhancement of good appearance and maintenance of plant nutrient value. In our current project, we are studying and developing an effective technology using microwave oven for treating green waste from various sources and experimentally finding the drying time for different green waste samples; along with this, we separate the grinded manure as per size distribution. This method would be helpful in storing these green wastes in the form of compact moulds which could be used as organic manure. These moulds can be stored for a longer time without degradation. No facility as such is currently available to dry green waste in economical way and store for long duration by removing moisture. Our project would be greatly helpful to the society by reducing foul smell and leachate generation. The produced manure can be employed directly for organic vegetable production and enhancing the soil fertility.

Treatment of Vrushabavathi River Water Using Granulated Activated Carbon

SL.NO	USN NO.	NAME
1	1MS13CH051	Siddharth P
2	1MS13CH046	Rinshad K
3	1MS13CH059	Vishnu Mohan
4	1MS14CH402	Prajaya
Mentor Name	Dr. Archana/ Mrs. Annapurna M	

ABSTRACT

In practice it is very difficult to identify the impurities and pollutants in the wastewater individually. Therefore, the concentrations of the components are usually determined as sum parameters (e.g. pH, turbidity, Total Dissolve Solids). In the present study, water collected from Vrushabavathi river was tested for parameters like pH, turbidity, Total Dissolve Solids, Conductivity, Chloride, Hardness, turbidity and Chemical oxygen demand. All the parameters were compared with Drinking Water Quality Standard. The collected water was treated with granulated activated carbon. Granular activated carbon is particularly a good adsorbent medium due to its high surface area to volume ratio. A significant reduction was noted in COD, turbidity.

DEPARTMENT OF **CIVIL ENGINEERING**



Project Abstracts

2017 - 2018

Non-linear analysis of high strength GPC and TVC fully restrained one way slab – Finite Element Approach.

SL.NO	USN NO.	NAME
1	1MS14CV006	ABHISHEK ANAND
2	1MS14CV011	ADWAIT SHARMA
3	1MS14CV078	NISHANT KUMAR
4	1MS14CV084	PREM KUMAR
Mentor Name	Dr. R Mouragane	

ABSTRACT

This project aims to present a non-linear finite element modeling and analysis of four High strength Geopolymer Concrete (GPC) and four Traditionally Vibrated Concrete (TVC) fully restrained one way slabs with varying depth and reinforcement. The RC slabs will be of dimensions 1080 × 500mm with two adopted thicknesses of 50mm and 65 mm, varying main reinforcement and constant distribution steel. Required experimental data will be obtained from existing research work. In this study, the one way fully restrained slabs shall be modeled as discrete elements and analyzed using the Finite Element Method with the help of ANSYS V17.2. The concrete material and steel reinforcements will be represented by separate material models and then combined together, which will then behave as reinforced concrete slab. These slabs will be modeled and analyzed in ANSYS V17.2 and the obtained results will be compared with the prevailing experimental results in terms of cracking load and patterns, deflection and ultimate load. Engineering properties data for GPC modeling will be adopted based on literature work and that for TVC will be adopted as per IS 456:2000. Analysis based on experimental result will have a better validation and is a widely used means to determine the response of individual structural elements.

Heavy metal removal from industrial waste water using bio sorbents

SL.NO	USN NO.	NAME
1	1MS14CV007	ABHISHEK KUMAR
2	1MS14CV013	AJAY KUMAR RAI
3	1MS14CV034	ANURAG YADAV
4	1MS14CV045	DIVYANSHU SHEKHAR
Mentor Name	Dr. Harish N	

ABSTRACT

The purpose of this research is to evaluate the potential of Sugarcane Bagasse (SB), Tea Waste (TW) and Orange Peel (OP) as alternative low-cost bio-sorbents for removal of heavy metals and to improve the method to remove heavy metal from industrial wastewater. It's important to ensure there are no harmful heavy metals in the water stream because it can accumulate in the environmental elements such as food chain and pose a significant danger to human health. From the research in recent past [Saxena,et.al(2017), Nandal,et.al(2014), Wang,et.al (2018), Sarker,et.al (2017)] it has been observed that use of natural sorbents like banana peel, camphor leaves, etc., can be used for removal of heavy metals from wastewater and they have been more economical and efficient from other manmade sorbents and there has been considerable interest in the use of low-cost adsorbents. So considering the alarming demand of low cost natural sorbents the efficacy of SB, OP and TW as an alternative low-cost bio-sorbents for the removal of Cu (II) and Pb (II) ions from aqueous solutions will be investigated. Batch adsorption studies will be carried out to evaluate the effects of solution pH, initial metal ion concentration, agitation time, a dosage of sorbents, a ratio of sorbents in mixture and switch between sorbents after definite time interval on adsorption capacity.

STRENGTH AND BEHAVIOR OF CONCRETE WHERE FINE AGGREGATES IS REPLACED BY PLASTER SAND AND WATER IS REPLACED BY TREATED WASTE WATER

SL.NO	USN NO.	NAME
1	1MS14CV055	SUPREETH K G
2	1MS14CV074	NAGARAJ
3	1MS14CV075	NANDARAJ G S
4	1MS15CV405	H M MADAN KUMAR
Mentor Name	Dr. T GeetaKumari	

ABSTRACT

In India and many other countries, water recommended for the manufacture of concrete must be potable. It is currently thought that the water has its own effect on the concrete, but alternative water used (i.e., treated waste water) has any effects or minimal effect on the concrete manufactured. The scarcity of river sand has become major threat to construction industry, the alternative for river sand can be employed in the mix of concrete (i.e., plaster sand), by employing the alternative for the conventional raw materials of the concrete, the strength and behavior of the concrete is examined by various tests in the laboratory. The pre casted cubes of the mix M20 is tested for its strength for 7 days with plastic sand and m-sand and strength is compared, the beam is molded in the foam board with mix design of the higher 7 days strength and 21 days strength is calculated. The various tests to be performed to examine the strength are 1) Split tensile test 2) Crushing test (Compression test) 3) Flexural strength test.

A Comprehensive Study on Lifecycle and Durability Aspects of Recycled Aggregate Concrete

SL.NO	USN NO.	NAME
1	1MS14CV024	AMIN SHAKYA
2	1MS14CV064	LOMASH BHATTARAI
3	1MS14CV093	SAGAR SHAHI
4	1MS14CV117	SURAJ KUMAR
Mentor Name	B SugunaRao	

ABSTRACT

Construction industry is a major source of energy consumption and greenhouse emissions. With the natural resources required for the industry ever-limited and the global drive for infrastructure development and construction activities at its peak, a need for sustainable approach to the industry is deemed timely. Use of recycled aggregates provides an interesting solution in this context. An attempt will be made to understand the overall lifecycle of concrete with and without the recycled aggregates, based on available literature. Further studies will be made to understand the durability aspects of recycled aggregate concrete. Trial specimen will be casted and the necessary test will be conducted based on literature to test the various durability aspects. Further we hope to develop an appropriate statistical tool (Artificial Neural Networks, using suitable training algorithm) to predict the durability aspects i.e. shrinkage and creep parameters of recycled aggregate concrete. With the project in whole, we hope to add a better understanding of the behaviour of recycled aggregate concrete, particularly in lifecycle and durability aspects.

Analysis of Tuned Liquid Damper in Controlling Earthquake Response of a Building

SL.NO	USN NO.	NAME
1	1MS14CV002	AAKASH BIKRAM RANA
2	1MS14CV106	SHUBHESH BISTA
3	1MS14CV109	SOURABH KHARDIA
4	1MS14CV112	SUBHAM RAJ
Mentor Name	PrashantSunagar	

ABSTRACT

This project aims to study the effectiveness of Tuned Liquid Dampers in reducing the seismic vibration in a building when it is subjected to horizontal excitation. Damping is the phenomenon in which the energy of a system is gradually reduced by some dampening agent. Among many dampening techniques, Tuned Liquid Damper (TLD) is a recent development. TLD is nothing but a liquid container with liquid filled in it in such a way that its sloshing frequency is tuned to the resonance frequency of the building. Sloshing is defined as the periodic motion of the free liquid surface in a partially filled container when subjected to a disturbance. TLD uses this sloshing energy of the water to reduce the dynamic response of the system when subjected to excitation. So, in order to understand the damping process, the knowledge of water sloshing is important. In this project, the effectiveness of TLD will be studied by placing it on the top of a simple multi-storey building and analysing the dampening effect given by it. This technique, if found effective, will turn up to be a cheap technique which we'll be able to install in new as well as existing buildings with ease. The analysis will be based on various parameters which affect the structural response. The various parameters include damper liquid depth, mass of liquid, frequency ratio, etc. Liquid motion is a complex phenomenon with many parameters and effects that generally is described with fluid dynamics laws. With this project, we expect to find analytical results of effectiveness of Tuned liquid dampers in a building to control earthquake taking most possible parameters in consideration.

Durability Studies on Structural Light Weight Concrete Produced By Blending Lica and Cinder

SL.NO	USN NO.	NAME
1	1MS14CV008	ABHISHEK S
2	1MS14CV131	ULLAS V
3	1MS15CV422	VISHNUVARDHAN J B
4	1MS15CV423	VISHWAS N V
Mentor Name	Anil Kumar R	

ABSTRACT

Due to increasing population developing country like India has scarcity of land. To fulfil the one of the basic need housing for all, vertical growth of building are taking place which results in more stress on mother earth in the form of dead load of structure. In this regard to cut down the dead load of structure light weight concrete whose density varies from 1200kg/to 1800kg/which is less when compared to normal concrete of density 2400kg/. Our previous batches has obtained M20 and M30 grade of light weight concrete by blending lica and cinder and successfully achieved compressive strength. Now it's time to check the durability of these concrete. Since the aggregate used is light weight which may be affected from permeability, chemical reactions and fire. So hence the present investigations focus on durability study of structural light weight concrete.

Influence of building irregularity on seismic response		
SL.NO	USN NO.	NAME
1	1MS14CV090	RAHUL G N
2	1MS14CV096	SANJAY KUMAR BR
3	1MS14CV102	SHARATH.M
4	1MS15CV408	MAHALINGAIAH M
Mentor Name	BasavanaGowda	
ABSTRACT		
<p>This project is concerned with the effects of building irregularities on the seismic response of a structure. The objective of the project is to carry out Equivalent static analysis (ESA) , spectrum analysis (RSA) and Time history analysis (THA) of both irregular RC and regular RC building frame.Two types of irregularities namely mass irregularity and geometrical irregularity considered .The Equivalent static analysis (ESA) ,Response spectrum analysis (RSA) Time history analysis (THA) were carried out in STAAD PRO software. The scope of the project also includes the evaluation of response of high, low and intermediate frequency content earthquakes using Time history. The results obtained from this analysis will be used in designing of earthquake building RC frames.</p>		

Studies on Seismic Performance of Braced and Unbraced Moment Resisting Frames		
SL.NO	USN NO.	NAME
1	1MS14CV077	NIRMAL BISWAS
2	1MS14CV094	SAMRAT GHATAK
3	1MS14CV104	SHIVAM KUMAR
4	1MS14CV116	SUMIT SINGH
Mentor Name	Santosh D	
ABSTRACT		
<p>Over the past few decades, Steel structures have taken the center stage of our Construction industry. This progress has been coupled with an additional need for safety against seismic forces, making seismic design of structures as our chief priority. Amongst an arsenal of procedures present at our disposal, in terms of seismic resistance, Steel bracing, being economical, easy and efficient, stands out from the rest. It can be used as a retrofit as well. The flexibility of the bracing system in design, to meet required strength and stiffness adds on to the workability of this method. There are various types of steel bracings such as Diagonal, X, K, V, inverted V type or chevron, zipper braced and ZX-braced frame. In this study, our aim is to analyze a (G+4) Steel bare frame with various bracings (X, V, Inverted V, Knee bracing etc.) with the help of SAP 2000 software, to obtain pushover analysis results. Comparing the results on the basis of seismic parameters, such as base shear, roof displacement, time period, storey drift would give us the idea about the suitability of a particular type of bracing under specific working condition.</p>		

EXPERIMENTAL INVESTIGATION OF NANO-SILICA USING RECYCLED FINE AGGREGATE IN CONCRETE

SL.NO	USN NO.	NAME
1	1MS14CV017	AKSHAY BAIRU PATGAR
2	1MS14CV039	BHARATH B
3	1MS14CV041	CHETAN A PATIL
4	1MS15CV409	MANJUNATH B
Mentor Name	Rajegowda	

ABSTRACT

The recent researches on Nano Materials and technologies have highlighted the potential use of these materials in various fields such as medicine, construction, automobile industry, energy, telecommunication and uniformities. Building material domains can be one of the main beneficiaries of these researches with applications that will improve the characteristics of concrete, steel, glass and insulating material. The use of Nano materials in composition of some materials such as cement will result in significant reduction of carbon di-oxide pollution and use of performance thermal insulation will result in efficient use of energy for air-conditioning. Moreover, Nano materials applied to the surfaces of structural elements of building can contribute to environmental cleaning by photocatalytic reactions. The green concrete capable of sustainable development is characterized by application of industrial waste to reduce pollution of environment. Nano material concrete is new generation concrete formed of materials of grain size of Nano scale. The materials used in these researches are cement, Nano silica 10-15 μ m, quartz powder 0.3-25 μ m, fine sand size 50-650 μ m. application of Nanotech is an effective way to reduce environmental pollution and improve durability of concrete.

Impact of Choice of Structural System (OMRF v/s SMRF) on Reinforced Concrete Framed Structure

SL.NO	USN NO.	NAME
1	1MS14CV001	A BABY ACHALA
2	1MS14CV097	SANJAY R G
3	1MS14CV103	SHENOY NEHA RAMNATH
4	1MS15CV417	SATHYAN K
Mentor Name	Nambiyanna B.	

ABSTRACT

The main Purpose of this project is to understand the behaviour and design requirements of a Reinforced Concrete framed structure subject to a combination of gravity and earthquake forces and to establish the variations that occur when the structural system provided is an Ordinary Moment Resisting Frame (OMRF) or a Special Moment Resisting Frame (SMRF) as defined in IS1893-2016 and IS13920-2017. A Ground + 15 storey monolithic Reinforced Concrete Framed Office Building with beam-slab type floors has been considered for the purpose of this study. In order to achieve a better understanding of the issues involved, it was decided to investigate the results of the design of both the above cases in not just one, but two earthquake zones, Zone II and Zone IV. The parameters used for comparing the results of the four different designs, are – (i) Measures of Serviceability like displacement at roof level and inter story drift and (ii) Quantities of concrete, formwork and steel reinforcement and cost of the same. It is proposed to use the following commercially available software packages to model and design the structure – (i) PlanWin – pre-processor for preliminary sizing of structural members and generation of 3D analytical model for STAADPro, (ii) STAADPro – for detailed analysis of the building model, (iii) RCDC – for design and detailing of RC members and (iv) AutoCAD – for preparation of drawings.

ANALYSIS ON PERFORMANCE OF CONCRETE BEAM BY REPLACEMENT OF NORMAL CONCRETE WITH EXPANDED POLYSTYRENE LIGHT WEIGHT CONCRETE IN TENSION ZONE USING ANSYS

SL.NO	USN NO.	NAME
1	1MS14CV113	SUDARSHAN S G
2	1MS14CV119	SURAKSH M S
3	1MS14CV120	YADUNANDAN T N
4	1MS15CV411	MUSARAJ AHAMED
Mentor Name	Harish M L	
ABSTRACT		

In the design of RC beam, as per limit state method it is assumed that the concrete below the neutral axis is not effective which can be called as sacrificial concrete. The major function of this concrete is to induce bonding between concrete and reinforcement. When normal concrete is used throughout the beam, it is not fully stressed or fully effective below neutral axis (NA), also the self-weight of normal concrete (NC) leads to high dead loads. Scope of this project work is to simulate and analyse the RC beam by replacing the concrete material properties below NA with Expanded polystyrene light weight concrete (LWC-EPS) composite material property. The results so obtained nearly matching the results of practically tested EPS LWC RC beam would suggest using EPS as a component in concrete. Our experiment methodology involves, adopting material properties of EPS LWC in tension zone and normal concrete properties in the compression zone for beams and analysing the beam under pure bending condition using ANSYS and to compare the results with practically tested partially replaced beam. Also to analyse few mechanical properties of EPS LWC such as interface shear strength, bond strength and flexural strength.

AN INVESTIGATION ON PRODUCTION AND MECHANICAL PROPERTIES OF SUSTAINABLE GEO POLYMER CONCRETE USING LIQUID GLASS BASED ALKALI ACTIVATORS

SL.NO	USN NO.	NAME
1	1MS14CV061	KIRANKUMAR S HIRINAYAK
2	1MS14CV072	MUTTU
3	1MS14CV083	PRAVEENREDDY
4	1MS15CV403	CHETHAN P
Mentor Name	B Nagashree	
ABSTRACT		

The usage of concrete all around the world is second to that of water. As per the research works the production of ordinary Portland cement contributes 5-7% of total greenhouse gas emission to the atmosphere. Hence it is essential to find alternative material to cement. In the present experimental study, cement portion in the concrete is completely replaced by red mud (a by-product of a bauxite industry), along with ground granulated blast furnace slag (GGBS) proportionately to prepare the Geopolymer concrete mix using alkali activator solution which is the combination of sodium hydroxide and sodium silicate (synthesised ordinary glass powder) in order to bind the components together and to obtain a suitable mix of desirable strength. Further for the obtained Geopolymer concrete, mechanical strength is determined for different molarity of alkali activators and for different curing periods. Further the optimal obtained Geopolymer concrete is compared with that of normal conventional concrete.

IMMOBILIZATION OF HEAVY METALS IN SOIL USING ORGANIC AND INORGANIC AMENDMENTS

SL.NO	USN NO.	NAME
1	1MS14CV052	INDRANIL MAZUMDAR
2	1MS14CV054	JYOTIRADITYA SINGH SHIVAM
3	1MS14CV063	KRISHN KATYAL
4	1MS14CV080	PRADUMAN KUMAR
Mentor Name	Dr. J Sumalatha	

ABSTRACT

Due to urbanization and industrialization throughout the world, the natural resources like soil and water are getting polluted and causing health hazards to living beings. The rapid migration of people from villages to cities causes increase in solid wastes and sewage. Also, due to rapid increase in industries, the amount of effluents coming out of industries is increasing at an exponential rate. This effluent pollutes the surface water. Ultimately the effluents and sewage water seep through the soil and pollute groundwater as well as soil. Also dumping of solid wastes in landfill is causing nuisance like bad odor, spreading of diseases like malaria and filaria and septic condition. The liquid produced from decomposition of solid wastes, penetrates into the soil and hence pollutes the soil underneath and also the groundwater. Both the soil and groundwater become unfit for use. This soil needs to be tested and treated in order to make it fit for use and prevent further damage to surrounding environment and the living beings residing nearby. The objective of the project is to find the suitable remediation technique to treat the contaminated soil collected from an open dump located at Belahalli near Bangalore. There are various remediation techniques available to treat the contaminated soil. For the present study, it is proposed to check the efficiency of different organic and inorganic amendments to immobilize the heavy metals present in the selected soil.

Stabilization of black cotton soil using terrasil

SL.NO	USN NO.	NAME
1	1MS14CV021	AMAR
2	1MS14CV027	ANILKUMAR
3	1MS14CV028	ANIMESH SINHA
4	1MS14CV031	ANKIT UMESH BELAKUD
Mentor Name	Dr. J Sumalatha	

ABSTRACT

Black cotton soils are major problematic soils of some tropical countries especially in Africa and India. They are poor materials by temperate zone standards and difficult to use for road and air field construction because they are often expansive due to the presence of large percentages of expansive clay minerals, i.e. montmorillonite. These soils swell when in contact with water and shrink on drying. Many roads and foundations of light buildings have been reported distressed due to the seasonal volume change (i.e. swell and shrinkage) of these soils. These soils have reportedly inflicted billions of dollars in damages and repairs annually to earth structures and facilities. So stabilisation of such soil is atmost important. As stabilisation can be used to treat a wide range of subgrade materials from expansive clays to granular materials. This allows for the establishment of design criteria as well as the determination of the proper chemical additive and admixture rate to be used in order to achieve the desired engineering properties.

Comparative Study on Stabilization Of soil Using Additives

SL.NO	USN NO.	NAME
1	1MS15CV404	GAVIRANGASWAMY D G
2	1MS15CV407	LOKESH K S
3	1MS15CV412	NARAYANASWAMY N
4	1MS15CV413	PRAVEEN.B.R.
Mentor Name	N Srilatha	

ABSTRACT

Stabilization of soils is the alteration of the properties of soil to enhance the load bearing capacity of subgrade soils to support the pavements and foundations. This procedure is practiced using wide range of additives includes chemicals, other material byproducts and waste materials. A new method to modify the compaction characteristics of soil is mixing waste materials to the soil to improve its properties. In the present study, Lime and Rice Husk Ash were used as additives for altering the properties of soil. The soil used in the present study is classified as clayey sand as per Indian standard classification system. Lime is the oldest traditional additive used for soil stabilization. The mechanism of soil-lime treatment involves cation exchange, which leads to the flocculation and agglomeration of soil particles. Lime-treated soil effectively increases the strength, durability and workability of the soil. Rice husk is produced enormously and is a byproduct of the rice milling. In order to reduce such volume of waste, rice husk is burned either in open heaps or as a fuel in ovens for rice drying, power generation, etc. The burning volatilizes the organic compounds and water of the rice husk, and about 20% of the mass remains as rice husk ash (RHA). As a part of the comparative study, a series of laboratory tests were planned such as standard compaction tests, unconfined compression tests and California bearing ratio tests to understand the comparative behavior.

Stabilization of soil using Plastic Waste Bottles

SL.NO	USN NO.	NAME
1	1MS13CV403	MANJUNATH KALABURGI
2	1MS13CV408	PRASANNA
3	1MS13CV409	RAJASHEKHARAGODA
4	1MS13CV420	VENKANAGODA PATIL
Mentor Name	N Srilatha	

ABSTRACT

Soil stabilization is a process which improves the physical and engineering properties of the soil, by increasing the shear strength and thereby increasing the bearing capacity of the soil, which can be done by use of controlled compaction or addition of suitable additives like lime, cement and waste materials like fly ash etc. This new technique of soil stabilization can be effectively used to meet the challenges of society, to reduce the quantities of waste, producing enormous quantity of useful material from non-useful waste materials. Use of waste products such as polythene bags, plastic bottles etc. is increasing day by day leading to various environmental concerns. Therefore the disposal of the plastic wastes without causing any environmental hazards has become a tough challenge in the present scenario. Therefore using plastic bottles as a soil stabilizer is a cost-effective utilization since there is a scarcity of good quality soil for construction of embankments. The present study involves the detailed study on the possible use of waste plastic bottles for soil stabilization. Basic soil characterization, Standard Proctors Compaction Test and California Bearing Ratio Tests are to be carried out to find out the significant effect on utilization of plastic bottles on improving the load bearing characteristics of the soil.

Mapping of Fluctuations and Quality Analysis of Groundwater in Bengaluru Rural District using GIS Software (Arc GIS 10.3)

SL.NO	USN NO.	NAME
1	1MS14CV049	H.RAGHAVENDRA
2	1MS14CV081	PRATYUSH PRABHAT
3	1MS14CV087	PUVVADI NIHARIKA
4	1MS14CV132	SANJANA V
Mentor Name	Dr. C Rajagopal Reddy	

ABSTRACT

With 30 million (and counting) groundwater structures, India is by far the largest consumer of groundwater in the world. Nearly 80% of drinking water requirements in rural areas, 50% of urban water requirements and more than 50% of irrigation requirements of the nation are met through groundwater. Contamination of groundwater (from human activities or from inherent aquifer material composition) reduces the supply of safe drinking water, poses a threat to public health and creates a challenge for water managers and strategists. Increasing demand for groundwater coupled with over-exploitation of it makes it the need of the hour to conserve this precious resource. This study focuses on groundwater analysis for Bengaluru Rural District which includes Hoskote, Devanahalli, Doddaballapura and Nelamangala, which span over a geographical area of 2298 sq.kms. Various thematic maps like geomorphology, geology, drainage density and lineament for the study area will be generated and analyzed in this study. All these themes and their individual features will be obtained by overlaying all the thematic maps weighted in terms of overlay method using spatial analysis tool ARC GIS 10.3. Based on the results obtained, the necessary spatial distribution maps of major groundwater zones will be demarcated and the possible sources of pollution will be identified. Further, certain remedial measures to prevent the pollution and steps to improve the quality and quantity of ground water will be proposed.

Flood Control in Urban areas

SL.NO	USN NO.	NAME
1	1MS13CV061	MASIHULLAH
2	1MS14CV003	ABDUL AHAD
3	1MS14CV015	AKASH K RAJU
4	1MS14CV025	AMITESH
Mentor Name	Dr. C Rajagopal Reddy	

ABSTRACT

Floods are usually caused by extensive rain from storms, when the ground cannot hold the excessive water and the water builds above the ground. Urban floods in urban areas are the recent most occurring issues in all across the world. The solution for this problem can be done to certain extent by providing proper drainage system. The proper drainage system can be adopted by considering various parameters, such as condition of the surface area, rainfall intensity, humidity, temperature, type of catchments, types of drainage etc. Bangalore is one of the most prone regions to flooding due to its high intensity of rainfall, improper planning of urban development, illegal construction activities etc. The objective of this study is to identify various causes of flooding, and the areas of more flood-prone, and to suggest certain remedial measures to reduce the peak flows and thereby improving ground water potential. The methodology we are going to adopt is by using software's like ArcGIS, Surfer, etc. to forecast the flood and to obtain the necessary steps in order to design the proper drainage systems. Controlling the floods not only will save the human life, avoiding the destruction of useful land but will also have a positive impact on the economic growth of the country. The main advantage is recharge of lakes and other water bodies, with excess water. The excess water can be diverted into the lakes and ground water as well as the aquatic life can be improved.

FLOOD MODELLING IN URBAN AREAS USING MIKE URBAN		
SL.NO	USN NO.	NAME
1	1MS13CV023	ARJUN K BANGARAPPA
2	1MS14CV121	THANMAI D RAGHAVAN
3	1MS14CV122	UDAY.M
4	1MS14CV125	VARUN R G
Mentor Name	Vinodkumar	
ABSTRACT		
<p>Flash flood (Urban flood) is specific in the fact that the cause is a lack of drainage in an urban area. Nearly all the precipitation needs to be transported to surface water of sewage system. High drainage can cause flooding when the city sewage system and draining canals do not have necessary capacity to drain away the amounts of rain that are falling. Mitigation of these floods is one of the major concerns. For flood mitigation, the catchment has to be analyzed with respect to its rainfall, runoff and its geographical characteristics. With the advent of modern technology, the use of sophisticated softwares in flood modeling helps in getting an idea of extent of flood at its submergence. MIKE URBAN is one of the floodmodelling tool which can be helpful in mitigating the flood. GIS and Remote Sensing is used to obtain topographical characteristics of the study area. Bangalore is taken as the study area and MIKE URBAN is applied on this catchment. Bangalore city covers an area of 2190 sqkm with mean annual rainfall of 880 mm. Stream analysis, Storm water and sewage water analysis is done using MIKE URBAN. This analysis will facilitate to adopt appropriate flood disaster mitigation measures. Flood modeling using MIKE URBAN is effective tool for hydraulic study, handling of disaster management measures.</p>		

Rejuvenation of bore wells in urban areas		
SL.NO	USN NO.	NAME
1	1MS14CV099	SANTOSH KUMAR
2	1MS14CV100	SHAMBULINGAYYA PURANIKAMTH
3	1MS14CV137	SOMARAJ D
4	1MS14CV139	PRAJWAL K H
Mentor Name	Vinodkumar	
ABSTRACT		
<p>Aim of the project is to check the feasibility of recharging of bore wells in urban catchments. Regard to adverse manifestation of the recent climatic conditions world has been facing acute water problem. And due to extreme urbanisation the level of ground water has declined in recent times. Most of the population is concentrating on exploiting the ground water rather than recharging it. Apart from steep increase of ground water exploitation there is also considerable amount of wastage which can be avoided if water is used and preserved judiciously. Artificial ground water recharge is a process of replenishment if ground water by artificial means. And artificial recharge is the augmentation of underground aquifers by some methods of construction by artificially changing the natural conditions. The main objective of artificial recharge technology is to preserve or enhance the ground water and to maintain the declining ground water levels. In ground water deficit areas there is a need for artificial recharge of ground water by water spreading, recharge pits, injection wells and some other methods. Out of above mentioned methods we have chosen the recharge pit method that could be efficient and economic. The selection of particular method is governed by topographical, geological, hydrological, soil conditions and quality-quantity of water available for recharge. To overcome the problem of bore well which are dry and has low water levels has to be rejuvenated through recharge pits. Also with the help of remote sensing and GIS water mapping is carried out.</p>		

Experimental studies on vertical farming using hydroponics system.

SL.NO	USN NO.	NAME
1	1MS13CV155	SHRAVANKUMAR S
2	1MS14CV022	AMAREEN MULLA
3	1MS15CV401	CHANDSAB
4	1MS15CV406	JAGADISH
Mentor Name	Shilpa D N	

ABSTRACT

With increase in population, there is decrease in per capita arable land and water available. Thus there is need for techniques that increase the efficiency of land utilization as well as water consumption. In addition, the current practice of food production requires transportation of food produced in agricultural areas to the consumers residing mostly in the urban areas, which also consumes energy for transportation. Techniques such as vertical farming would increase the efficiency of land utilization, wherein, vertical farming is the practice of growing crops in vertically stacked layers or vertically inclined surfaces using controlled agricultural environment. Hydroponics systems use water as a medium for growing crops without the need of soil. It is expected to reduce water consumption by 90% as compared to the conventional agricultural system with soil. Since vertical farming using hydroponics system can be nurtured in indoor environment also, crops can be grown in urban areas, near the consumers. Thus reducing the energy utilised in transportation. However in case of indoor farming, artificial light arrangement and pumping system are required which would consume energy. The study aims to grow leafy vegetables (Lettuce, Spinach & Amaranth leaves) in indoor environment using rockwool as the medium by providing micro-nutrients and macro-nutrients according to the crop requirement. The objectives of the study is to estimate crop water requirement, energy consumption, crop period and yield for the leafy vegetables under consideration and compare the results with crops grown in conventional methods.

MANAGEMENT OF BIO-MEDICAL WASTE USING INCINERATORS IN SUGUTURU

SL.NO	USN NO.	NAME
1	1MS14CV009	ADIL AGA
2	1MS14CV036	ASHIKA Y
3	1MS14CV043	DIVYA H
4	1MS14CV044	DIVYA K SHETTY
Mentor Name	Dr. Umadevi B	

ABSTRACT

Bio medical waste is in any kind of waste containing infectious materials. It includes the waste generated to be of either medical or laboratory origin containing bio molecules or organisms that are restricted from environmental release. It generates hazardous chemicals and radioactive materials requiring proper disposal. One of the mechanisms of disposal of biomedical waste is incineration. It is the controlled burning of medical waste. This project focuses on the environmental aspects of medical waste incineration taking place in Suguturu. The objective of the study conducted is to process and assess the efficacy of the incineration facility in the discharge of effluent and emissions in the environment. In the study of the parameters, stack emission monitoring to determine the Sulphur dioxide, Oxides of Nitrogen, Hydrochloric acid and particulate matter would be done. Further on the effluent discharge monitoring, characteristics of the effluent (pH, total suspended solids, BOD, COD, Oil and grease) and solid waste disposal would also be studied and compared to the prescribed norms of the pollution control board. The limitations of the incinerator are addressed with respect to the pollution being emitted and requisite suggestions are made to overcome these shortcomings.

PRODUCTION OF BIOGAS USING PRIMARY AND SECONDARY SLUDGE OF SEWAGE TREATMENT PLANT		
SL.NO	USN NO.	NAME
1	1MS14CV051	HARSHITHA N
2	1MS14CV058	KAVYASHREE H
3	1MS14CV128	YASHU C K
4	1MS14CV130	ZAKIYA FATHIMA
Mentor Name	Dr. Umadevi B	
ABSTRACT		
<p>Biogas is a biofuel produced from the anaerobic fermentation of carbohydrates in plant material or waste by bacteria. Biogas from waste sludge is a good waste management option as well as for energy generation. Biogas plants significantly curb the greenhouse effect, the plants lower methane emissions by capturing this harmful gas and using it as a fuel. Anaerobic digestion is helpful in stabilizing organic matter, reduce odor, pathogen concentration and mass of solid organic .In this context the present study attempts to combine primary and secondary sludge from sewage treatment plant to obtain biogas. Primary sludge consists of high portion of organic matters; the consistency is a thick fluid with a water percentage between 93% to 97%. Secondary sludge contains micro-organisms are useful for further degradation of organic matter present in primary sludge. Therefore, in this experimental investigation primary sludge and secondary sludge will be mixed to produce biogas. The parameters affecting the digestion namely VSS, substrate temperature ,pH , VFA, retention time are to be monitored for optimum gas production . The experiment will be carried out to study in various mix proportions and to obtain optimum biogas from the primary sludge. The obtained biogas can be used as a supplementary energy source for various uses in the hostel complex.</p>		

REUSE OF WASTE MATERIALS IN CONCRETE BLOCKS		
SL.NO	USN NO.	NAME
1	1MS11CV074	NOUSHADH T K
2	1MS13CV003	ABDUL FAHIM
3	1MS13CV063	MOHAMMAD AMIN
4	1MS15CV400	ALTAF
Mentor Name	Swathi T S	
ABSTRACT		
<p>There is now a significant worldwide interest to solve the environmental problems caused by industrial waste and other waste materials .in this project a parametric experimental study for producing concrete blocks by using waste glass , rubber , plastic and waste concrete . At present nearly 56 lakhs tones of plastic waste is produced in India per year. The degradation rate of plastic waste is also very slow process. Hence by using waste materials in concrete blocks it will reduce the cost of concrete blocks. Some of the physical and mechanical properties of concrete blocks having various levels of fine glass and coarse glass replacement with fine aggregate are investigated. Practical use of disposing crumb rubber in concrete blocks is also being studied. Hence the project is helpful in reducing the waste materials in useful way. The objective of this study is to promote a practical usage and acceptance of waste materials in concrete concrete blocks.</p>		

Design and Operation of Robust Treatment Plant		
SL.NO	USN NO.	NAME
1	1MS13CV413	SANGANNA MALLAPPA HUDDAR
2	1MS14CV135	SHAHAMATH HASAN
3	1MS15CV416	SATHISH N K
4	1MS15CV419	SURESH BASAPPA PUTHANI
Mentor Name	JyothiRoopa	
ABSTRACT		
<p>Now a day many water resources are polluted by anthropogenic sources including household and agricultural waste and industrial processes. Public concern over the environmental impact of waste water pollution has increased. Therefore it is necessary to have a robust sewage treatment plant in such areas. There are many areas in urban municipalities which have poor sewage treatment systems or entirely lack such systems. One such area is Ittamadu. Ittamadu is a layout which is situated near Banashankari, Bengaluru, Karnataka with latitude and longitude being 12°19'22"N and 77°32'43"E respectively. The Tata promont is developing its projects in this area, After 2011 it has developed rapidly compared to other localities. Since this area is witnessing exponential growth in population and real estate development, it has resulted in the increase of domestic sewage generation. Yet there isn't any viable sewage treatment system. So it is required to construct a sewage treatment plant with sufficient capacity to treat the increased sewage (waste water).</p>		

Analysis and Comparison of Impact of Urbanization on Lakes And solution for the absolute cause.		
SL.NO	USN NO.	NAME
1	1MS14CV040	BURRA VENKAT SAI
2	1MS14CV111	SRINIVASA K N
3	1MS14CV136	ANSHUL SINGLA
4	1MS15CV421	VIJAY
Mentor Name	Usha C	
ABSTRACT		
<p>The present work deals with the analysis and comparison of urban impact on Belandur lake with sankey tank .The land around belandur lake is used as a dumping ground by builders and housing societies in the area, It receives about 40% of the city's sewage, Anthropogenic pressures like infrastructure development, housing & encroachments of lake beds (common in Bangalore) coupled with public effluent sources are the prime Factors for degradation Of urban lakes . In 2006 high power land encroachment eviction committee revealed 708 unauthorized constructions in raja kaluves and lake beds. The combination of all these factors has led to a decline in the once robust ecosystem of the lake which now resembles a stinking cesspool. The froth had formed due to presence of industrial chemicals like methane in the water and chemical deposits from detergents and cleaners which lead to the formation of highly combustible methane gas build-up on the surface of the lake had lead to the fire regularly .conservation of lake is so important at this critical stage to promote de silting -Eutrophication of lakes-to control flood - to improve underground water as well as to save ecosystem and also aquatic life present in the lake.in our first Reconnaissance survey dated on 08/03/18 we over come up with the actual problem ,we laid mile stone of our project by collecting lake water sample in bottle. Further necessary data will search through software like BHUVAN and GOOGLE EARTH and continuity of that laboratory tests like BOD, SUSPENDED, TURBUDITY, and ACIDITY carried out on lake sample then after comparing the test results with Effluent Water Quality Standards. The conclusion of project touches ultimate solution is determined by our best knowledge and using engineering skills with in the boundary of economic cost .</p>		

IMPACT ON SOIL AND GROUNDWATER DUE TO DECENTRALIZATION OF SOLID WASTE MANAGEMENT

SL.NO	USN NO.	NAME
1	1MS13CV025	ASHWINI N
2	1MS13CV404	MOHD YOUSUF ALI
3	1MS14CV070	MOHAMMED NIHAL ANWAR
4	1MS14CV107	SHWETHA S
Mentor Name	Jyothi M R	

ABSTRACT

The rapid increase in population and urbanization in Bangalore has led to generation of large quantity of domestic solid waste. A part of it is properly managed, collected, segregated, disposed, the rest is dumped illegally. Due to this the groundwater and soil is affected which has hazardous impact on public health and environment. In this project soil and groundwater samples is to be collected from Hebbal area and tested for various parameters. The main objective is to assess the impact of solid waste on soil and groundwater characteristics and check if it is within the permissible limits. This can be achieved by segregating at source, minimizing the generation of waste, improving the methods of handling it, converting the generated waste into usable resource.

Remediation of Contaminated Soil using Chelating Agents using Column Studies

SL.NO	USN NO.	NAME
1	1MS14CV042	DEEYA DEVAIAH B
2	1MS14CV071	MRUNMAYI KIRAN ANVEKAR
3	1MS14CV108	SINDHU H J
4	1MS14CV133	LEE THERES MATHEW
Mentor Name	R Manjunath	

ABSTRACT

Metal contaminated soils constitute a serious environmental problem with adverse consequences for human health. It is necessary therefore to introduce proper remediation methods. This project aims to investigate the column leaching of a contaminated soil by the use of chelating agents like citric acid (biodegradable/organic) and EDTA (non-biodegradable/inorganic). Column leaching is a laboratory method consisting of narrow columns, that involves passing water, acids, or other leaching solutions through a contaminated soil sample to model the dissolution of contaminants from the sample. Chelants are chemical compounds that react with metal ions to form a stable, water-soluble complex. They lead to the leaching of major elements (Ca, Mg, Fe, Al, Mn, Ni and Zn) showing the dissolution of soil mineral constituents. In the case of alternating chelant-water applications, leaching occurs during the chelant application, but also during water application. Within the column, the mobilization mechanisms are close to those found in the field. In our study we are going to investigate the decontamination level with different normalities of chelating agents so that an optimum value of normality is achieved, and the value can be fixed in the field to remediate the contaminated soil. Initially the amount of contamination present in the soil is determined by atomic absorption spectrometer. Normally it is performed in-situ large volume of decontaminated soil after washing can be reused as backfill at the site.

Phytoremediation Of Contaminated Soil Using Different Chelating Agents

SL.NO	USN NO.	NAME
1	1MS13CV095	Rammohan H Bandi
2	1MS14CV425	Sushanth S K
3	1MS13CV406	Nagaraj N.M
Mentor Name	R Manjunath	

ABSTRACT

Due to Industrialization and Expansion of city, the population has increased drastically. So availability of land both for construction and cultivation is limited. In the study the soil sample is collected from a dump site (SBingipura) from Bangalore South. Initial concentration of contaminants will be determined using laboratory methods like AAS technique. Remediation method like phytoremediation is selected in this case using plant species chlorophytum. The application of chelating agents like citric acid and EDTA is used with different molarities. The chelating agents increase the release of metal from the soil at particular concentration. The optimum concentration from the investigation is checked. After particular interval of time the contamination level both in soil and plant species will be determined. The molarity value of a chelating agent which gives maximum absorption is determined and proposed for further studies.

STUDY AND IMPROVEMENT OF TRAFFIC FLOW AROUND MSRIT CAMPUS

SL.NO	USN NO.	NAME
1	1MS14CV088	RAHUL A
2	1MS14CV092	RAKSHITH.K
3	1MS14CV098	SANKET DOULHRAY MARNUR
4	1MS14CV134	SRILAKSHMI S.S
Mentor Name	Dr. S M Naik	

ABSTRACT

The present project work study relates with the traffic flow around MSRIT campus due to rising student enrolments, staff members and other vehicles. Improvement techniques to tackle these traffic problems like road narrowness, traffic congestion, accidents are objectives of the project work. MSRIT is located in the heart of Bangalore city with a total area of 109835.58 m². The surrounding road network of the campus has inflow outflow of 4182 bikes and 1728 cars per hour. Hence this work is a research study to determine methods and improvements for regulating traffic flow and yet maintaining the comfort of the commuters and walkers thereby reducing vehicular traffic on the surrounding road network around MSRIT. The work involves detailed inflow outflow studies, area segmentation, quality of commuting in and around campus, survey to obtain details of commuting and other significant details. The overall simulation and output is used to propose modifications for roads around MSRIT campus for better safety and serviceability.

Behavioral Aspects and Patterns of Drivers influencing Road Accidents		
SL.NO	USN NO.	NAME
1	1MS14CV010	ADITI UMESH
2	1MS14CV030	ANISH K.S.V
3	1MS14CV047	G P ABHISHEK
4	1MS14CV086	PURVAA HEGDE
Mentor Name	NiranjanHiremath	
ABSTRACT		
<p>Previous research has provided little insight into factors that influence the probability of drivers being at fault in accidents. Road crashes can be caused by different factors including infrastructure, vehicles and human variables. From these studies, it emerged that human factors have the most relevant impact on accident severity. The severity depends upon several driver behaviour characteristics i.e. drivers socio-economic activities, experience and attitude. In this study, we identify the key factors that affect driver perception of accident risk. A survey will be conducted by forming a questionnaire which will include a certain set of questions outputting whether or not a driver’s behaviour influence an accident/s. A general idea of different categories of drivers and their behavioural characteristics by compiling the survey data and data provided by the local authorities. From this we develop a model which gives probability of how much a drivers behaviour causes accidents.</p>		

Identification and analysis of parameters leading to accidents in mixed traffic flow conditions in Bangalore City.		
SL.NO	USN NO.	NAME
1	1MS14CV065	MICHEAL SEMP
2	1MS14CV079	PRADEEP SHANKARA GOUDA PATIL
3	1MS14CV082	PRAVEEN DILLEPPA HITTALAMANI
4	1MS14CV085	PURUSHOTHAM R
Mentor Name	NiranjanHiremATH	
ABSTRACT		
<p>The main cause of death in India is due to accidents. Accidents can be eliminated or reduced if appropriate precautions are taken. To introduce the precautions to the drivers, appropriate studies for the major cause of accidents should be studied and analysed at micro level. Our study is an attempt to reason out the parameters for the cause of accidents at micro level. The study and the analysis of the parameters are based on first hand reports, i.e. the reports obtained from the police station or from the accident site. With the help of these studies and by understanding the reason for accidents, guidelines are drawn out and provided to the drivers as well as a suggestion regarding precaution for accident are provided to the police and RTO departments.</p>		

Identification and analysis of parameters leading to accidents in mixed traffic flow conditions in Bangalore City.

SL.NO	USN NO.	NAME
1	1MS14CV020	ALOK GOYAL
2	1MS14CV038	ATHIRA POTHAN
3	1MS14CV089	RAHUL YADAV
4	1MS14CV095	SANIA RIFATH
Mentor Name	Niranjan Hiremath	

ABSTRACT

Traffic accidents are major problems in developing countries, more so those with an enormous population. India checks both the boxes and some. Over 137000 people were killed in road accidents in 2013 alone, i.e. more than the number of people killed in all our wars put together. There is one death every 4 minutes due to road accidents in India. This leads to the aim and necessity of the study i.e. to examine what factors contribute to road accidents in the study area and to evaluate statistically the effect of certain driver characteristics on road accidents and try to find a solution to the identified problems. With the help of data available locally from Police Stations, RTO and drivers, comparisons were drawn nationally and internationally with areas that faced similar problems over the period of last few years. Conclusions will be drawn as to deficiencies in awareness about accidents in India and inadequacies of supervision by the law enforcement agents.

INVESTIGATION ON UTILISATION OF RAP FOR SUB BASE COURES IN LOW VOLUME ROAD

SL.NO	USN NO.	NAME
1	1MS11CV074	HARSHAD
2	1MS13CV003	JAGADEESH ALLAGI
3	1MS13CV063	KARTHIK D K
4	1MS15CV400	KISHOR KUMAR S
Mentor Name	Charan Prasad	

ABSTRACT

The changing economics and the affordability for vehicles has changed the vehicular scenario in rural area's especially in the recent decade. Low volume road is considered a road that has relatively low use (an Average Daily Traffic of less than 400 vehicles per day), low design speeds (typically less than 80 kph), and corresponding geometry. The conventional methods and specifications tend to recommend technology and materials, however difficult and distance away they may be, which normally result in higher cost of construction. It is the duty of the engineers to spend every rupee of the taxpayer's money with optional utility particularly under resource constraints. This calls for introduction of innovative approaches in rural road building for achieving cost-effectiveness.

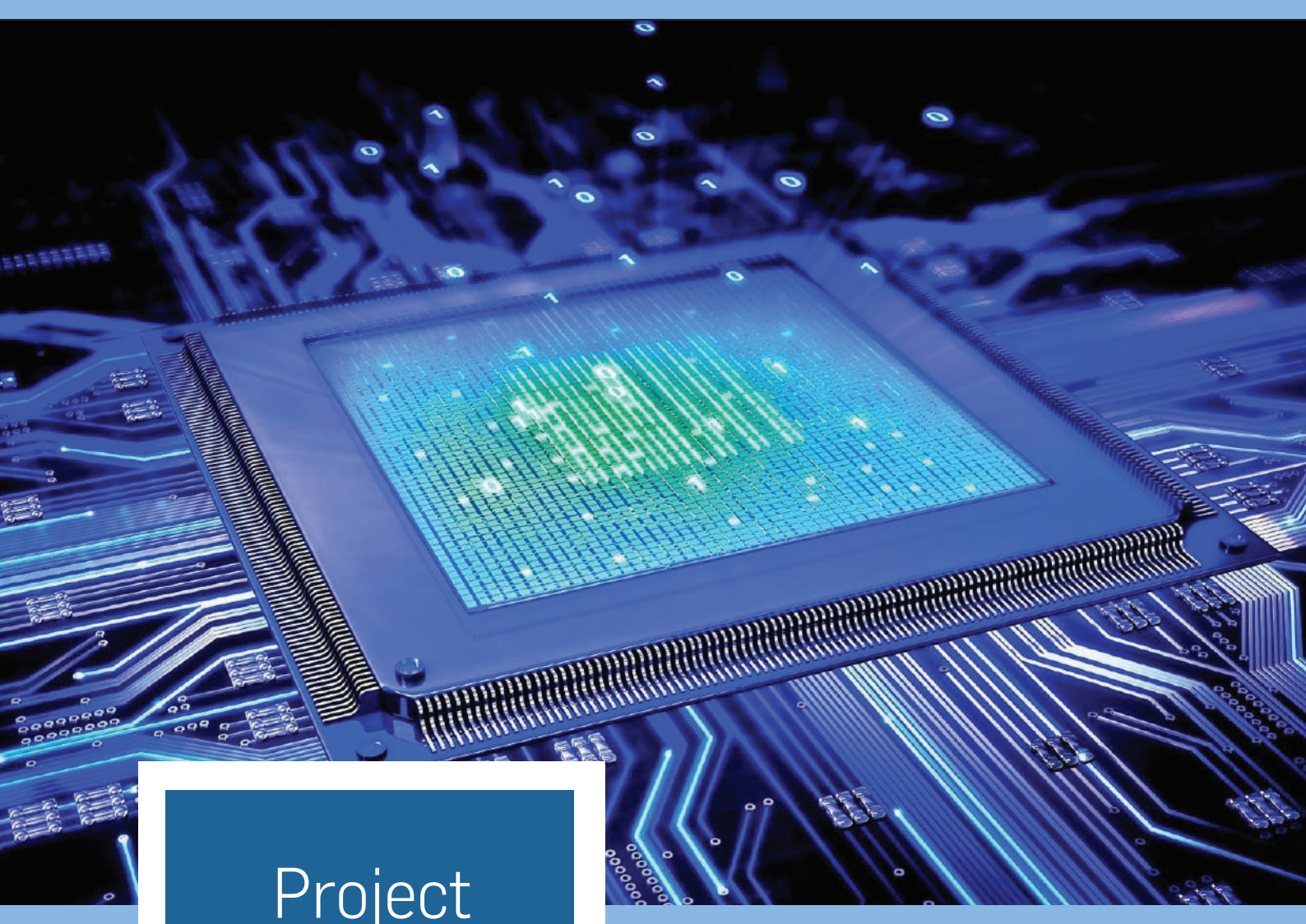
Investigation on Utilisation of Rap for Base Course in Low Volume Roads		
SL.NO	USN NO.	NAME
1	1MS14CV004	ABHIJEET KULKARNI
2	1MS14CV023	AMARNATH
3	1MS14CV138	BASAVARAJ H
4	1MS15CV410	MUNNAPATEL
Mentor Name	Charan Prasad	
ABSTRACT		
<p>The changing economics and the affordability for vehicles has changed the vehicular scenario in rural area's especially in the recent decade. The provision of flexible pavement as per the rural road manual (IRC SP:20-2002) has very thin course and base course generally consisting Macadam's and Leaner concrete. The thin bituminous course put enormous stress due to the steel wheeled vehicles like Bull carts. On the base course which leads to the rapid deterioration of rural roads on the other hand large scale up gradation of existing highways and flyovers are producing the huge amount of bituminous waste which is being reused in the form of Reclaimed Asphalt Pavement (RAP). In this present study an attempt will be made to reuse the RAP material in the base course for rural road pavements. The RAP will be used in various percentages along with by product like Fly ash to enhance the strength and other characteristics.</p>		

Development Of Smart Sustainable Village		
SL.NO	USN NO.	NAME
1	1MS14CV032	ANKUR BAJPAI
2	1MS14CV033	ANSH GARG
3	1MS14CV035	ARJUN P H
4	1MS14CV123	UTKARSH ARORA
Mentor Name	Dr. Jagadeesha Kumar B G	
ABSTRACT		
<p>This project aims to develop a smart sustainable village. In India, villages are not systematically and scientifically developed. Hence, people are migrating from villages to the cities, overcrowding them. Smart villages will help us stop this outflow to the cities. Prime focus will be to propose a design for a cold storage unit, linking it with a biogas plant, resulting in a self-sustained working model. This will help farmers store their extra produce and sell it when there is shortage of supply. This project will also look into key areas like watershed management, remote sensing, vertical farming and drip irrigation. To achieve this, a village named Ragihalli is being selected, which is located at a distance of 40 kilometers from Bangalore. The choice of village is being influenced by the fact that it is adopted by Ramakrishna Mission, which is a social welfare organization, who are already educating the farmers about the latest technologies. So, it will be easy to propagate the above.</p>		

Development of sustainable building blocks		
SL.NO	USN NO.	NAME
1	1MS14CV056	K SANIA KARUMBIAH
2	1MS14CV060	KHYATHI R
3	1MS14CV069	MOHAMMED HAMMAD
4	1MS14CV073	N SAI NIKHIL
Mentor Name	Dr. Jagadeesha Kumar B G	
ABSTRACT		
<p>The aim of our project is “Development of sustainable building blocks” out of bio mass like waste from wood industry, agricultural waste, and garden waste via bio consolidation using fungi. The project involves collection of fungus specimens from local sources that are capable of binding the waste material into sustainable blocks. It involves development and optimization of techniques and the study of various physical and strength characteristics, and to perform certain tests on the blocks like compression tests, as well as fire and water resistance tests. Currently, we are gathering all the required information and working around the certainties and uncertainties of the project. We have collected frozen white and pink oyster mushroom seed samples (fungi) which are going to be used as the binding material and various materials like sawdust, hay, and bagasse are going to be used as the substrate and this mixture is to be paced in a mould for at least 15-20 days for the fungus to grow and then removed and oven dried to give the blocks strength. If the project work is successful, we plan to publish its findings in reputed conference and journals.</p>		

Urban Lake Development and Improved Land Management across Varthur Lake.		
SL.NO	USN NO.	NAME
1	1MS15CV402	CHETAN BHIMSINGH JADHAV
2	1MS15CV414	RAKSHITHA B S
3	1MS15CV415	SANATH KUMAR T
4	1MS15CV420	TEJASHWINI.P.
Mentor Name	Dr. H Ragavendra	
ABSTRACT		
<p>Lakes are an inherent part of the ecosystem. Lakes have traditionally served the function of meeting the requirements of domestic, industrial and cultural purposes. In Bangalore, lakes played a prominent role serving the needs of agriculture and drinking water. One among such is Varthur Lake which our project aims at. This project aims at water quality management of lake through various quality standard tests by checking water quality parameters in the lake as well as effluent inlets and lake water outlet. Suitable tests i.e. BOD, COD, pH, Hardness, will be conducted to assess the degree of contamination and the extent of treatment as well as type of treatment to be adopted. The project also aims at infrastructure development of lake in order to improve the aesthetics, to control pollution from vehicular traffic, residential, industries surrounding. Through sustained and improved land development across the lake, and also enhancing rate of ground recharge by providing pervious concrete roads surrounding the lake.</p>		

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



Project
Abstracts

2017 - 2018

IoT BASED SMART GARBAGE MANAGEMENT SYSTEM

SL.NO	USN NO.	NAME
1	1MS14CS097	RAMESH TOLAMATTI
2	1MS15CS409	LAKKAPPA PUJARI
3	1MS15CS415	PRASANTH S
4	1MS15CS420	SRIKANTH P
Mentor Name	ASS.PROF. SINI ANNA ALEX	
ABSTRACT		

Waste Management has been a major concern for residents in developing countries. With increase in population, the scenario of cleanliness with respect to garbage management is degrading tremendously. With the already prevailing diseases, the open containers are proving to be a breeding place for germs. Traditionally, municipalities operate on weekly routes to pick up trash and recyclables on designated days, regardless of whether the containers are full or not. In metropolitan cities due to improper garbage collection and disposal, people are suffering from diseases. To overcome these problems we have designed a system which provides a Hygienic environment to open and close the garbage bin automatically. And once the bin is full, the lid will not open unless the bin is emptied or cleared. Location of that particular bin is sent to municipal authority to send a vehicle to clear the bin. An Android application which maintains the database of all the garbage bins locations as a place-picker in the Google Map and the status of each garbage bin is captured and displayed in the application. The municipality authority can take further actions.

AUTOMATED PLANT IRRIGATION SYSTEM

SL.NO	USN NO.	NAME
1	1MS14CS106	S SUBRAMANIYAN
2	1MS14CS130	TALLAM AMAR KUMAR
3	1MS14CS137	VIKAS M S
4	1MS14CS141	VIVEK R
Mentor Name	Dr. MONICA R MUNDADA	
ABSTRACT		

Data Mining is an emerging research field in agriculture specially crop yield analysis and yield prediction. Agriculture is an important sector of Indian economy as it contributes about 17% to the total GDP and provides employment to over 60% of the population. Yield prediction is a very important agricultural problem that remains to be solved based on the available data. However, the cultivation of the crops for optimum yield and quality produce is highly technical. It can be improved by the aid of the technological support. The management of irrigation can be improved using an automated irrigation system. A system that will help a farmer to know his/her field status from any part of the world. The automation not only provides comfort but also reduces energy and is efficient and time-saving. This project proposes the use of Automatic AtMega 328P microcontroller-based irrigation system which includes a solar panel in the circuitry. Soil moisture, pH value of the soil, Temperature, Humidity are measured. With the help of sensors, parameters are measured and sent to a system to be stored and is used for further analysis for the prediction of crop yield and with respect to that, efficient farming can be done.

ASSISTIVE TECHNOLOGY FOR SPECIALLY ABLED INDIVIDUALS

SL.NO	USN NO.	NAME
1	1MS11CS018	ANN MIRAH JOSEPH
2	1MS11CS035	D. SNEHA
3	1MS11CS067	MEGHA SUNIL KUMAR
4	1MS11CS149	TRIPTI TANVI
Mentor Name	PROF. SINI ANNA ALEX	
ABSTRACT		

The main aim of this project is to help improve communication skills through assistive technology for individual with disabilities that make it difficult for them to understand and learn. It aims to achieve this result through machine learning and deep learning tools and techniques. This project will have two main forms of input text and speech. This input will then be processed into a standard text format. The input text will then undergo two layers of processing. The first layer will deal solely with correcting the spelling of words, and the second layer will deal with correcting the grammar of the sentence. The methodologies for Natural Language Processing used for the above-mentioned actions are machine learning and deep learning tools and techniques such as TensorFlow's sequence to sequence models and Recurring Neural Networks. The tools required for the project are all open source and available. The output then received will be in the form of text and also speech if required to help with pronunciation of the words inputted. Apart from the above mentioned functionality it also has a dictionary feature where common words and its meaning can be understood and also few common phrases that are generally used in certain situations. The target audience for the above project is mainly adults, and this will help people with disabilities such as dyslexia, autism, speech and hearing impairment.

MITIGATION OF A COMBINED DDOS ATTACK ON A PRIMARY SERVER AND SDN CONTROLLER USING MULTI LAYER FAIR QUEUEING WITH PRIORITY ON TRAFFIC VARIATION

SL.NO	USN NO.	NAME
1	1MS14CS103	RISHAB POKHARNA
2	1MS14CS108	SAMRIDH DOKANIA
3	1MS14CS116	SHIKHAR SRIVASTAVA
4	1MS14CS129	SYED SHAFIQ
Mentor Name	PROF. SANJEETHA R	
ABSTRACT		

SDN is a new network architecture that separates the data plane from the control plane. The SDN controller implements the control plane and is responsible for making forwarding decisions and installing rules in the flow table. The network devices like hubs, switches and routers implement the data plane. Distributed Denial of Service (DDoS) attacks on primary servers have various solutions today. However in a Software Defined Network (SDN) setting, a DDoS attack on a primary server could also bring down the SDN controller if the flow tables on the switches get compromised (Combined DDoS attack). All traffic from the compromised switches would flow to the controller which may repeatedly install the same rule into the compromised switch's flow table thereby spending all its resources on handling the traffic from the compromised switch. In our project we aim to mitigate this combined DDoS attack by using Multi-Layer Fair Queueing that prioritizes the switch queues based on the traffic variation so that normal packets are processed with high priority and attacker packets are processed with low priority thereby mitigating combined DDoS attack on primary server and SDN controller.

FEEDBACK INTELLIGENCE MODULE		
SL.NO	USN NO.	NAME
1	1MS14CS038	Deepak D Rao
2	1MS14CS068	Manjunath Lamani
3	1MS14CS128	Sunil Naravagol
4	1MS14CS150	Rashmi B S
Mentor Name	PROF. PRAMOD SUNAGAR	
ABSTRACT		

Feedback, both positive and negative, is very helpful. Feedback is valuable information that will be used to make important decisions. Top performing companies are top performing companies because they consistently search for ways to make their best even better. For top performing companies 'continuous improvement' is not just a showy catchphrase. It's a true focus based on feedback from across the entire organization – customers, clients, employees, suppliers, vendors, and stakeholders. Top performing companies are not only good at accepting feedback, they deliberately ask for feedback. And they know that feedback is helpful only when it highlights weaknesses as well as strengths. Getting the right feedback at right time is of at most importance ,for any organization or faculties of an institution .Getting the feedback from the users will help an organization to provide better services to the users. Ongoing interaction with users can help improve the efficiency of an organization, and enable them to provide better service to the users.We are going to build a feedback application form and perform data mining on it to give a result that will help us in suggesting the organization or company to improve their service.

HANDWRITING RECOGNITION ENGINE		
SL.NO	USN NO.	NAME
1	1MS14CS037	DEEPA H
2	1MS14CS039	DEEPTI BASAVARAJU
3	1MS14CS042	ELIZABETH MARY XAVIER
4	1MS14CS057	LOHITH J M
Mentor Name	MS. VANDANA S SARDAR	
ABSTRACT		

Handwriting recognition has become a challenging area of research. It is very popular and comprises of computationally expensive work. This project aims at developing a simple handwriting engine with the help of Tensor Flow. It is an open source software library developed by Google and is used for machine learning applications like deep learning, Neural networks etc. Tensor flow provides the best API's and libraries to implement any deep learning or neural network applications, hence by using this tool we aim to reduce the difficulties faced in implementing complex algorithms and models for creating recognition engines.In this project, we mainly use Convolutional Neural Networks (CNN) and Logistic Regression. The dataset used is the MNIST dataset which is used for training image processing systems. The goal of this project is to make our system capable of recognizing handwritten digits using a trained model developed by us. This project is beneficial in the health care field to overcome uncertainties in the handwriting of professionals namely doctors. It also has an added advantage in the education system where handwritten documents can be digitalized.

ANALYSIS OF COMMUNICATION PROTOCOLS IN IOT

SL.NO	USN NO.	NAME
1	1MS14CS059	M GAURAV
2	1MS14CS084	PRAMOD KULKARNI
3	1MS14CS087	PRASANN K PATIL
4	1MS15CS405	GIRISH L V
Mentor Name	PROF. APARNA R	

ABSTRACT

Internet of Things (IoT) consists of smart devices that communicate with each other. It enables these devices to collect and exchange data. Besides, IoT has now a wide range of life applications such as industry, transportation, logistics, healthcare, smart environment, as well as personal, social, gaming, robot, and city information. In this project we will attempt to review different communication protocols in IoT. In addition, it will compare between commonly IoT communication protocols, with an emphasis on the main features and behaviors of various metrics of power consumption, security, data rate, and other features. This comparison aims at presenting guidelines for the researchers to be able to select the right protocol for different applications. This will enable users to have the proper knowledge about which protocol to choose for communication among devices and also will provide more security to the device by ensuring that the right protocol is used.

DETECTION OF OPINION LEADERS USING SOCIAL NETWORK ANALYSIS

SL.NO	USN NO.	NAME
1	1MS14CS102	RENUKAPRIYA K
2	1MS14CS105	S M LEELAVATHI
3	1MS14CS115	SHARVANI KULKARNI
4	1MS14CS133	THANUSHREE J
Mentor Name	PROF. JAYALAKSHMI D S	

ABSTRACT

Today, social networks become very popular and include a wide range of users. In these networks, some users have a great influence ratio to other users who are called opinion leaders. They can use their influence on many issues, such as political, economic, education, social, etc. online communities in the World Wide Web become increasingly interactive and networked. Web 2.0 technologies provide a multitude of platforms, such as blogs, wikis, and forums where for example consumers can disseminate data about products and manufacturers. This project will find opinion leaders by analyzing twitter data. For each screen names TTF ratio is found and depending on that ratio a list of top 10 opinion leaders is given. The tweets are also classified related to brand of product using clustering algorithms. Word cloud is drawn to find words with highest count. In this way influential user is detected in different products.

OPINION MINING OF COMPANY REVIEWS AND RECOMMENDATION SYSTEM BASED ON C4.5 CLASSIFICATION.

SL.NO	USN NO.	NAME
1	1MS15CS416	PRERANA GIRI
2	1MS14CS144	SUSHMA R HEGDE
3	1MS14CS080	NIVEDITHA REDDY
Mentor Name	PROF. MALLEGOWDA M.	
ABSTRACT		

We present a system where the user can input any company name and the system does web scraping using a module called beautiful soup in python and collects reviews from various employment websites and does sentiment analysis on the reviews. The system then displays the percentage of positive, negative and neutral reviews. These ratings from the sentiment analysis are then stored in a file which is used for further classification. C4.5 algorithm is used for classifying companies to 3 different classes: good , moderate or bad . The ratings obtained from C4.5 classification is used for showing recommendations of companies that belong to the similar class. The user can select one of the recommended companies and compare visually by a graph displayed . The system also mines data from twitter to display the trending tweets about the company that is being queried. We use python tkinter for developing the GUI and for opinion mining. We intend to use R for the recommendation system. This application is useful for those looking to make career decisions.

EFFICIENT DECISION SUPPORT SYSTEM ON AGROMETEOROLOGICAL DATA

SL.NO	USN NO.	NAME
1	1MS14CS007	ABHISHEK TELI
2	1MS14CS015	AMITH A
3	1MS14CS027	BHANU KAUSHIK K
4	1MS14CS044	GOPALA KRISHNA VASANTH K
Mentor Name	Dr. SEEMA S	
ABSTRACT		

Agriculture constitutes the backbone of the Indian economy. Farmers need advance expert knowledge to take decision during sowing, irrigation management, integrated pest management, storage etc. Agrometeorology is defined as the science investigating the meteorological, climatologically and hydrological conditions that are significant to agriculture owing to their interaction with the objects and the processes of agriculture production. Agrometeorology studies the behavior of the weather elements that have direct relevance to agriculture and their effect on crop production. This Project works on developing a Decision Support System to counter imbalances and changes in the weather helping in a better yield. Decision support system are trained on parameters essential for plant growth and yield such as Temperature, Humidity, Potential Evapotranspiration, rainfall etc. The aim is to analyse the impact of climatic variables on quality of agriculture and crop production. The irregularities in the trends of parameters such as PET aims to infer results which help in determining the favorable agrometeorological conditions for plant growth. Patterns followed by these variables in the past few decades can help us train the decision support system in determining the type of crops suitable for the given soil and the variation in the plant growth by sowing the seed at variable depths.

Inducing DDoS attack on Switch by poisoning network visibility of OpenFlow controller using LLDP packets in Software Defined Networks

SL.NO	USN NO.	NAME
1	1MS14CS004	ABDULLA KHALIL AHMED
Mentor Name	PROF. SANJEETHA R	

ABSTRACT

Software Defined Network is a new network paradigm in which a logically centralized controller decides on how the packets will be routed in the network and installs the path into flow tables that are maintained by forwarding switches. In order to take routing decisions, the controller needs to collect global view of the entire network which mainly includes the switches connected to it, the hosts that are connected to these switches and the links between all the switches in the network. The controller uses Open Flow Discovery Protocol (OFDP) which refers to LLDP (Link Layer Discovery Protocol) packets. This drawback of controllers can be exploited by intruders to perform DDoS attacks on a primary server providing important services in the network. In our project we aim to show the vulnerability of existing controllers which discovers a wrong network topology because of the LLDP packets (induced into network by compromised hosts) that advertises fake links between switches thereby building a topology such that many packets are unnecessarily sent to the target switch (DDoS) which is connected to the primary server. This results in loss of communication between the legitimate clients and the server.

DETECTION OF OPINION LEADERS USING SOCIAL NETWORK ANALYSIS

SL.NO	USN NO.	NAME
1	1MS14CS102	RENUKAPRIYA K
2	1MS14CS105	S M LEELAVATHI
3	1MS14CS115	SHARVANI KULKARNI
4	1MS14CS133	THANUSHREE J
Mentor Name	PROF. JAYALAKSHMI D S	

ABSTRACT

Today, social networks become very popular and include a wide range of users. In these networks, some users have a great influence ratio to other users who are called opinion leaders. They can use their influence on many issues, such as political, economic, education, social, etc. online communities in the World Wide Web become increasingly interactive and networked. Web 2.0 technologies provide a multitude of platforms, such as blogs, wikis, and forums where for example consumers can disseminate data about products and manufacturers. This project will find opinion leaders by analyzing twitter data. For each screen names TTF ratio is found and depending on that ratio a list of top 10 opinion leaders is given. The tweets are also classified related to brand of product using clustering algorithms. Word cloud is drawn to find words with highest count. In this way influential user is detected in different products.

ALCOHOL DETECTION & ENGINE LOCKING SYSTEM

SL.NO	USN NO.	NAME
1	1MS14CS096	RAKESH K
2	1MS14CS124	SRIKRUTH S
3	1MS14CS109	SATISHA
4	1MS15CS404	GAJENDRA K T
Mentor Name	PROF. VEENA G S	
ABSTRACT		

This system is aimed at making vehicle driving safer than before. This is implemented using Arduino. We have derived the driver's condition in real time environment and we propose the detection of alcohol using alcohol detector connected to Arduino such that when the level of alcohol crosses a permissible limit, the vehicle mobility will turn off and the GPS module will capture the present location of the vehicle. Also the GSM module will automatically send distress message to police or family members.

Automation of Services using Hand Gesture Recognition

SL.NO	USN NO.	NAME
1	1MS14CS075	NIKHIL PRASAD
2	1MS14CS078	NISHANK SOGANI
3	1MS14CS091	PUNEETH G.
4	1MS14CS110	SATYA TEJA C.
Mentor Name	PROF. CHETHAN C. T.	
ABSTRACT		

A hand gesture recognition system provides a natural, innovative and modern way of non-verbal communication. Neural networks are being used to develop a wide area of application systems to enhance human computer interaction. In this project, we are proposing a media player that can be controlled using hand gestures for the various functionalities of a media player such as play, pause, next, volume control and so on. The technology used for designing the recognition system for gestures is a convolution neural network (CNN). The CNN is first used to develop a model based on the training dataset, which is then stored and used as a backend for recognizing the different commands for the media player. When the media player is started, an asynchronous video capturing is launched which continuously identifies the gesture commands for the media player in real time.

Attribute-Based Storage Supporting Secure Deduplication of Encrypted Data in Cloud		
SL.NO	USN NO.	NAME
1	1MS12CS037	NIKHIL NAYAK
2	1MS13CS053	KANCHAN SINGH
3	1MS15CS402	APTHA LR
4	1MS15CS422	TANUJA N
Mentor Name	PROF. T.N.R.KUMAR	
ABSTRACT		
<p>Attribute base encryption (ABE) is used to encrypted data of user on a cloud service provider and user has the ability to share his/her data to other users with credentials with which he/she is able to access the data that is allotted to that level of credential to able to implement this feature .The standard ABE system does not support secure deduplication ,deduplication is the elimination of duplicate copies of identical data, deduplication is done so as to save storage space and network bandwidth , we plan on presenting an attribute based storage with secure deduplication implemented in a hybrid cloud where the private cloud is responsible for duplicate detection and the public cloud is responsible for the management of storage of data . if we compare our system to existing deduplication systems, our system has the following advantages. It can be used to confidentially share data with with users having specific credentials or access policies to access the data instead of using a common decryption key, it can achieve better semantic security to provide confidentiality of data over existing systems where they use weaker security.</p>		

A STUDY ON MUSIC GENRE CLASSIFICATION BY COMPARING VARIOUS METHODS		
SL.NO	USN NO.	NAME
1	1MS14CS077	NIKITHA PREETHAM
2	1MS14CS126	SUJAY KOUJALGI
3	1MS14CS076	NIKITA DAHIYA
4	1MS11CS038	DWIPANJEETA BRAHMA
Mentor Name	DR. T.N.R. KUMAR	
ABSTRACT		
<p>In today's fast paced world that relies heavily on technology, many major industries use music to promote their merchandise or implement music and music recognition in their products, such as Shazam, Soundcloud, and Spotify. This booming field of music recognition and identification brings the question as to how effectively the various genres of music are classified. Our intended project aims to explore how machine learning is implemented to identify trends in music and understand the nuances scientifically and is emulating how humans can easily and speedily classify or recognize the different genres given a music clip or a song. In this project, we aim to demonstrate the various machine learning models that can be used to successively filter, classify, and finally recognize the different music genres. Every song has a genre such as, but not limited to, Electronic (EDM, Trance), Metal, Rock, Classical, and Pop. We aim to analyse music and classify it according to its respective genre. Machine learning techniques are applied to a training set of music clips that have already been collected and then, attempt to teach and classify the songs according to its respective genre. Several different classifiers in machine learning will be adopted to do the same. Each classifier has different performance and features where each have their pros and cons such as in the usage of the size of data, the features and the number of features used, hyper-parameters. We will then attempt to compare each of these classifiers given the same training set and classification set and see how each perform.</p>		

RECOMMENDATION SYSTEMS AND THEIR OPTIMIZATION USING COMBINATION OF COLLABORATIVE AND CONTENT BASED FILTERING

SL.NO	USN NO.	NAME
1	1MS14CS100	RAVI VATS
2	1MS14CS139	VISHAL DHULL
3	1MS14CS088	PRASHANT SARASWAT
4	1MS14CS081	PIYUSH AGRAWAL
Mentor Name	PROF. SRINIDHI H	

ABSTRACT

Recommendation algorithms are being used in lots of information systems and Internet applications. The recommendation algorithm can pick out the information or items or products that the users are interested in purchasing/ consuming. Systems using recommendation algorithms like Collaborative Filtering, Content-Based Filtering etc. are called Recommendation systems. Recommendation systems are changing how websites communicate with their users. Rather than providing a static experience by providing only simple features like searching for a product and buying it, recommendation systems tend to increase user interaction by recommending the user a product. Recommendation systems identify recommendations autonomously for individual users based on past purchases and searches, and on other user's behavior. In this project, we would first look at some basic/traditional recommendation algorithms like Collaborative Filtering, Content Based Filtering etc. and benchmark them for accuracy metrics and time taken for computation against a standard dataset. However, most traditional recommendation algorithms only consider the precision as the evaluation metric of the performance. Actually, the metrics of diversity and novelty are also very important for recommendation. Unfortunately, there is a conflict between precision and diversity in most cases. Hence, to strike a good balance between precision and diversity, we would try to optimize our recommendation algorithm using hybrid approaches. We would then benchmark these hybrid algorithms for accuracy metrics and computation time. Then we would optimize these algorithms for the best hyper parameters according to their accuracy on the validation dataset. Following that, we would train these algorithms on a huge enough dataset with considerable amount of edge-cases and save the trained models of these optimized algorithms locally to load them up quickly to give out recommendations in any application. Finally, we would combine two or more recommendation algorithms using ensemble learning approaches to make our recommendation system more robust and optimized. And then use this recommendation system in a web/mobile based application to show accurate recommendations for movies.

STOCK PREDICTION USING SUPERVISED LEARNING

SL.NO	USN NO.	NAME
1	1MS14CS019	ANURAG P
2	1MS14CS050	KARAN SHAH
Mentor Name	PROF. APARNA R	

ABSTRACT

Efficient Market Hypothesis is the popular theory about stock prediction. With its failure much research has been carried in the area of prediction of stocks. This project is about taking non quantifiable data such as financial news articles about a company and predicting its future stock trend with news sentiment classification. Assuming that news articles have impact on stock market, this is an attempt to study relationship between news and stock trend.

HANDWRITTEN DIGIT RECOGNITION		
SL.NO	USN NO.	NAME
1	1MS14CS070	N NEHAAL HEGDE
2	1MS14CS073	NAREN T DIVVALA
3	1MS14CS104	RIVA NEEL
4	1MS14CS119	SHRAVYA SRIDHAR
Mentor Name	PROF. GANESHAYYA SHIDAGANTI	
ABSTRACT		
<p>Human beings have been given a natural tendency to identify letters, objects, numbers, and voices. However, making a machine do these types of tasks is a very complicated problem. Pattern recognition is a necessary component of artificial intelligence and computer vision. Interest in pattern recognition is growing fast aligned to the prohibitive amount of information that we come across in our day-to-day. Consequently, computerization is very much needed to handle this information explosion. Handwritten digits recognition is an old and important problem of machine learning. The objective is to recognize images of isolated handwritten digits. More specifically, the problem is equivalent to find a model, which takes image of handwritten digit as input, and output the predicted class label of the image. Furthermore, the ideas and methods to solve this problem would be very useful in various fields of pattern recognition problems where large volumes of real-world data is used. Neural network has been widely used in the field of pattern recognition. This project presents an implementation of Handwritten digit recognition using the neural network approach of Back-propagation.</p>		

SMART HEALTHCARE SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14CS061	M K SAI PRAKASH
2	1MS14CS085	PRARTHANA UDAYA
3	1MS14CS112	SHAGUN SRIKANT
4	1MS14CS1114	SHARAT NAIK
Mentor Name	PROF. SOWMYA B J	
ABSTRACT		
<p>You may feel there's nothing you can do about stress. The bills won't stop coming, there will never be more hours in the day, and your work and family responsibilities will always be demanding. But you have a lot more control than you might think. Stress management is all about taking charge: of your lifestyle, thoughts, emotions, and the way you deal with problems. No matter how stressful your life seems, there are steps you can take to relieve the pressure and regain control. The purpose of the project is used in order to provide the software that the Corporate/Employees/Public/Patients authority can use in order to manage the health information of the Patients. The most important objective of our project is to determine the stress level for employees working in the Public Sector / Private Sector using Naïve Bayes Range Computation Algorithm and if the users are having low, medium or No stress level then disease prediction is carried out and suggestions will be given by the expert doctors and if the user is having some serious medical problem then appointment is also given along with suggestions. The second important objective is to perform the classification of the users based on gender, income group, years of experience , age and other important factors so that this data can be given for the government /company in order to generate the schemes to solve the stress level issues and other medical issues based on income group, years of experience etc. The goal is to prioritize the employees/patients/public in need of serious medical assistance and sending their data to the doctors for further inspection and also to save the time of the employees/patient/public by sending them suggestions for some minor problems and in some cases fixing the appointments from an electronic device so that they need not travel to the doctor frequently .</p>		

SMART HELMET SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14CS079	NITESH BHANDARE
2	1MS14CS082	PRAGYA NAND BHAGAT
3	1MS14CS089	PRATEEK KAPOOR
4	1MS14CS092	RAHUL N PADTI
Mentor Name	ASST PROF. DARSHANA NAIK	
ABSTRACT		
<p>IOT has enabled us to connect our day to day devices in a network for a sole purpose to exchange data. Today a number of countries have made it mandatory to wear helmet while riding. In this paper, we describe a helmet which is made smart using latest IOT technologies. This helmet for the comfort of riders provide various functions such as Listening to the music on the go, sending SOS messages in case of emergency, use navigation services. Currently, accidents are a serious problem for everyone. Accidents are increasing day by day, so efforts are made to avoid them to minimize their consequences. Thus, using a different perspective, we provide safety with luxurious and intelligent features using a smart helmet. Two modules one on the helmet and bike each will work in synchronization, to ensure that the biker is wearing the helmet. The Piezo electric buzzer is used to detect speeding and this feature is extended by limiting the speed of the user. The ALCHO-LOCK function is used to prevent drink and drive scenarios Accelerometer detects accidents, and this is extended by employing GSM module in our circuit, which is designed to automatically send one message to one personal contact and one concerned authority that the person has been into an accident.</p>		

DISTRIBUTED NEURAL NETWORKS		
SL.NO	USN NO.	NAME
1	1MS14CS058	M SNEHA
2	1MS14CS134	TILAK S NAIK
3	1MS14CS136	VIBHA KARANTH
4	1MS14CS148	MIPSA PATEL
Mentor Name	Mr. Pradeep Kumar D	
ABSTRACT		
<p>Deep Learning is gaining increasing importance due to the improvement in results for various tasks like image processing, speech recognition, etc. Deep neural networks used for such tasks have a lot of hidden layers, and training such networks is an expensive and time consuming task. However, with the increasing usage of mobile phones, AI computation will gradually move to the phone. With current implementations of AI and Deep Learning based apps like the smart assistants, etc, the data from users' phones is sent to a server, where it is processed and analyzed. This can lead to a breach of their privacy. Our solution is to implement an application that uses the data locally to train the model and the trained model is then synchronized with the centralized copy. Training a neural network usually requires powerful computing resources that can perform computations in TFLOPS. Using a CPU might not give the same power, but since millions of users can contribute to the same, we get similar results. The model becomes inherently robust as it sees a lot of rare data points personal to each user, which would otherwise be considered sensitive to be sent over he network.</p>		

SMART PARKING LOT GUIDANCE SYSTEM BASED ON MQTT PROTOCOL		
SL.NO	USN NO.	NAME
1	1MS14CS072	NAMRATHA N
2	1MS14CS095	RAJATHA P
3	1MS14CS099	RASHMI K
4	1MS14CS107	SAMREEN AYESHA
Mentor Name	Dr S.RAJARAJESWARI	
ABSTRACT		
<p>In the present day, finding available parking spot is always difficult for drivers, and it tends to become harder with ever increasing number of vehicles in cities. To minimize such parking problems we propose a smart parking lot guidance system to share physical parking lot information that is augmented with internet connectivity across a shared cloud platform, to a large number of clients in real-time based on MQTT Protocol using the mosquito broker, for implementation. The MQTT is an ISO standard publish-subscribe-based messaging protocol which works on top of the TCP/IP protocol. This proposed system helps the users view the parking spaces in a parking lot from a remote location and book the available space at the desired time accordingly before reaching the destination. The IoT paradigm enhances the cloud based smart parking services providing a remote view of the status of the parking lot. It curbs the wastage of time and fuel and helps us solve the problem of both traffic and pollution. Using this method we can reduce the carbon dioxide emission rates and help in the reduction of global gases in the environment. This mechanism provides a user-friendly interface for hassle free parking facility which further helps in reduction in traffic congestion</p>		

TEXT TO IMAGE GENERATION USING GENERATIVE ADVERSARIAL NETWORKS		
SL.NO	USN NO.	NAME
1	1MS11CS029	CHAITANYA
2	1MS11CS098	RANJIT NEPAL
3	1MS11CS151	AMAN RAJ SHARMA
Mentor Name	DR. ANITA KANAVALI	
ABSTRACT		
<p>Automatic synthesis of realistic images from text is interesting and useful, but current AI systems are still far from this goal. However, in recent years generic and powerful recurrent neural network architectures have been developed to learn discriminative text feature representations. Meanwhile, deep convolutional generative adversarial networks (GANs) have generated highly compelling images of specific categories, such as faces, album covers, and room interiors. In this project, a deep architecture and GAN formulation. We use images and corresponding text descriptions from MSCOCO and CUB dataset and train a model for generation of images from text entered by users. We propose an attention based model over the existing techniques to get more accurate and crisper images.</p>		

DEALING WITH UNCERTAINTY IN LINGUISTICS USING SEMANTIC NETS

SL.NO	USN NO.	NAME
1	1MS14CS008	ADITYA BARSAINYA
2	1MS14CS021	ANUSHA S
3	1MS14CS045	HEMAVATHI H C
4	1MS14CS056	KOMAL K
Mentor Name	PROF. DR. ANNAPURNA P PATIL	

ABSTRACT

Uncertainty is lack of knowledge or insufficient information. It is mainly due to inaccuracy in the data available that makes a decision or prediction of results unclear. There are numerous methods that can be applied to deal with uncertainty in linguistics. One such method could be probability theory, the context based assignment of probability to each word trains the model better. Another way is to use Knowledge Base representation in the form of semantic networks. It is the representation of knowledge in the form of a graph which is composed of nodes and links. In this project we are going to make use of both probability theory and semantic networks using python script. The Google's Speech recognition API is used to take input in the form of customer query or a statement. Speech Recognizer Library has a function called Recognizer() to convert speech-to-text. To construct semantic net for knowledge base we use Textrazor API. Textrazor uses its powerful machine learning algorithms to match the queries to the meaning of the words. It offers a Contextual Entailment/Synonym extractor. For each word or phrase in the text, a list of potential entailments (words "implied" by content) is algorithmically identified, by taking into account the source word's meaning. We require relation param along with noun phrase and property object that is used to list the positions of the words, relation of the param to be predicted, phrase position within the sentence, focusing on the words in the predicate and their property. A user interface is developed to take speech input and generate a semantic net as an output along with the time taken to process the statement. The main benefit of developing such a system is for the agent to interpret human language better and work efficiently to frame a response. Some applications include simple recommender and food ordering systems.

AUTOMATICALLY MINING FACETS FOR QUERIES FROM THEIR SEARCH RESULTS

SL.NO	USN NO.	NAME
1	1MS14CS012	AKKAMMA
2	1MS15CS406	HARSHITHA V RAJ
3	1MS15CS411	MANJUSHREE M H
Mentor Name	MAMATHA V JADHAV	

ABSTRACT

A query facet is a set of objects that describes and sum up one important aspect of a query. Here a facet object is typically a word or a phrase. A query may have numerous facets that sum up the data about the query from individual viewpoints. Query facet provides absorbing and useful understanding about a query. The proposed system that addresses the problem of finding query facets by extracting and grouping frequent lists from free text, HTML tags, and repeat regions within top search results. The system makes use of semi-supervised Machine Learning algorithm such as Multivariate Regression analysis and SVM to determine the important aspects of a query which are usually presented and repeated in the query's top retrieved documents in the style of lists, and query facets can be mined out by aggregating these significant lists. The initial results show that a large number of lists do exist and useful query facets can be mined and analyze the problem of list duplication, and find better query facets can be mined by modeling fine-grained similarities between lists and penalizing the duplicated lists.

HyperBlock Ledger : A quantum age perspective on the blockchain

SL.NO	USN NO.	NAME
1	1MS13CS084	Rajarshi Prattipati
Mentor Name	Mrs. Veena G.S	

ABSTRACT

The basis of all cryptocurrencies and blockchain technologies is the computational difficulty of finding the solution to an algorithm. User interactions over a public distributed ledger are made possible using Public-Private key cryptosystems such as Elliptical Curve Cryptography. Modern Public-Private key cryptosystems are based on prime numbers, but Shor's algorithm allows a quantum computer to calculate primes at an exponentially faster rate, rendering these algorithms unsecure against a quantum computational attack. A quantum computer with enough power can overrun and establish complete control of a blockchain through a 51% majority attack, or use Grover's search to guess a Private key through a Public key. Before the transition to quantum computation is achieved, we must already be prepared with quantum-secure encryption. This paper aims to examine vulnerabilities of blockchain technology manifested by the development of quantum computer, update the blockchain paradigm for security in the quantum era. We also describe a proprietary optical computer data representation that allows transmission of data between nodes over a public insecure network in a quantum secure manner.

The project implements the following deliverables :

1. Quantum Secure Encryption using fully homomorphic lattice cryptography,
2. A coercion-free distributed consensus algorithm, and
3. HyperBlock Storage unit

SMART CONTRACT FOR ENERGY TRADE

SL.NO	USN NO.	NAME
1	1MS14CS001	A R ADITHYA
2	1MS14CS024	AVANEESH K
3	1MS14CS032	CHETAN KUMAR V JANADRI
Mentor Name	PROF. JAYALAKSHMI D S	

ABSTRACT

Small scale rooftop energy producers must add surplus energy to government grid for trading. This increases the complexity of the trade. This makes producer to lose his profit, since he has to agree with the quotation of the government. Also consumers too need to agree to government decided cost. All these transactions are visible to public which is not necessary. The idea is to create a kind of virtual, peer-to-peer energy trading system built on blockchain. The ability to complete secure transactions and create a business based on energy sharing would allow participants to bypass the electric company energy supply. Blockchain makes prosumers (producer and consumer) communicate directly and establish smart contracts which are stored as cryptographically secured hash. Presently, there are no energy trade implementations using blockchain in India. Blockchain technology is a booming technology in India. In this project we are creating private blockchain for storing the smart contract and the transaction ledger. Blockchain makes the transactions transparent and increases security of the trading network, thus increasing the trust of the users in the network. We provide a trading platform for users to sell and buy energy from each other directly based on Ethereum platform for smart contract.

SIGN LANGUAGE TO TEXT CONVERTER		
SL.NO	USN NO.	NAME
1	1MS14CS152	VIKRAM VORA
2	1MS14CS131	TANMAY AGRAWAL
3	1MS14CS127	SUMIT GHOSH
Mentor Name	PROF. PARKAVI A.	
ABSTRACT		
<p>This project is aimed at developing a system that recognises hand gestures in Indian sign language and convert them to a natural language to help hearing impaired and mute people communicate efficiently with others and vice versa. We have created a dataset of hand gestures for training and classification using Support Vector Machine, K-nearest neighbours and Logistic Regression models. A camera is used for capturing the images which is processed and classified using specified model and converted into natural language.</p>		

Automatic Descriptive Answer Scripts Evaluator		
SL.NO	USN NO.	NAME
1	1MS14CS123	SPOORTHY S HATHWAR
2	1MS14CS143	GAYATHRI DEVI G
3	1MS14CS145	BHAVANA G DONGRE
4	1MS14CS147	PRANITHA PATNAM
Mentor Name	ASSISTANT PROF. PARKAVI A	
ABSTRACT		
<p>In educational institutions a major concern is evaluation of answer sheets of subjective type questions. Automatic Descriptive Answer Scripts Evaluator aims at making this time consuming and tedious task of correcting students answer scripts very easy by utilizing the techniques of Natural Language Processing. The objective of Automatic Descriptive Answer Scripts Evaluator is to automate the process of evaluating descriptive answer scripts. Various algorithms are used to find the similarity between the reference answers and the student answer scripts. If the similarity is high, more marks will be awarded. Using several text similarity algorithms, the similarity and relative accuracy will be determined. Marks are assigned to students based on the degree of similarity with the student answer and reference answer. The project aims in exploring various Text Similarity algorithms in identifying their relative accuracies. The deliverables of Automatic Descriptive Answer Scripts Evaluator are a comparison of accuracy of various Text Similarity algorithms, student's marks displayed along with the reference answer which helps the student to know the errors made as well as the prescribed answer as soon as the exam is over. There are several advantages of using this automated system like it helps in reducing the time taken by faculty to correct the papers, the tests or examinations can be conducted online, the answers can be evaluated immediately and it would be beneficial for universities, schools and colleges for academic purpose by providing ease to faculties and the examination evaluation cell.</p>		

**Application of Zipf's Law for the Optimization of Hadoop Shuffle Phase
and Comparison of Performance of Hadoop Job Execution based on Shuffle
Parameters**

SL.NO	USN NO.	NAME
1	1MS14CS002	AASIA AFREEN
2	1MS14CS031	CHAYANIKA BHANDARY
3	1MS14CS049	JYOTHI KUMARI R
Mentor Name	PROF. GEETHA REDDY	

ABSTRACT

Today "Big Data" seems to be more than just a hype word. It is of real concern with data growing at enormous rate and with increasing demand of processing of the data so generated. In such a scenario, Big Data platforms like Hadoop come to the rescue. Tuning Hadoop performance appears inevitable for satisfying the present needs and the ever-increasing demands of tomorrow. Hadoop uses MapReduce for parallel processing. It consists of two major phases- the Map phase and the Reduce phase. There is an intermediate phase that goes unnoticed – the shuffle phase. According to analysis, it is found that one-third of the Map Reduce processing time is consumed by the shuffle phase and thus, an effort made in the direction of optimizing Hadoop performance by fine tuning the shuffle phase is legit. We see that spilling phase is a major hindrance to better performance, because if data is spilled more than once onto the disk, 3 extra I/O needs to be performed to perform sorting by the key. The 3 I/O are: writing onto the disk for the first time, reading from and writing to the disk again. Since disk access time is 6-7 times the buffer access time, spilling to the disk more than once is to be avoided to ameliorate the performance of this phase. It's also important to understand that if the Spill thread is slower than the rate at which the Map output is being produced, the circular buffer will get full and the Map task has to be blocked until there is some free space on the buffer again. In this project, we attempt a feasibility test to check if the statistical laws – Zipf's Law and Benford's Law can be applied to make smart decisions while spilling to improve the shuffle phase performance of Hadoop framework. We will also test the law against different datasets of varying sizes to check if the law has bias against some types of datasets. We will also attempt to compare the time required for Hadoop job execution by altering the shuffle parameters- io.sort.factor, io.sort.sort.mb, io.sort.spill.percent.

HEART DISEASE PREDICTION SYSTEM

SL.NO	USN NO.	NAME
1	1MS14CS051	K. SAI KALYAN
2	1MS11CS062	M .R.VAMSI KRISHNA
3	1MS11CS118	SHRAVANI RAJU P
Mentor Name	PROF. SHILPA CHAUDARI	

ABSTRACT

In today's world, people are mostly affected by the cardio vascular diseases. People neglect the symptoms such as the chest pains, cholesterol and they mistake them for the smaller problems which may lead to the lethal heart diseases. They generally hesitate to consult the doctors for such symptoms and this negligence may lead to higher risk of getting heart diseases. Prediction models are very helpful in identifying the risk of getting heart diseases. Doctors mainly rely on the clinical studies which may or may not have any practical significance. Whereas the prediction models rely on the practical existing data and when developed they may somehow help patients and doctors in making decisions about further treatments and long term care of the patients. In this project, we propose a prediction model to predict the chance of occurrence of the heart diseases. We use the data from the well known Cleveland Medical Dataset and apply the machine learning techniques on the acquired data and predict the occurrence of the heart disease.

Classification of Abusive Comments using Machine Learning

SL.NO	USN NO.	NAME
1	1MS14CS025	Ayush Gupta
2	1MS14CS153	Pawan Bhura
3	1MS14CS111	Shaarang Dev B.
Mentor Name	Mrs. Chandrika Prasad	
ABSTRACT		

Social Networking sites like Facebook, Twitter, etc. have given a platform to share innumerable contents with just a click of a button. However, there is no restriction applied by them for the uploaded content. These uploaded contents may contain abusive words, explicit images which may be unsuitable for social platforms. As such there is no defined mechanism for restricting offensive contents from publishing on social sites. To solve this problem, we propose a method that can aid human moderators as well as work independently. In our approach we are using various machine learning algorithms to filter out abusive comments namely Logistic Regression, Multinomial Naïve Bayes, Random Forests and Gradient Boosting. Currently, the data is fed manually in the model and the output is stored in a file. In future, we plan to extend this technique to a sample website and automate the process to run in real time. This can be used as a standalone application or can even be used to aid human moderators.

Secure and Transparent Voting System using blockchain

SL.NO	USN NO.	NAME
1	1MS14CS003	AAYUSHMAN BHAT
2	1MS11CS065	HARIS SUMAIR
3	1MS11CS017	ANKIT KUMAR
Mentor Name	Dr. Divakar Harekal	
ABSTRACT		

We live in a democratic country. To elect representative of their own choice is one of the basic right of the citizens of the country. To achieve the same, we must need a fair voting system so that the precious votes of citizens can't be tampered by any means. In the context of India, very often there are reports that Naxal affected areas face destruction of EVMs leading to loss of valuable vote counts. Also, many political parties lack a trust that elections are conducted fairly by a central authority. Furthermore, some even allege that votes can be tampered later after the elections are over. The above stated reasons sets some challenges for us, namely –

- 1 To make the votes immutable.
- 2 To create a transparent and fair voting system.
- 3 To make such a system decentralized.

The solution for all the above stated challenges can be achieved by using a blockchain technology. Blockchain is a very power technology which removes intervention of any central authority because of its decentralized nature.

Remote Health Monitoring(E-nursing)		
SL.NO	USN NO.	NAME
1	1MS14CS068	MOHAMMED RAYYAN
2	1MS15CS401	ANJUM BANU
3	1MS15CS418	SHAHANWAZ BEWANUR
4	1MS15CS423	venu GOPAL
Mentor Name	PROF. VEENA G.S	
ABSTRACT		
<p>Now-a-days health problems like cardiac failure, lung failures & heart related diseases are arising day by day at a very high rate. Due to these problems time to time health monitoring is very essential. A modern concept is health monitoring of a patient wirelessly. It is a major development in medical arena. This project is based on the monitoring of the patient continuously using various sensors and an intelligent monitoring system. We propose a brilliant and inexpensive health monitoring system for providing more comfortable living to the people suffering from various diseases using leading technologies like wireless communications, wearable and portable remote health monitoring device. As a result, visits of doctors to the patients constantly are decreased as the information regarding patient's health directly reaches to doctor's monitor screen from anywhere the patient resides. Also, based on this, doctors can save many lives by imparting them a quick & valuable service. Whenever, the medical vitals or readings go beyond or below a certain threshold then the GPS sensor embedded in the wearable device finds the nearest Hospital or Medical center located in the vicinity and sends them an SOS signal asking for Medical attention via an Ambulance. In this, IoT is becoming a major platform for many services & applications, also using Raspberry Pi not just as a sensor node but also a controller here. This project propose a generic health monitoring system as a step forward to the progress made in this department till now</p>		

MOVIE RECOMMENDATION SYSTEM USING DEEP LEARNING		
SL.NO	USN NO.	NAME
1	1MS14CS069	MOHAMMED THOUFIQ
2	1MS14CS047	ISHAN DOSI
3	1MS14CS014	AMAN TOMER
4	1MS14CS034	CHIRANJEEV JOSHI
Mentor Name	PROF. CHETHAN C T	
ABSTRACT		
<p>Sentiment analysis is the method of analyzing a piece of text for human sentiment or emotions. In this project, we consider the sentence-level sentiment classification task. Recently an end-to- end convolutional neural network has been proposed to predict sentiment polarity directly.However, this approach extracts features only based on input word embedding sets, and fails to make full use of a word's information. It ignores the sentiment polarity of words which has been proved beneficial to sentiment classification. In this project, the proposed system introduces a Sentiment lexical-Augmented Convolutional Neural Network (SCNN) for sentiment analysis. We learn sentiment embedding for each word based on SentiWordNet, a widely used sentiment-lexical resource. Then both word embedding and sentiment embedding are fed into a convolutional neural network classifier.</p>		

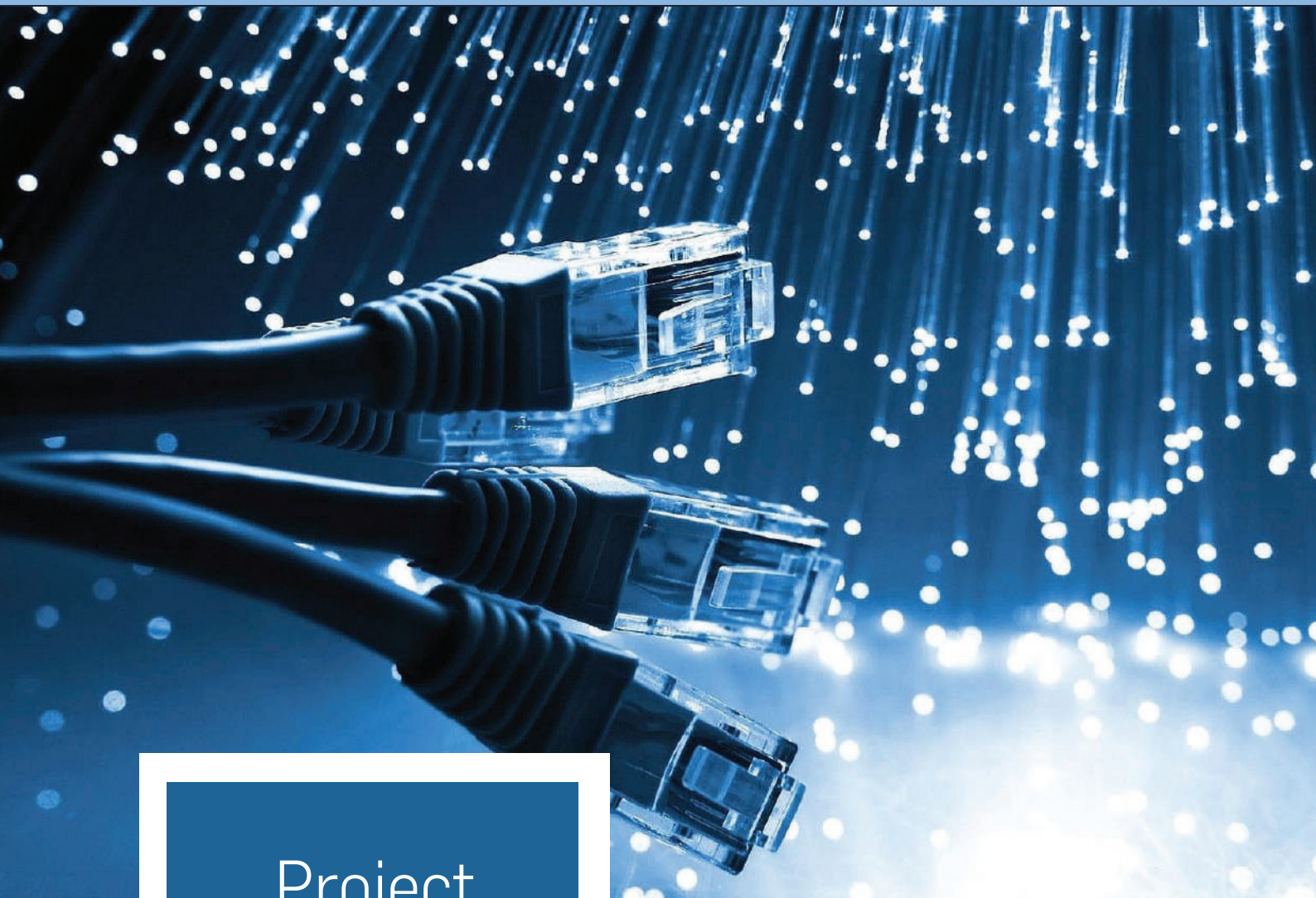
QR Based Feedback System		
SL.NO	USN NO.	NAME
1	1MS15CS421	Sunil M Govekar
2	1MS13CS041	Gahan Gurumurthy
3	1MS15CS414	Parashurama M.
4	1MS14CS423	Yashodhara Gouda
Mentor Name	PROF.HanumantRaju	
ABSTRACT		
<p>Today, more and more enterprises are keen to understand their customers better. This deeper understanding will be possible by receiving feedback on the products/services offered by the enterprise. This system is designed to provide real-time customer feedback based on QR Code. These modules will be developed using Microsoft technologies. Microsoft SQL Server will be used to store the data. The front end user interface will be developed using HTML 5. This will enable the customer to access the feedback system either on their mobile or on their desktops. Each registered business will get a unique QR code. Businesses can also opt for generating multiple QR codes, depending on their requirement. These QR codes will be displayed at the store or other relevant locations inside the Enterprise. When the customer walks into the Enterprise, they can scan these QR codes using a QR code scanner (an app available on most mobile devices). Once they scan, they get a list of questions pertaining to the product/service received by them from the Enterprise. Customer can then answer these questions, which gets stored on the cloud in real time. Enterprise can reward the customer for providing the feedback in the form of coupons, discount etc., System will allow the user to manage these rewards through a dashboard. Every user, who provides the feedback will be eligible for these rewards. This will allow the enterprise to retain these customers by building loyalty. Enterprise can change the feedback questions on demand. Any negative feedback provided by the user will be instantly transmitted to the front line managers via SMS. The system will push these messages (based on the configuration) to relevant persons in the organization using an SMS gateway</p>		

WHITE BOX : WHY HAVE I TRUSTED EVERY BOX AN APPROACH FOR MODEL INTERPRETABILITY AND BUILDING TRUST		
SL.NO	USN NO.	NAME
1	1MS14CS117	SHISHIRA R MAIYA
2	1MS14CS140	VISHAL PANJETA
3	1MS14CS016	AMOGH MANNEKOTE
4	1MS14CS009	AHAMED SHOAIB
Mentor Name	DR. ANITA KANAVALLI	
ABSTRACT		
<p>Black box machine learning algorithms are now the de facto standards in several classes of decision support systems. The performance gains obtained by these models are going hand in hand with a debt to a host of unaddressed issues concerning legality, practicality, ethics, trust, and privacy. We propose a system called WHITE box or Why Have I Trusted Every Box, where we provide feasible explanations that would make you trust the model. We also focus on the concept of input gradients, which we believe plays a crucial role in the final output of the model. The end goal of this project includes credible explanations for any given Machine Learning or Deep Learning model, usage of input gradients and human annotations, to guide the model while training, thus incorporating human domain knowledge into the model during training phase, to make it more robust and trustworthy.</p>		

VISUAL QUESTION ANSWERING SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14CS020	ANURAG SRIVASTAVA
2	1MS14CS030	CHAITRA H
3	1MS14CS028	BRINDA V ESHWAR
4	1MS14CS005	ABHIJEET SHANKAR
Mentor Name	DR. SHILPA SHASHIKANT CHAUDHARI	
ABSTRACT		
<p>Given an image and a question pertaining to the image, VQA seeks to apply deep learning tools and neural networks to enable the computer returning a natural language answer to the asked question. Since different questions inquire about the attributes of distinct image regions, generating answers with higher accuracy will require the model to have question guided attention, i.e., the attention on the regions analogous to the input question's intent. In this project, we propose a contemporary attention based deep learning framework for visual question answering task (VQA). An attention-based adaptive convolution neural network recognizes the question-guided attention based on input queries. The CNN first deduces the attention regions by detecting the corresponding visual features in the visual feature maps with a configurable convolution operation. With the support of the question-guided attention, this CNN can attain both higher VQA accuracy and superior understanding of the visual question answering procedure. The assessment of the proposed CNN architecture is planned to perform on multiple benchmark VQA datasets such as COCO-QA, VQA datasets and its subsets. This refined model is poised to achieve significant improvements over the antecedent methods.</p>		

ACTIVITY RECOGNITION USING RNN AND UNSUPERVISED MOBILITY DETECTION		
SL.NO	USN NO.	NAME
1	1MS14CS022	ANUSHRI SRINATH
2	1MS14CS023	ATIF ADIB
3	1MS14CS036	DARSHAN DALSANIYA
4	1MS14CS041	DIMPLE DOSHI
Mentor Name	PROF. ANNAPURNA P PATIL	
ABSTRACT		
<p>Activity Recognition from raw videos is one most cutting edge application of Recursive Neural Networks (RNN), the only problem with any neural network based classifier is the amount of data they require to train for even the most simplistic tasks. In this project we have proposed a new method training and scaling Recursive neural networks for activity recognition using an unsupervised mobility detection using Auto-encoders. With Auto-encoder we generate a dense representation of each frame in the video and use a sequence of such dense representations to generate clusters of videos. Auto-encoders help us build a scalable solution for real world activity recognition applications. Instead of building the classifier from scratch with addition of every new activity, auto-encoders allow us to build a hierarchical structured classifier which has actions with different mobility classified by different classifier. With a hierarchical structure, the model is much easier to maintain and adding new labelled data to its training set only affects certain parts of the networks, thus the whole network need not be trained again and again. For each activity recognition, we have used a simple Gated RNN architecture to predict the action based a sequence of frames. The number of neurons in the final layer of the network depends upon the mobility of the action, dynamically switching over from one action to another improves accuracy on videos containing sequences of more than one actions. The Gated RNNs are trained separately at the beginning, then they are arranged in a hierarchical order.</p>		

DEPARTMENT OF **ELECTRONICS & COMMUNICATION ENGINEERING**



Project
Abstracts

2017 - 2018

Prediction of Students' Performance in Engineering Program

SL.NO	USN NO.	NAME
1	1MS14EC041	Isha Krishna
2	1MS14EC057	Manisha Audrey DSilva
3	1MS14EC069	Niharika
4	1MS14EC141	VijayaParashar
Mentor Name	Internal Mentor: Dr. S. SETHU SELVI	

ABSTRACT

Content of the Abstract: This project investigates the factors affecting academic performance of undergraduate students of Ramaiah Institute of Technology. Emphasis is on trying to establish the relationship between admission points, parents' socio economic status, former school background and semester wise performance of the students. The study employed correlation design to determine the nature of the relationships using machine learning algorithms. The validity and reliability of research instruments was established and data was collected from 150 respondents selected from Department of Electronics and Communication. This forms the basis of the detailed analysis and conclusions followed by recommendations. Different permutation and combinations of the features are used to suggest which of them have more weightage compared to others, and the ones responsible for giving the most accurate prediction of the grades and hence the cumulative grade point average (CGPA) of the student. Detailed analysis of the grades and the CGPA helps in answering students' questions, and thus an extension of this project can be a recommender system which will reduce the hassle in college/university enabling the students to ask for suggestions without any hesitation and assist in successful completion of the course.

Assessment of Learning through EEG Dynamics

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ABSTRACT

Learning from data and patterns in the surroundings and then solving problems using these learnt patterns has led to many advances not just for an individual human, but for mankind as a whole. Humans make use of their five senses to receive information about the surroundings, this information then get processed by the outer cortices of the brain, and when learning happens, new synapses are developed. This development of synapses has been linked with release of certain chemicals which change the electrical activity of the brain. This project studies the electrical activity through Electroencephalography(EEG) signals, by recognizing patterns, and extracting features associated with different learning tasks. Once learning patterns are identified for a generalised set of tasks, the project determines the performance of an individual's learning through some performance metric.

Online Handwritten Kannada Character Recognition and Translation to English

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2	1MS14EC035	Geetha R
3	1MS14EC031	DivyaChavan
4	1MS14EC001	A C Meghana
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ABSTRACT

For a country to be completely digitized it is very important that each and every section of society should be able to interact with technologies (banking sectors, health care industries) comfortably. For this people should know English. But India is a multilingual country consisting of 22 official languages. Only 10% of Indian population know English. So it becomes very important to develop a system in which people should be able to interact with these technologies in their regional language. The objective of the project is to develop a technique that can efficiently recognize hand-written characters of Kannada language and then translate the same to English language. We aim at improving the efficiency of character recognition by using various machine learning algorithms. Online recognition refers to the processing of the characters as and when it is written on digitizer and recognizes the class which it belongs to. The iball 5540U Pen Tablet is used to collect the handwritten character samples and to build the database. The sensor picks up the pen- tip movements and also the pen-up/down switching. Kannada script consists of 863838 characters. The complexity is reduced from 863838 to 177 by segmentation approach. 50 samples of each character totaling to 8850 samples are used to build the database. Pre-processing technique includes smoothing, re-sampling and normalization. Spatial domain features such as normalized coordinates, normalized trajectory, normalized deviation, coordinates of dominant points are extracted. K-NN and Minimum distance to mean classifier are used to recognize the characters. Simulation results reveal an average word recognition rate of 90% with features such as normalized coordinates, normalized trajectory and normalized deviation using the combination of three classifiers namely Minimum distance to mean classifier, K-Nearest number classifier with K = 1 and 3.

Automatic Vehicle Number Recognition System

SL.NO	USN NO.	NAME
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ABSTRACT

Automatic identification of vehicle number plates is a challenging area, which is in contrast to the traditional practice of monitoring manually. Manual monitoring involves a lot of inappropriate techniques and biased decisions, the need for automated identification has become essential. The proposed approach deals with machine learning and artificial intelligence which plays a significant role in reducing the drawbacks which are encountered in manual intervention. The problem that arises in the process of implementation due to nonuniform outdoor illumination while the video is being streamed. Images captured may be blurry due to improper height of the camera, weather etc. Therefore a night vision camera is used to solve the problem. The approach involves vehicle tracking, number plate isolation, and extraction and character recognition. The obtained characters are then sent to local sever via Node MCU and data can be retrieved by accessing the local server.

Two Dimensional Demonstration of Docking System

SL.NO	USN NO.	NAME
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2	1MS14EC015	AnkushHarindranath
3	1MS14EC038	Harish N V
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ABSTRACT

Docking of spacecraft is a maneuver used to connect two spacecrafts while in orbit. This connection can be semi-permanent or temporary. Currently docking of spacecraft is done manually with the aid of human controllers. Future space missions will require automated docking systems which can operate without human intervention. This project aims to solve that problem by designing a fully autonomous docking system. The proposed model includes a target and a chaser which are controlled using Arduino microcontrollers for demonstration of docking. Docking of the two crafts are done with the help of infrared sensors and transmitters. The chaser aligns with the target after which the docking faces of both of the spacecrafts are aligned with each other. After the alignment is complete the chaser moves towards the target to complete the docking procedure. Once both of the spacecrafts are docked, the transfer of fluids, power, or crew may take place depending on the requirement of the mission. Thus the system is designed to autonomously dock while in space reducing the need for human intervention.

Automatic weed detector and remover

SL.NO	USN NO.	NAME
1	1MS14EC 056	Manish Kumar Jha
2	1MS14EC087	RajiniKumariSah
3	1MS14EC088	Rashmitha M.S
4	1MS14EC091	Rupam Sinha
Mentor Name	Internal Mentor: SUJATHA B& SUMA K V	

ABSTRACT

This project aims at designing a Smart Water monitoring system for real-time water quality and usage monitoring. It consists of two parts: Smart Water Quantity meter and Smart Water Quality meter. The objective of designing Smart Water Quantity Meter is to ensure water conservation by monitoring the amount of water consumed by a household, notifying the same to the consumer and the authority. A three-slab billing system generates consumption bill according to the quantity consumed. The Smart Water Quality meter checks the purity of portable water that the consumer receives, by measuring five qualitative parameters of water viz. pH, temperature, turbidity, dissolved oxygen and conductivity. The system ensures to prevent any health hazards or potential threats caused due to accidental seepage of sewage or farm release into the portable water meter. An online monitoring system is to provide these data on the cloud in real-time. Any violations of either usage limit or water quality parameters is immediately notified to the consumer and authority via GSM messaging and an alert signal generated by the system.

Sensing and analysis of Real-Time data in Smart cities

SL.NO	USN NO.	NAME
1	1MS14EC074	TakshNileshOza
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3	1MS14EC013	Anish RamachandraHegde
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ABSTRACT

Trauma happens at the speed of life, meaning that the overall survivability of you or the person you are rendering aid to depends on how quickly you react to that specific trauma. The number of fatalities that occur during the transit of the ambulance from the emergency site to the hospital is on the rise, owing to ever increasing traffic and location indirection. Moreover, communication between public/private sector entities is very ineffective, if not completely non-existent. We need to develop a system which not only solves these issues, but is also efficacious in transferring the patient to the hospital within the platinum minutes. We propose a solution to make the path of the ambulance either en-route to the scene, or to the hospital, as hassle free as possible; by creating a smart system to implement the following ideas:

- automated green corridors
- notifying the hospital for the situation
- directing the ambulance to that particular hospital

Smart Garbage Segregation and Collection cross the City

SL.NO	USN NO.	NAME
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2	1MS14EC084	PunyakotiS.V.Sumanth
3	1MS14EC129	Vinay.N
4	1MS14EC119	Sujith N
Mentor Name	Internal Mentor: LAKSHMI S	

ABSTRACT

This project proposes using smart technology for Waste Segregation, Collection and Transportation. Using Humidity sensor the type of waste i.e either Wet or Dry waste is detected. A level sensor detects the amount of waste collected. The data collected from the sensors is sent to cloud through WiFi module, based on the data received an alert is sounded in the Android application in the phone used by the truck driver. The truck driver also receives a route map to bin which is filled and data about the dump yard where the waste has to be disposed. Level sensing using ultrasonic sensor and type detection using DHT22 sensor gives the garbage levels and type of the garbage inside the bin. This also provides an end to end solution from source(household bins) to final destination(dump yard).

Detection of Coronary Artery Diseases Using Machine Learning

SL.NO	USN NO.	NAME
1	1MS14EC064	SrinidhiBhat N
2	1MS14EC062	Mohith BV
3	1MS14EC121	Supriya
4	1MS14EC090	Reetika Rao
Mentor Name	Internal Mentor: Dr. RAGHURAM S	
ABSTRACT		

Machine Learning has emerged as a strong contender for many tasks where some analysis is necessary. It provides a quick result, and can act as an assistive technology in medical diagnoses. In this project, we evaluate the possibility of Machine Learning to detect Coronary Artery Diseases in ECG signals. In particular, we analyze the Support Vector Machine algorithm to classify an ECG signal. Training the classifier requires labeled datasets, which are obtained from online repositories. From the signals, specific features are extracted, after which the classifier is used to learn the separation between signals from diseased and healthy patients. Experiments show that an accuracy of upto 70 % is possible on the test data. The technology can hence be used as an assistive method to qualified professionals, thereby increasing the accuracy and reducing the time taken for a final diagnosis.

Predicting Cardiac Diseases using Deep Learning Techniques

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ABSTRACT		

Coronary artery disease (CAD) caused by the blockage of inner walls of coronary artery by plaque restricts the flow of blood flow resulting in myocardial infraction. Early diagnosis of CAD is possible by ECG signal and Deep learning techniques thus eliminating invasive medical tests. Deep learning negates the need for feature extraction and pre-processing. Complex classification problems are successfully employed using deep learning. Deep learning architectures include CNN, LSTM and RNN. Among the 12 leads in ECG only lead II is fed as input after which the networks are trained and tested. The output of the network is whether the person has CAD or not. Accuracy, sensitivity and other metrics are used to evaluate the networks performance. Thus this system proposes a low cost, non-invasive screening system, to be used in the clinics having limited infrastructure.

Digital Implementation of an Artificial Neural Networks

SL.NO	USN NO.	NAME
1	1MS14EC143	Shoyeb Khan
2	1MS14EC122	Suyash Singh
3	1MS14EC134	YashankitShikhar
4	1MS14EC136	Rohit Roy
Mentor Name	Internal Mentor: Dr. RAGHURAM S	
ABSTRACT		

Living creatures pose amazing ability to learn and adapt, therefore researchers are trying to apply to machines. There are many mathematical models that mimic the behaviour of the central neural system, especially the brain, with neural networks being one of them. Traditionally, neural networks are implemented in software by training and simulating on sequential Von Neumann type computers, but the main limitation in the software implementation of Neural Network (NNs) system is that the simulation is executed sequentially. Also the speed of software simulation acts as a constraint if the neural network is of large size. A large variety of hardware has been designed to exploit the inherent parallelism as Neural Networks (NNs) profit from massively parallel processing. Also hardware realization of a Neural Network (NN), to a large extent depends on the efficient implementation of a single neuron. Consequently, we looked at various resource efficient ways of implementation of a single digital neuron. Finally, we intend to create a verilog library which can create a hardware based neural network.

Aggression Analysis using Microsoft Kinect

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1	1MS14EC018	AnuvindVijaykumar
2	1MS14EC050	LekhanaThummala
3	1MS14EC064	Mohamed Atheeq
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Mentor Name	Internal Mentor: H MALLIKA	
ABSTRACT		

With the population growing in leaps and bounds, the number of people at public places at any given moment is increasing by the day. This gives rise to the increased possibility of rifts and fights breaking out. These can turn bad quickly and result is loss of property and maybe life too. Our solution is the first step in the quick and automatic identification of aggression so that the violence can be contained and taken care of. Besides this, our prototype finds application in the VFX industry being a viable and low-cost replacement for various 3D mapping cameras and body mounted sensors. This can also be used in the analysing of the gait of an individual and can be used as a tool in aiding doctors to help in the recovery from injuries. The method developed can also finds implementation in the analysis of an athlete's performance in kick boxing, boxing, Mixed Martial Arts and similar sports. Our algorithm basically consists of two stages, the first being velocity thresholding and the second being proximity detection. When the motion of a hand or a leg exceeds a certain threshold, the proximity of that hand or leg to the other subject's body is analysed. On being closer than a certain threshold, the motion is detected as a punch or a kick.

Glitch Free Delay Lines		
SL.NO	USN NO.	NAME
1	1MS14EC117	Suchit Gupta
2	1MS14EC076	PaarasShahabadi
3	1MS14EC123	Swapnil Gupta
4	1MS14EC082	Prashant Mishra
Mentor Name	Internal Mentor: A.R.PRIYARENJINI	
ABSTRACT		
<p>Time-to-Digital Converters (TDC) are similar to Analog-to-Digital Converters (ADC), except that the TDC quantizes time intervals with respect to a reference period while ADC quantizes voltage or current.</p> <p>In the field of aeronautics, TDC's are used to measure accurately the time-of-flight of Drones using Light Detection and Ranging (LIDAR) Systems. Other applications of TDC's include usage in Biometric Sensors such as Fingerprint Scanners and Laser Scanners.</p> <p>Due to high frequency applications, the demand for a new fast, glitch-free TDC exists. This project aims to simulate a new design for a glitch-free TDC which can later be implemented in LIDAR and Biometric Systems.</p>		

FPGA based high speed pulse detection using FFT		
SL.NO	USN NO.	NAME
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2	1MS15EC419	PrinciaD'silva
3	1MS15EC403	Chaitra M S
4	1MS14EC424	Divyashree G
Mentor Name	Internal Mentor: GANGADHARAAIAH S. L	
ABSTRACT		
<p>This Project brings out a unique FFT based Pulse detection approach for a Two channel Digital ESM (Electronic Support Measure) Receiver targeted for Airborne EW applications. The proposed approach uses a high speed ADC (1.5 GHz) and FPGA based architecture for sampling and Digital processing of the received signals. A high speed 256 point FFT engine is realised in FPGA to separate up to 4 overlapped pulses in 500 MHz instantaneous BW. Pulses with PW as low as 100 ns can be detected in the presence of CW signals in the 750-1250 MHz input band with this approach.</p>		

Fabrication & Performance Evaluation of Thin Film Transistors

SL.NO	USN NO.	NAME
1	1MS14EC026	C.SriHarsha
2	1MS14EC036	Giridhar Reddy D.V
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4	1MS14EC058	Mithun Kumar
Mentor Name	Internal Mentor: Dr. M. NAGABUSHANAM	

ABSTRACT

Very Large Scale Integration (VLSI) is the process of designing an Integrated Circuit(IC) which involves fabrication of several thousand logic gates, active and passive components on a single silicon chip. Reducing the dimensions of the components to the minimum possible level is the back bone for VLSI technology. The Thin Film technology plays significant role in micro-miniaturization of the components. The advantages of VLSI technology are reduction in the size of the circuits, reduction in the effective cost of the device, increases the operating speed of the circuits, reduction in power consumption and supply, and higher reliability. From this point of view the present project was under taken for better in-depth understanding of the behavior of the TFTs.

The project involves fabrication of a Thin Film Transistor(s) (TFTs) by Physical Vapor Deposition (PVD) method on (25 x 75 mm) glass substrate. The structure consists of metal – dielectric – semi-conductor – metal (Gate/ source-drain) as shown in Fig. 1. The materials used for the fabrication of the same are Aluminum (Al) - Aluminum oxide (Al₂O₃) – Zinc Oxide (ZnO) – Al. The metal (Al) coating has been deposited by resistive evaporation, Al₂O₃ by electron beam evaporation and ZnO by reactive magnetron sputtering techniques. Deposition has been carried out for different thicknesses of Al₂O₃ and ZnO. In order to obtain a near-stoichiometric composition of these materials, Oxygen partial pressures have also been varied during the deposition cycles.

An improvement in implementation of OFDM radar signal

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3	1MS14EC140	Keerthana R
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ABSTRACT

Radar systems hugely rely on the signal waveform design to yield better range and resolution. Active research has been going on in the field of Multicarrier Complementary Phase Code (MCPC) owing to the eminent properties exhibited by them. The MCPC signal consists of P equally spaced frequencies, which are modulated by P distinct phase sequences. The separation between the frequencies is equal to the reciprocal of t_c , which is the time duration of modulation by each phase element, forming Orthogonal Frequency Division Multiplexing (OFDM) signal. These signals have been found to inherently possess a high value of Peak to Mean Envelope Power Ratio (PMEPR) that is not desirable since it leads to many complications in the amplification block. The objective of our project is to deduce a method that reduces the high PMEPR value. Complementary Block Coding (CBC) and Peak Positioning have been explored to achieve this. Analysis of the autocorrelation and ambiguity functions of the signals thus obtained have been made to judge the relevance of the said methods.

Single Image Super Resolution

SL.NO	USN NO.	NAME
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3	1MS14Ec045	Karthik S R
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ABSTRACT		

The goal of learning-based image super-resolution (SR) is to generate a plausible and visually pleasing high resolution (HR) image from a given low-resolution (LR) input. The SR problem is severely under-constrained, and it has to rely on examples or some strong image priors to reconstruct the missing HR image details. This project addresses the problem of learning the mapping functions (i.e., projection matrices) between the LR and HR images based on a dictionary of LR and HR examples. Encouraged by recent developments in image prior modeling, where the state-of-the-art algorithms are formed with nonlocal self-similarity and local geometry priors, we seek an SR algorithm of similar nature that will incorporate these two priors into the learning from LR space to HR space. The nonlocal self-similarity prior takes advantage of the redundancy of similar patches in natural images, while the local geometry prior of the data space can be used to regularize the modeling of the nonlinear relationship between LR and HR spaces. Based on the above two considerations, we firstly apply the local geometry prior to regularize the patch representation, and then utilize the nonlocal means (NLM) filter to improve the super-resolved outcome. Experimental results verify the effectiveness of the proposed algorithm compared to the state-of-the-art SR methods.

Autonomous Tricopter

SL.NO	USN NO.	NAME
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2	1MS14EC014	Anjali
3	1MS14EC007	Aishwarya
4	1MS14EC034	Gettabhavani
Mentor Name	Internal Mentor: V.NUTHAN PRASAD	
ABSTRACT		

In today's scenario, thousands of soldiers are breathing their last in the war-front battling for our country. There is more mission needed in dangerous situations like flying stages that are little spry and can take off vertically. Besides this, agriculture has been playing a significant role in the socio-economic fabric of India. It is accounted for 50% of the total workforce. Currently, its economic contribution to the country's GDP is steadily declining. Also, current agricultural practices are neither economically nor environmentally sustainable. Hence, the need of the hour is an autonomous system which is capable of safeguarding military intelligence of our country and providing modernized and feasible solutions to the prevailing problems in agriculture.

Positioning of Drones Using Inertial Sensors

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2	1MS14EC032	DivayGuggilam
3	1MS14EC065	NamrathaPujer
4	1MS14EC067	NayanKaushal
Mentor Name	Internal Mentor: V.NUTHAN PRASAD	
ABSTRACT		

Drones make use of GPS receivers within the navigation and control loop which allow them to maintain position at a fixed altitude and location. The drone remembers the spot from where it took off from, and at the press of the return to home button, it will automatically return to this spot. The flight path of the drone can be predetermined by establishing GPS waypoints that define the trajectory. Drones are used for military applications since they greatly reduce putting military personnel in combat and they are significantly cheaper to purchase, fuel, and maintain than regular airplanes. Drones have proven to increase surveillance, reconnaissance, and general military intelligence. However, when the drone goes out of range, it becomes vulnerable. Drones or a fleet of drones can be commandeered or taken control by the enemy. Thus, we develop a positioning system to keep track of the drones when GPS may not be available.

Robust Halftone Image Watermarking Based on Visual Cryptography

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2	1MS14EC102	Shaik Aziz
3	1MS14EC106	ShivannaGowda
4	1MS14EC133	Yamanappa C B
Mentor Name	Internal Mentor: SHREEDARSHAN K	
ABSTRACT		

This project proposes a scheme to hide some confidential data in image size invariant visual cryptography. The data hiding processing is synchronized with the secret image encryption. The basic property of the conventional visual cryptography is well maintained in our scheme we have proposed digital watermarking scheme for halftone images based on visual cryptography. This scheme does not embed the watermark directly on the halftone image instead watermark will be divided into the parts called as shares. This scheme not only protects the watermark but also provides an effective copyright protection. At the time of watermark embedding verification share is generated and at the time of watermark extraction master share is generated using (2, 2) visual cryptography scheme. Verification share and master share are used to extract the watermark pattern. The experimental results show that the scheme is robust and transparent against various watermarking attack.

Fighting fires using swarm control technologies

SL.NO	USN NO.	NAME
1	1MS14EC051	M S LalithaRamya
2	1MS14EC054	Venkat Siva Krishna Madala
3	1MS14EC055	MallapaKoujalagi
4	1MS14EC068	Nidhi V
Mentor Name	Internal Mentor: RESHMA VERMA	
ABSTRACT		

Firefighting are executed mainly by human firefighters having to get very close to the actual fire. This presents many lethal risks from burns, smoke inhalations and other hazards. In areas such as ware houses, sprinklers though efficient, can lead to the damage and unnecessary dampening of other good that are not in the near vicinity of the fire. In such situations, swarming could be used to control a cheap swarm of robots capable of fire-fighting/fire-dousing techniques. Swarm Control Technology is adopted in this project. Robots are given the data regarding location of the fire and its intensity. The swarm as a whole contains multiple robots which carry different materials (say, foam and water) used in extinguishing fires. Based on the data and corresponding to the intensity of the fire, a group of robots, with the desired type and quantity of materials that is required to douse the fire, collectively move towards the location of the fire. The fire is doused and the robots move back to a home location to fill their tanks.

Personal Assistant/Robot Receptionist

SL.NO	USN NO.	NAME
1	1MS14EC079	Prajit T R
2	1MS14EC081	Prashant Jain
3	1MS14EC089	Ravi Ranjan
4	1MS14EC096	SaibannaGhodake
Mentor Name	Internal Mentor: RESHMA VERMA	
ABSTRACT		

Content of the Abstract: Recent advances in Computer Science and Machine learning have enabled robots to be very intelligent and adaptive to the environment. Much effort has gone into developing personal assistants like Siri by Apple. These artificial intelligence- fuelled systems are able to converse with the user and assist him or her with many real life situations. Robots can be trained to understand the sentiment of the user and extract valuable information so as to provide a better user experience using Machine learning models. This project investigates the use of such models to create a personal assistant robot which can successfully function as a receptionist in environments which require human interaction, such as a help counter at a bank, university, government office, railway stations etc. We realized that it would be possible to implement a similar system in many places for a multitude of applications like a receptionist. A truly intelligent system should be able to detect the sentiment of the user and react accordingly. It would be desired to have a smooth interaction between the user and the machine- hence the robot should be able to speak with and listen to the user, instead of being controlled by a series of buttons. The robot should also be computer vision enabled so it can detect objects in its vicinity. Another feature that the robot can guide the user in the general direction where he or she wants to go.

Advanced Cattle health monitoring system using IoT

SL.NO	USN NO.	NAME
1	1MS14EC097	Sakshi
2	1MS14EC111	Shristi
3	1MS14EC112	Shruthi G R
4	1MS14EC115	SonaliRanjan
Mentor Name	Internal Mentor: LAKSHMI SHRINIVASAN	

ABSTRACT

Cattle industry is an integral part of Indian economy. Animals in farms are being affected by various kinds of diseases and farmers are suffering heavily. To avoid such things, we propose a IOT based health monitoring system to track individual animal movements as well as we monitor the occurrence of diseases. If any abnormalities found in cattle, it will be notified to the farmer via SMS. This enables farmers remote monitoring of animals health, its location and manual human intervention will be completely eliminated. This improves milk production in cattle and setting up required ecological conditions for them. In this system the Arduino UNO receives data from the sensors and develops the content accordingly. The ESP8266 Wi-Fi module will transfer the data to internet so that cattle can be monitored from outside the farm.

Automated Maintenance and Dimming of Street Light

SL.NO	USN NO.	NAME
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2	1MS14EC033	Gautam Dash
3	1MS14EC048	KeertiVardhan
4	1MS13EC031	D.S.N. Ram Vamsi
Mentor Name	Internal Mentor: FLORY FRANCIS	

ABSTRACT

Solar energy can be harnessed in all areas of the world and is available all day. With low cost sensors developed every day, street light system can be made semi-automatic and self-powered through solar panels. The main objective of this project is making energy consumption less with power saving methods and providing effective maintenance facility without compromising the output of street light system in everyday life.

The street lighting system consists of automated switching mechanism to save power and supply when needed to run the system and power street lights. Sensors are used to monitor light intensity for day light savings and also vary the output intensity as per motion detected. System continuously keeps track of LEDs and sends regular updates to a server wirelessly which alerts operator of fault detection. A database maintained at the receiving section helps to map pole light details to the message received for operator information. Use of solar panels, battery and sensors make the system cheaper and easy to work upon.

Vehicle Theft Detection and Notification With Remote Engine Locking System

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2	1MS14EC073	Nishant D Naik
3	1MS14EC075	P Sachin
4	1MS15EC417	Srinivas H S
Mentor Name	Internal Mentor: FLORY FRANCIS	
ABSTRACT		

Automotive theft has been a persisting problem around the world and greater challenge comes from professional thieves. A modern vehicle utilizes remote keyless entry system and immobilizer system as the main weapons against vehicle theft. But these systems prevent unauthorized access of the vehicle to a certain extent. . This functionality is achieved by detecting vehicle status in theft mode and by sending an SMS which is generated automatically. This SMS is then sent to the owner of the vehicle. The owner can then send back the SMS in order to disable the ignition of the vehicle. Thus in this way crimes can be reduced to a great extent as vehicles today are being stolen in large number. GPS system that helps to find out the exact position of the vehicle with the help of its latitude and longitude which then can be sent to the owner of the vehicle via SMS. This data can be then entered by the owner on Google map to find out the exact location of the vehicle.

RFID Based Automated Toll Collection System using Arduino

SL.NO	USN NO.	NAME
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2	1MS15EC405	Chiranjeevi K
3	1MS15EC408	Hemanth Kumar S
4	1MS15EC419	Veeresh Kumar B
Mentor Name	Internal Mentor: PUNYA PRABHA V	
ABSTRACT		

ATCS usually known as **"Automated Toll Collection System"** is a new technology for collecting toll in a faster and more efficient way. It is a great alternative to long waiting at manual toll plazas. In order to overcome the wastage of time this system uses the concept of RFID based automated toll collection system using Arduino. RFID stands for Radio Frequency Identification; these cards are unique identities provided to every vehicle by Registration Office at each city. Whenever a vehicle with such Unique ID reaches the toll plaza, the RFID card reader attached on the toll plaza gate reads the card and transfers the unique ID to ArduinoATmega 328. If the card's ID is valid and has sufficient balance, the processor will command the DC motor to start and open the gate, letting the vehicle to pass.

On passing from the gate the screen will show the deducted and current balance of the card. If the card is not valid or low in balance, it will prompt to move the vehicle to manual toll collection lane. Furthermore, a message will be sent to the owner's registered mobile number with the same details along with the location of the toll booth.

Advanced Security in ATM

SL.NO	USN NO.	NAME
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2	1MS15EC410	M D Hasham Ali
3	1MS15EC422	Vinay S T
4	1MS15EC407	Divya J
Mentor Name	Internal Mentor: PUNYA PRABHA V	
ABSTRACT		

Content of the Abstract: The Idea of Designing and Implementation of Security Based ATM theft project is born with the observation in our real life incidents happening around us.

This project deals with prevention of ATM theft from robbery. so overcome the drawback found in existing technology in our society When ever robbery occurs, Vibration sensor is used here which senses vibration produced from ATM machine. This system uses PIC controller based embedded system to process real time data collected using the vibration sensor. Once the vibration is sensed the beep sound will occur from the buzzer. Buzzer is employed for alerting in case of theft. Once the RFID card is swiped by the customer at the entrance. DC Motor is used for closing the door of ATM. IR sensor is used for recognizing the presence of a person and for turning on the lights and fan Stepper motor is used to leak the gas inside the ATM to bring the thief into unconscious stage. Camera is always in processing and sending video continuous to the PC and it will be saved in computer. GSM communication is used between ATM to base station, when thief tries to break the ATM and in case of any ATM tamper, the GSM technology is used to send SMS to police station. The cash drawer is equipped with a contact switch which gives feedback when the drawer is opened or broken. LCD display board using showing the output of the message continuously. This will prevent the robbery and the person involving in robbery can be easily caught.

Emergency Communication System using AD-HOC

SL.NO	USN NO.	NAME
1	1MS14EC017	AnushaAchar
2	1MS14EC028	Chaarumathi M
3	1MS14EC039	Harshitha M Prasad
4	1MS14EC086	Rachana Suresh
Mentor Name	Internal Mentor: JAYASHREE. S	
ABSTRACT		

Quickly establishing a temporary communication system to support emergency management is one of the most urgent tasks in the disaster relief mission. To facilitate the rescue teams and victim people to communicate inside and outside the disaster site, this paper proposes an integrated communication system by composing heterogeneous wireless networks. Firstly, wireless sensor network (WSN) and mobile ad hoc network (MANET) are deployed on the disaster site for local communication and information collection. The overall system architecture, the relevant network elements, and the methods of establishing and integrating them to be a mission system are described. The proposed system can help to reduce the network deployment time, support more terminal types, and provide emergency management services. Wireless sensor network (WSN) is suggested to be deployed on the disaster site as well to monitor local physical phenomena and collect sensitive information. A MANET is a self-configuring multi-hop network that does not rely on available fixed infrastructure. A WSN consists of spatially distributed autonomous sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants. Furthermore, the WSN is connected with MANET via a sink node for local information sharing and alerting.

Direct Drive Solar Vaccine Refrigerator

SL.NO	USN NO.	NAME
1	1MS15EC413	Poornima
2	1MS14EC120	Suma
3	1MS15EC418	Sushma M
4	1MS15EC421	VijayaKumari
Mentor Name	Internal Mentor: MANJUNATH C L	
ABSTRACT		

Many of the vaccines used to control diseases required cold temperature for preservation. Without a reliable power infrastructure, developing countries often lack the resources for keeping these vaccines cool in the long term, hampering the ability to adequately protect citizens. Design an adsorption refrigerator capable of maintaining a temperature between 2 degree celsius and 8 degree celsius that utilizes passive solar energy and can be built in developing countries.

Design and VLSI Implementation of High Performance Face-Detection Engine for Mobile Applications

SL.NO	USN NO.	NAME
1	1MS11EC010	Annamreddylineesh Reddy
2	1MS13EC023	BasimAjoub
3	1MS13EC142	Dhanush T C
4	1MS14EC063	Muhammad Bakir
Mentor Name	Internal Mentor: MANJUNATH C L	
ABSTRACT		

In this paper, we propose a novel hardware architecture of face-detection engine for mobile applications. We used MCT (Modified Census Transform) and Adaboost learning technique as basic algorithms of face-detection engine. We have designed, implemented and verified the hardware architecture of face-detection engine for high-performance face detection and real-time processing. The face-detection chip is developed by verifying and implementing through FPGA and ASIC. The developed ASIC chip has advantage in real-time processing, low power consumption, high performance and low cost. So we expect this chip can be easily used in mobile applications.

Smart Spectacles for Visually Impaired

SL.NO	USN NO.	NAME
1	1MS14EC004	AbhishekRauniyar
2	1MS14EC101	SarthakLamsal
3	1MS14EC103	ShambhaviKulshreshta
4	1MS14EC108	ShraddhaBenagi
Mentor Name	Internal Mentor: MANJUNATH C L	
ABSTRACT		

The main objective of this project is to help visually impaired people in their day to day chores and so we have designed "Smart Spectacle for visually impaired" with a stick which is to seamlessly integrate GPS, different sensor inputs, process the image, development of correlation and speech recognition algorithm and build library of data that will help detect an object or a person and once identified, give audio based on the detected inputs. With this project we will be drawn towards the idea of developing systems and translating our knowledge into an engineering application.

There are three basic tasks :

Task1: Image processing for face detection using Open CV using python

Task2: working of ultrasonic sensors for the object detection

Task3: sensors for water and fire detection

Task 4: application of brail for the visually blind person

Performance analysis of v2v communication using VANET

SL.NO	USN NO.	NAME
1	1MS14EC113	ShubhankarSabat
2	1MS14EC131	Vishal N
3	1MS14EC098	Sandesh T S
4	1MS14EC095	Sachin J S
Mentor Name	Internal Mentor: CHITRA M	
ABSTRACT		

Vehicular ad-hoc networks (VANETs) include vehicle-to-vehicle and vehicle-to-infrastructure communication. With the constant increase in transport traffic, existing traffic management solutions have become inefficient. Urbanization has led to a rise in traffic jams and accidents in major cities. So as to accommodate the growing wants of transport systems today, there's a desire for an Intelligent Transport System. Vehicular Adhoc Network (VANET) may be a growing technology that assists in Intelligent Transport Systems. Vanets modify communication between vehicles similarly as fastened infrastructure known as Road side Units (RSU). We tend to propose a distributed, cooperative traffic congestion detection and dissemination system that uses VANET, this info is relayed to a foreign server that detects traffic jam. Once congestion is confirmed the congestion info is disseminated to user from the server. The line of latitude, line of longitude and the current time, the placement of every vehicle at the particular node is traced and monitored. When the vehicles are within the range, a connection is established between the two vehicles and the speed of the vehicles are adjusted to avoid collision.

Smart Railway Level Crossing System

SL.NO	USN NO.	NAME
1	1MS15EC406	DeepaPriya K
2	1MS15EC411	Pallavi N
3	1MS15EC415	Rekha S
4	1MS15EC420	Vidyashree B S
Mentor Name	Internal Mentor: AKKAMAHADEVI.M.B	
ABSTRACT		

Many railway accidents are happening due to the carelessness in manual operation or lack of workers at the railway level crossing. So, the project aims at implementing an automatic railway gate control system using PIC microcontroller. The arrival of the train is sensed by using IR sensors. When train arrives at the sensing point, alarm is triggered at the railway crossing point so that the people get intimation that gate is going to be closed. Then the control system activates and closes the gate on the track. Soon after the train crosses the other end, control system automatically lifts the gate. DC motor is used to close and open the gate. An embedded controller built around the PIC family (16f877a) is used to control the gate position according to the data pattern produced at the input port of the microcontroller.

IoT based Theft Detection System using Raspberry Pi

SL.NO	USN NO.	NAME
1	1MS14EC009	Aman Kumar
2	1MS14EC016	Anush S. Vernekar
3	1MS14EC019	Arnav raj pandey
4	1MS14EC059	Mitraj
Mentor Name	Internal Mentor: AKKAMAHADEVI.M.B	
ABSTRACT		

As the technology is growing, the methodologies used by thieves are also equally improved in stealing. Therefore, it is necessary to improve the surveillance techniques. The latest technologies used against theft are the video surveillance and monitoring. Even when needed, having a security camera system may sometimes be impossible due to the expensive cost for installation. Raspberry pi is credit card sized computer that has the capability to become a camera security system when its own camera board is used. A new methodology has been developed to detect the motion. Pyroelectric infrared (PIR) sensors are used instead of any algorithm for motion detection. Whenever the motion is detected through PIR sensor inside the room, the image is captured through camera and temporarily stored in the raspberry pi module. After motion is detected user gets push up message on android without any delay and here python script is also used which directs the pi to send email notifications everytime motion is detected. With these components, a cost effective, low power and efficient security camera system is made. Therefore, advantages like these, makes this application ideal for monitoring in prevented or secured areas.

Home Automation Using Voice Recognition

SL.NO	USN NO.	NAME
1	1MS12EC062	Meghana G
2	1MS14EC040	Himamshu C
3	1MS14EC070	Nikhil Kulkarni
4	1MS14EC105	ShashwathBhel
Mentor Name	Internal Mentor: PAVITHA U S	

ABSTRACT

The wireless home automation voice recognition system is an integrated system to facilitate users, especially elderly and disabled users with an easy to use home automation system that can be fully operated based on speech/voice commands. This system is portable and constructed in a way that is easy to install, configure, run and maintain. Voice is used in this project for controlling of operations because it is easily produced by humans. It increases productivity. It helps people who have trouble using their hands, people who have cognitive disabilities. It has long term benefits for students. The power to control mains, appliances, doors, water supply, safes has been made easier due to this. Voice based home automation is the latest area with a wide scope of research and development.

Remote Fall Monitoring System for Elderly People

SL.NO	USN NO.	NAME
1	1MS14EC126	VigneshKashyap
2	1MS14EC110	SreeshaYajaman
3	1MS14EC109	ShraddhaGururaj
4	1MS14EC138	Saumya Agarwal
Mentor Name	Internal Mentor: SARA MOHAN GEORGE	

ABSTRACT

Content of the Abstract: Falls can result in critical injuries, like those to the head and hips, and hence falls are the leading cause of loss of independence and autonomy for the elderly. The fall detector is an effective surveillance system for reliable detection of falls, hence overcoming the major challenge in the health care of elderly. The main aim of the project is to build a reliable fall monitoring system which monitors some of the health parameters like body temperature, pulse and also intimate to those responsible regarding the location of the fall in order to provide immediate attention and prevent fatal accidents. Hence, fall detection systems provide timely aid and thereby prevents a dangerous situation from becoming potentially life-threatening. A threshold is set based on experimentation of simulated falls above which the program classifies the action as a fall. The system also checks for two other parameters, namely temperature and the pulse rate. Any abnormality in the above two parameters will trigger an alert.

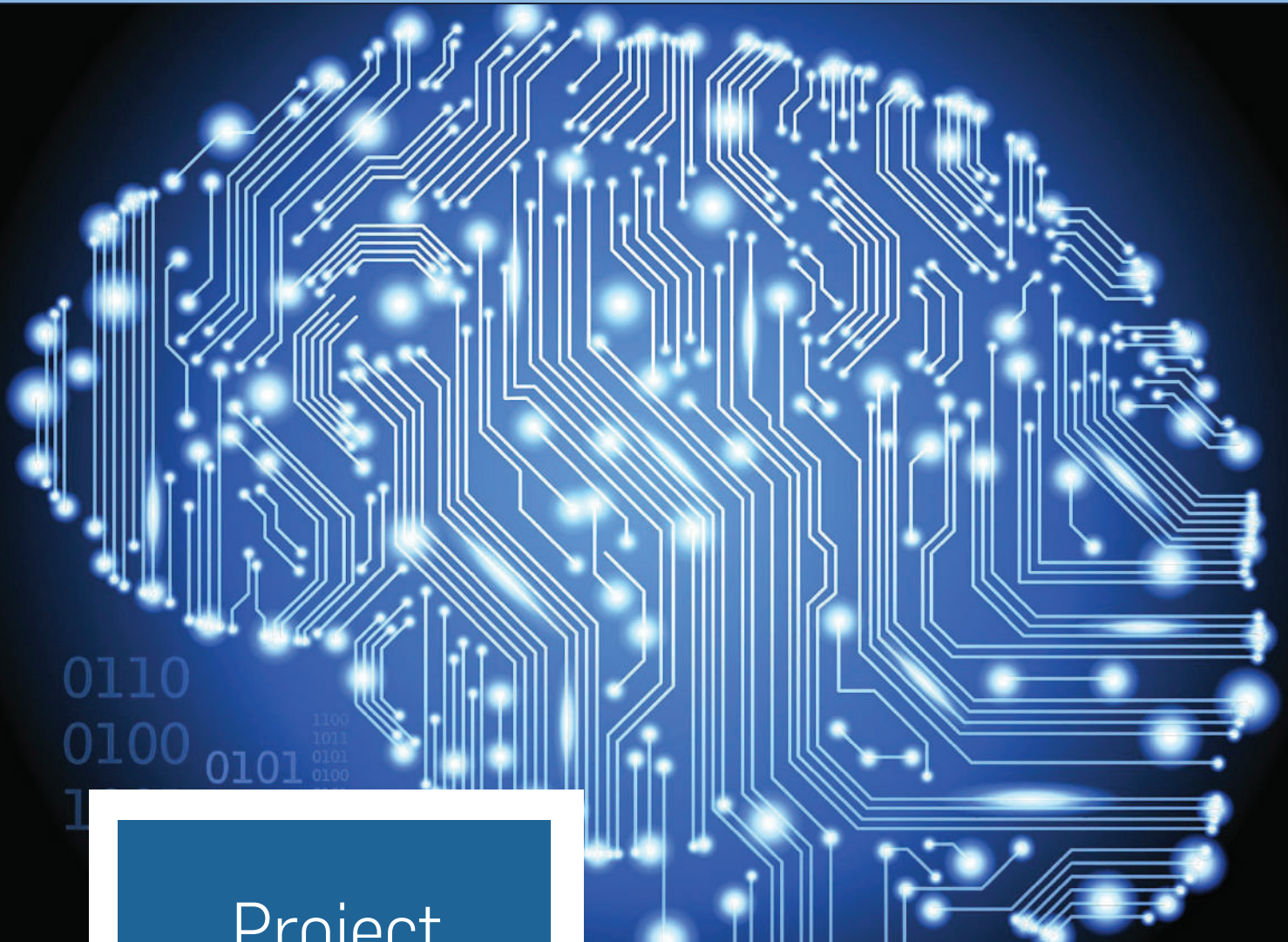
Gaussian Mixture Model Based Multimodal Biometric Verification

SL.NO	USN NO.	NAME
1	1MS14EC114	SiddhanthNayak B
2	1MS14EC118	Sudharshan R
3	1MS14EC114	Vikas Rao
4	1MS14EC118	Vinodh P
Mentor Name	Internal Mentor: SARA MOHAN GEORGE	
ABSTRACT		

In a rapidly evolving world, the need for data security and identity verification is of paramount importance. With biometric verification systems having already replaced the conventional methods in most applications, our project aims to improve the efficiency of these methods by using a multimodal verification approach which will significantly reduce the errors and overcome the limitations of unimodal approaches.

The face and signature have been chosen as the two modalities or biometric indicators mainly because of their non-invasive nature and the minimum hardware requirement for obtaining the samples from the subjects. In this project, two Convolutional Neural Network (CNN) models have been used on the face and signature datasets. The scores obtained from these models are fused and a Gaussian Mixture Model (GMM) is used to describe the combined scores of the modalities. The GMM result is then used for deciding whether the test subject is genuine or an imposter. The performance of the proposed technique has been evaluated and an increase in accuracy is seen due to minimization of false acceptance and false rejections.

DEPARTMENT OF **ELECTRICAL & ELECTRONICS ENGINEERING**



Project
Abstracts

2017 - 2018

EFFECT OF CONDUCTION BAND ON THE POLLUTION PERFORMANCE OF OUTDOOR PORCELAIN DISC INSULATOR

SL.NO	USN NO.	NAME
1	1MS14EE004	ABHISHEK
2	1MS14EE010	AQUIL HAIDER
3	1MS14EE017	DHANANJAY SINGH CHIB
4	1MS14EE059	UJJAWAL
Mentor Name	Mr. Ramakrishna Murthy K	

ABSTRACT

Outdoor insulators constitute one of the most important part of the power systems. They are employed for providing electrical isolation from the line conductor and necessary mechanical support. Contamination or deposition of pollutants on the surface of outdoor insulator deteriorates its strength, allowing current to flow on its surface known as leakage current. When this leakage current attains a certain critical value, it leads to flashover. It is observed that most of the flashovers are field driven. Insulators are more prone to pollution induced flashovers as they occur at normal operating voltages. It mainly affects the breakdown strength of the insulator. Literature shows that RTV coated and semiconductor coated insulators performed better under polluted environments but due to less shelf life and high cost, they are not very popular. The present work deals with the pollution induced flashovers on the ceramic insulators. Inferences are drawn based on the obtained leakage current characteristics of the insulator. Recent studies indicate that by applying conductive coatings on the lower half of the insulator greatly improves its performance. Thus, the placement of the conduction band around the insulator will help in delaying the process of flashover. The objective of this project is to find the optimal location of the conduction band to maximize its withstand capacity under polluted conditions. The optimal location of the conductive band will be chosen in such a way that the field does not allow the initiation of the arc or gives little chance of initiation.

AUTOMATED TRAFFIC SIGNAL

SL.NO	USN NO.	NAME
1	1MS14EE012	ASHISH NVR
2	1MS14EE015	KARTHIK B R
3	1MS14EE056	SUSHIKTH SHETTY
4	1MS14EE061	VAIBHAV S HIREMATH
Mentor Name	MR. NARSIMPUR TUSHAR SURESH	

ABSTRACT

Traffic congestion is a huge problem in most major cities across the world, including in India. While there are many ways of countering this problem, one method can be to decrease the waiting time of automobiles at traffic intersections. The duration for which the signal stays green in one lane and red in the rest of the lane's is most often determined by simple timing that is calculated when the crossing is designed. Even though today's methods are robust and work well when the traffic load is distributed evenly across the lanes in the intersection, the systems are very inefficient because they are unable to handle various simple situations that arise throughout the day. Unnecessary waiting time in the signal can be avoided by determining on which side the green signal should be longer. The project focuses on developing a automated system for traffic passing through a 4-way intersection, controlled by traffic light and to design a program that could minimize the waiting time of the vehicles at any intersection.

DEVELOPMENT OF BRAIN CONTROLLED INTERFACE FOR PROSTHETIC HAND USING EEG SENSOR

SL.NO	USN NO.	NAME
1	1MS14EE066	HARINI S
2	1MS15EE400	AISHWARYA M S
3	1MS15EE403	MANOJ M
4	1MS15EE404	MANU A S
Mentor Name	SMT. S.DAWNEE	

ABSTRACT

The human hand represents a wonderful example of a natural bio-mechatronic system, which still represents a benchmark for robotic designers aimed at replicating its complex functionality. Prosthetic arm is an artificial aid that provides many of the human arm features including integration with the nervous system for amputees. As per World Health Organization (WHO), among 10 million world population of amputees, 2.4 million arm amputees are in developing countries. Therefore, there is a considerable demand for prosthetic hand which is necessary to maintain the quality of life for arm amputees. Existing systems of the prosthetic arms are controlled using mostly EMG signals. Invasive and non-invasive methods are used to collect EMG signals. Amputees who have lost their upper extremities decades ago would have forgotten their motor skills or arm functionality. For these people the EMG based control systems are not suitable because obtaining the signals itself is a challenge and requires more effort. To overcome these challenges, the project aims to control the prosthetic hand by EEG signals. A new idea of manipulating a prosthetic hand by the virtual simulation environment using a neural interface based on a Brain Computer Interface (BCI), which will introduce a new pattern for the manipulation of a prosthetic hand is implemented. The hand is activated by a motor which is driven by controllers. This brainwave based cerebrum controlled prosthetic hand has been introduced for utilization by totally incapacitated patients.

DESIGN AND DEVELOPMENT OF AN AUTONOMOUS ROBOTIC BALL CATCHER

SL.NO	USN NO.	NAME
1	1MS14EE018	DHRUV GOYAL
2	1MS14EE019	DINESH TRIPATHY
3	1MS14EE027	MOHAMED HANNAN SOHAIL
4	1MS14EE032	PAWAN KUMAR DHAKAL
Mentor Name	MR. GURUNAYK NAYAK	

ABSTRACT

In modern world, due to major developments in the field of autonomous vehicles, there is a need of efficient guidance system. Guidance processes are used for controlling the movement of a ship, aircraft, missile, rocket, satellite, or any other moving object. Therefore, we intend to develop an algorithm which enables an autonomous robot to catch an object. This developed algorithm can be implemented in many applications such as space craft guidance, aircraft guidance, vehicle guidance etc. This algorithm can also be implemented to track the movement of an object. We will be using a quad-copter to demonstrate the working of this algorithm. The quad-copter will use power modulator for controlling its motion. The algorithm involves tracking of object and retrieving the object coordinates with the help of mounted camera using digital image processing. The developed algorithm will also predict the expected trajectory of the moving object for which Kalman optimal estimator is used. Based on the output of the estimator the control algorithm controls the quad-copter to move to required location and catch the object. The various algorithms can be used in various applications in modern world for defence and space technology development.

2D/3D HETEROSTRUCTURE BASED PHOTODETECTOR FOR DEEP UV APPLICATIONS

SL.NO	USN NO.	NAME
1	1MS14EE048	SHREE HARI. S
Mentor Name	External Mentor: PROF. DIGBIJOY N. NATH Internal Mentor: SMT. S DAWNEE	

ABSTRACT

Since the past twenty years, there has been significant progress in the research and development of III-Nitride based semiconductors for optoelectronic applications. Creating heterostructures aid in the bandgap engineering of materials, such that the devices are more efficient and can be used for wider applications. In fact, III-V heterostructures have revolutionized many aspects of our lives in the form of lasers, CDs and DVDs, fiber optic transceivers, etc. Also, in the past decade, the rise of two-dimensional (2D) materials has attracted a tremendous amount of interest for the fields of photonics and optoelectronics. This project aims at understanding the device physics by modelling a 2D material onto a III-Nitride material, to create a 2D/3D heterostructure and analyzing the performance of the device. The device is modelled pertaining to deep ultra-violet (UV) photo detection applications. The designed model is then simulated and the device characteristics are also presented. The deep UV photodetectors find applications in air and water purification, germicidal and biomedical instrumentation systems, and ozone sensing and leak detection.

DEVELOPMENT OF DC-DC CONVERTER FOR A DC RING MAIN DISTRIBUTION SYSTEM

SL.NO	USN NO.	NAME
1	1MS14EE045	SHAIK MOHAMMED KASHIF
2	1MS14EE047	SHIVAM SRIVASTAVA
3	1MS14EE060	VAIBHAV KUMAR SARTHAK
4	1MS11EE068	YASHOVARDHAN CHATURVEDI
Mentor Name	SRI. VICTOR GEORGE	

ABSTRACT

Reliable and convenient charging stations are the basic requirements of transportation system based on electric vehicles(EVs). Battery charging time is another constraint in getting wider acceptance of EVs. Battery technologies are so improved that charging in minutes can provide hundreds of kilometres for EVs. DC fast charging stations are the key in such an arrangement. DC fast charging stations powered from the main grid alone is against the idea of reducing carbon emission by promoting EVs. Hence development of renewable based fast charging stations, with grid support for reliability, need to be focused. A DC-DC converter suitable for DC fast charging stations is proposed. Voltage regulation is the biggest challenge in such a design. A DSP based voltage control is tested. The performance is analyzed and presented in detail.

RENEWABLE INTEGRATED HOME AUTOMATION SYSTEM

SL.NO	USN NO.	NAME
1	1MS15EE407	SANTHOSHKUMAR N
2	1MS15EE408	SANTOSH KUMBAR
3	1MS14EE403	MANJU B. D. N
4	1MS13EE003	ADARSH RAO
Mentor Name	Dr. LIKITH KUMAR M. V	

ABSTRACT

Home automation system has attracted the interest of the research community during the last decade, at a great manner. Some of these systems are limited to support basic operations, while some others satisfy a range of additional primitives. This project aims at automation of solar PV integrated home which involves effective utilization of solar energy by scheduling the loads. When there is no power generation from solar PV, the loads will be supplied by the utility grid. These loads will be remotely monitored and controlled for effective utilization of solar PV generation and grid power. In this, Arduino Uno is used to remotely monitor and control the electrical appliances in home using GSM technology. The Data Acquisition system will acquire the data from the solar PV panels. Then home automation system collects the load data and energy generation data and analyses them for energy approximation and control the home energy utilization schedule to slump the energy cost. Thus, saving the net energy consumption from the grid.

DEVELOPMENT OF IN-PIPE INSPECTION ROBOT

SL.NO	USN NO.	NAME
1	1MS14EE001	AASHVIJ SHENAI
2	1MS14EE003	ABHIJEET ANTIN
3	1MS14EE016	DEEPAK YADAV
4	1MS14EE030	PALLAVI R
Mentor Name	SMT. S.DAWNEE	

ABSTRACT

In recent decades, with great improvement of automatic technology and significant growth of people's living standards, modern industry has been increasingly inclined to depend on pipelines for raw materials. Some of these pipelines are bore-wells dug deep into the ground to obtain underground water. Once they run dry, ideally, they should be sealed. Due to negligence, some of these wells are not appropriately sealed and consequently leads to children falling in them unwittingly. Rescue of the child is greatly hampered due to lack of knowledge of the child's condition. Robotics is an area which can be explored to achieve the objective. In-pipe robots are currently being used to inspect pipelines but they are still in the development stage. An efficiently designed robot can be used to accurately determine the child's status and hence save capital and manpower. This project illustrates an innovative method using in-pipe robots to assess the condition of the child with detection of harmful gases, temperature, humidity conditions and visualization of the child. The type of in-pipe robot developed is a wall press wheel type robot such that the wheels exert an outward force on the walls of the pipe to propagate vertical motion in the pipe.

DEVELOPMENT OF A PORTABLE AUTOMATED CPR ADMINISTRATION DEVICE

SL.NO	USN NO.	NAME
1	1MS14EE037	REBECCA ANANYA MATHIAS
2	1MS14EE049	SHREEYA SRIRAM
3	1MS14EE054	SUMEET K GADAGKAR
Mentor Name	SMT. S.DAWNEE	

ABSTRACT

Out of hospital cardiac arrest is one of the leading causes of death in the world. For a victim suffering from a cardiac arrest, timely administration of chest compressions and ventilation can make the difference between life and death. As most people are not trained in Basic Life Support (BLS), there is a high probability that manual compressions may lack consistency, adequate pressure, compression depth and rate. Alternatively, mechanical Cardio Pulmonary Resuscitation (CPR) could be more effective in achieving a return of spontaneous circulation as opposed to improper manual CPR. If there exists a device that can self-administer CPR, especially in small clinics or in public places such as airports, railway stations, gymnasiums and hotels, it could be the pivotal factor in saving a life. This work aims to design and develop a portable, automated CPR administration device capable of deciding whether to administer CPR or not from parameters like the victim's electrocardiogram and pulse rate. Based on this decision, CPR is administered automatically as per the standard protocol.

AUTOMATED SYSTEM FOR PARKING SECURITY

SL.NO	USN NO.	NAME
1	1MS14EE035	RAHUL KUMAR GUPTA
2	1MS14EE036	RAHUL SINGH
3	1MS14EE039	RICHA SHAW
4	1MS14EE052	SIDDHARTHA ROY
Mentor Name	SMT.ARCHANA DIWAKAR	

ABSTRACT

The security of vehicles in parking lots is crucial. Although most parking lots, public and private, depute security guards, there are still issues like illegal parking in company space, inability to quickly trace vehicles etc. The aim of building an Automated System for Parking Security (A.S.P.S.) is to automate the security of a parking lot. A.S.P.S consists of a line follower robot in which ultrasonic sensor and pi camera are mounted. The ultrasonic sensor is used to detect whether a vehicle is parked in a given space or not and the pi camera along with raspberry pi 3 is used to extract the number plate of the vehicle. The number plate detail along with the location of the vehicle is stored in the database that can be assessed remotely. This would enable quick retrieval of vehicles and help identify vehicles. The prototype has been implemented for a smaller parking lot and could be extended to suit any space.

DEVELOPMENT OF HIGH POWER AC TO DC CONVERTER FOR DC RING MAIN SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14EE020	G SASI KIRAN
2	1MS14EE031	PAMPAPATHI
3	1MS14EE038	RHITWIK SINGH
4	1MS15EE405	NAVEEN KUMARA M N
Mentor Name	SRI. VICTOR GEORGE	
ABSTRACT		
<p>The success of electric vehicles (EVs) relies heavily on the accessibility of reliable charging stations. DC Fast Charging Station (DCFCS) is essential for widespread use of Electric Vehicle (EVs) which can recharge EVs with direct current in a short period of time. The idea of EVs is related with the reduction of carbon emission. DCFCS should also be fed from renewable energy sources, in order to maintain the whole idea of carbon reduction. The intermittent nature of the renewable sources makes the reliability of such a DCFCS a serious concern. A DC ring main system is proposed which can overcome this issue by connecting it to both AC grid and renewable sources. An AC/DC converter is developed which can act as an interface between three phase AC grid and the DC ring main system. The shortage in power will then be adjusted from the AC grid. The performance of the converter is then analyzed under different loading conditions.</p>		

OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION IN A DISTRIBUTION SYSTEM		
SL.NO	USN NO.	NAME
1	1MS13EE038	Pranav Nambiar
Mentor Name	DR. LIKITH KUMAR M V	
ABSTRACT		
<p>Today's electric system is expected to bring high-quality and reliable power to customer loads. More than a century of development has led to a large interconnected system that brings power from central-station generators via transmission and distribution to end-use customers. Although this system can provide relatively inexpensive power, issues remain such as increasing fuel costs, reducing power plant emissions, and increasing customer needs for higher reliability power. One potential solution to these issues is the use of distributed and renewable energy sources at the distribution level. The benefits of distributed generations (DGs) can only be obtained if they are integrated in the distribution system at optimal location and with optimal size. If they are not optimally allocated, it will result in the higher power losses and poor power quality in the grid. Hence in this project, an analytical method is proposed for the optimal allocation of the DGs considering real power loss reduction. DGs with the capability of injecting only active power are considered for the study. Backward forward sweep method is used for load flow analysis and the proposed technique is validated by testing on IEEE 33 bus radial distribution system in Matlab simulation software.</p>		

CHARACTERISATION AND EXPERIMENTAL INVESTIGATION ON OUTDOOR POLYMERIC INSULATORS

SL.NO	USN NO.	NAME
1	1MS14EE065	MANJESH K
2	1MS15EE406	PRAVEENA HERAKAL
3	1MS15EE401	ANAND PRAJAPATI
4	1MS15EE402	BHARATH K
Mentor Name	SRI. VINAYAK V. RAO	

ABSTRACT

In the current situation interminably changing weather conditions, frequent power system failures, increasing demand for electricity are extreme challenges. Insulators play a vital role during the power failures. When the insulators fail, the power supply to costumers is disrupted and failures may initiate sparks and arcing that could lead to catastrophic events which in turn will lead to huge economic losses. Although ceramic insulator have been used extensively over the years the polymeric insulators have also proved efficient in the recent years. In spite of many advantages of polymeric insulators over ceramic insulators they do fail mechanically and electrically. The reason for failure is mainly due to surface tracking, chalking, crazing of sheds and pollution induced flashover under contaminated conditions. These problems will become serious for the aged polymeric insulators due to surface degradation and decrease in insulation résistance. The factors which effect aging are high temperature, rain, humidity and polluted environment. The failure of the aged insulators due to flashover phenomena under polluted condition occurs at normal working voltage. Thus, it is necessary to investigate the performance of aged polymeric insulators under polluted condition. The project aims at surface characterization of artificially and naturally aged 11kV polymeric insulators, and influence of ultraviolet radiation on the aging performance of the insulators. The work concentrates on the experimental investigation of flow of leakage current on the aged polymeric insulators under polluted conditions. The experimental work is carried out according to the standard IEC60507.

DEVELOPMENT OF CURRENT CONTROL SCHEME FOR PARALLEL CONNECTED DC/DC AND AC/DC CONVERTERS

SL.NO	USN NO.	NAME
1	1MS14EE013	AVINASH MALLAGOND
2	1MS14EE014	B PRASHANT
3	1MS14EE043	SATHWIK H A
4	1MS15EE050	SHREYAS K
Mentor Name	SRI. VICTOR GEORGE	

ABSTRACT

The reliability of Electric Vehicle (EV) charging stations depends on the uninterrupted power availability. Genuine DC sources like solar PV can be used for DC fast charging stations in order to power the DC bus with higher conversion efficiency. The intermittent nature of the solar PV makes it mandatory that of an additional AC grid backup. A DC ring main system is proposed for a reliable DC fast charging station with DC-DC converter for DC sources and AC-DC converters for the AC grid. Proper current sharing and voltage stability are the two main issues to be considered for parallel connected converters. An experimental set up is developed for the analysis of these issues. The current share from individual converters was analyzed under different loading conditions. A proportional current control scheme is developed. The results are analyzed and presented at the end.

SMART COMMUNICATION BETWEEN PHEV AND DC FAST CHARGING STATION

SL.NO	USN NO.	NAME
1	1MS14EE005	ADITYA SWAROOP
2	1MS14EE022	KUNAL GAURAV
3	1MS14EE033	PRANAY JAISWAL
Mentor Name	SRI. VICTOR GEORGE	

ABSTRACT

Plug-in-Hybrid Electric vehicles (PHEVs) are getting promoted around the world for multiple reasons. DC fast charging stations can act as a catalyst to the success of such promotions. Proper deployment of renewable based DC fast charging stations with smart communication facilities with the users can encourage the wide use of PHEVs. This project focuses on a smart communication between such a stations and the EV users which can enhance the promotion of PHEVs. It is employed by monitoring the state of charge (SoC) of PHEV batteries, location of charging station and PHEVs and crowd level at the charging stations. The proposed scheme ensures a proper communication of SoC with the customer when it reaches a predefined critical level through Global System for Mobile (GSM) technology. Coulomb counting method is used to measure the SoC. The Global Positioning System (GPS) is used to provide the information on nearest charging stations through a website link. The number of vehicles waiting at each charging stations will also be informed to the customers. The effectiveness of the proposed system is tested by experimental tests based on the prototype developed.

EMBEDDED SYSTEM FOR INDUSTRIAL BUILDING AUTOMATION USING BACNET

SL.NO	USN NO.	NAME
1	1MS14EE055	SUNETRA BHAT
Mentor Name	External Mentor – SHRI AMAR DESAI Internal Mentor - SHRI GURUNAYK NAYAK	

ABSTRACT

To maintain the comfortable working conditions, systems like Building Management Systems (BMS) help in centralized controlling and monitoring of loads like HVAC, lighting, fire etc. by having an automation system and data acquisition network. Currently, BMS equipped buildings are manned by operators provide the operating point and the BMS system controls the loads to achieve the set point. In dynamic conditions like weather changes, or more thermal load (e.g. sudden rush of people coming into a building or leaving), the systems are not able to meet the dynamic response to maintain the comfort, or they end up wasting a lot of energy. The enablement for the optimization of system response to changes in the ambient conditions is by developing a BACnet interface to tap into BMS network using the stack developed, which reduces wiring costs by re-using the existing sensors, reading continuous input of various data such as temperature, relative humidity, etc. from critical parts of the building where ambient conditions have to be strictly maintained and run algorithms to change set-point of HVAC. Energy costs are to be optimized in low load conditions automatically and /or dynamic response of system is improved compared to current scenario of manually changing the set points.

DATA DRIVEN MODELLING AND CONTROL OF SERVO MOTOR FOR ROBOTIC APPLICATIONS

SL.NO	USN NO.	NAME
1	1MS14EE021	K.PALLAVI
2	1MS14EE024	M.GOUTAMI
3	1MS14EE025	MANASA.D.G
4	1MS14EE063	VINEELA.K.S
Mentor Name	SRI. GURUNYAK NAYAK	

ABSTRACT

Mathematical modelling of Large scale system such as interconnected robotic systems, networked system are difficult to obtain from the first principles which involves complexity of mathematics or physics and hence the computational time required for development of controller involved is more. On contrary "Data driven modelling" is a method to obtain the mathematical definition of such systems in a simpler way. This project uses the concept of 'Data Driven Modelling (DDM) and control', to develop and test it on the benchmark example: Servo motor. DDM is used to find the relation between input and output of an unknown system (here the system used for illustration is a servo motor). The complexity involved here is to estimate the system parameters even in the presence of noise and disturbance. This involves fitting the data with different system identification techniques. Further we use ANN (Artificial Neural Networks) technique to design a controller which modifies itself for a particular output specified. Data Driven Model and control doesn't require any knowledge of system (to be controlled) because it depends only on inputs and corresponding output data. Data driven model based controller requires less simulation time and complexity of nonlinearity is reduced when compared to model based controller. It also has better performance, more precise tracking and greater robustness compared to other controllers. (Proportional Integral Derivative (PID), Model Free Adaptive Control (MFAC), Manual Boost Controller (MBC) etc)

CONTROLLING ELECTRICAL APPLIANCES USING BRAIN SIGNALS

SL.NO	USN NO.	NAME
1	1MS13EE002	ABBU YESHWANTH R
2	1MS15EE409	SHARANAGOUDA
3	1MS15EE410	SOWMYA
4	1MS15EE409	VIJAYANAND TALAWAR
Mentor Name	KUSUMIKA KRORI DUTTA	

ABSTRACT

This project aims to help paralyzed, old aged or people, who met with an accident and lost their hands ie, physically disabled peoples to control the home appliances independently using their Brain signals. Human brain generates signals of different amplitude and different frequencies for different activities (artifact). These signals are acquired through the electrode sensors and processed such that the parameters of different artifacts can select the devices with the help of arduino through relay switch, the switching on and off of the home appliances is done accordingly. The Present day research allow us to develop control devices to provide assistant to handicapped, paralyzed and old aged people for their day to day activities. This project describes how the brain activity is utilised using brain wave EEG signal data transmission device. The brain electric signal are acquired by EEG machine that facilitates the graphical illusion as special feature of electric brain activity. It provides a very promisial technology for physically disabled people who are unable to access their hands.

ADAPTIVE KALMAN FILTER		
SL.NO	USN NO.	NAME
1	1MS14EE006	AKSHAY KUMAR M
2	1MS14EE007	ALLAMPURABHU B M
3	1MS14EE026	MANJUNATH H
Mentor Name	SRI GURUNAYAK NAYAK	
ABSTRACT		
<p>In 1960, R.E. Kalman published his famous paper describing a recursive solution to the discrete-data linear filtering problem. Since that time, due in large part to advances in digital computing, the Kalman filter has been the subject of extensive research and application, particularly in the area of autonomous or assisted navigation. The Kalman filter is a set of mathematical equations that provides an efficient computational (recursive) means to estimate the state of a process, in a way that minimizes the mean of the squared error. The filter is very powerful in several aspects: it supports estimations of past, present, and even future states, and it can do so even when the precise nature of the modeled system is unknown. The project deals with combining the field of machine learning with Kalman filter. Every system is associated with certain amount of noise, uncertainty and disturbance. The sensors used for measurement states, are the primary source of noises whereas process noise is another reason for stochastic nature of state estimation. Model uncertainty arises when system gains or other parameters are not precisely known. Disturbance represent unwanted inputs which affect the control system's output. It has been found that Kalman filter doesn't work fine with model uncertainty, disturbance and noises during the transient period. Simulations are carried out with respect to bench mark problem of a modelled mass spring damper system, to filter noises and it has been found that the Kalman filter fails to filter out the noises during transient periods. With the prior knowledge of all possible noises, disturbances and uncertainties , generation of better Kalman gain using the machine learning approach can overcome these issues.</p>		

DEPARTMENT OF INDUSTRIAL ENGINEERING & MANAGEMENT



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Lean Implementation to enhance the productivity of an Organization

SL.NO	USN NO.	NAME
1	1MS15IM405	Goutham Singh
2	1MS14IM034	Mohammed Fida
3	1MS14IM041	Renish Cherian
4	1MS15IM409	Sunil
Mentor Name	External Mentor : Mr. Mathiyazaghan Internal Mentor : Dr. Shoba R	

ABSTRACT

The concept of lean manufacturing was developed for maximizing the resource utilization through minimization of waste, later on lean was formulated in response to the fluctuating and competitive business environment. Due to rapidly changing business environment the organizations are forced to face challenges and complexities. Any organization whether manufacturing or service oriented to survive may ultimately depend on its ability to systematically and continuously respond to these changes for enhancing the product value. For the successful implementation of lean manufacturing, the organization had to focus on all the aspects such as Line Balancing, Data Routing using Oracle, Kanban Implementation and 5S Implementation, In this project, an attempt has been made to develop a lean route map for the organization to implement the lean manufacturing system. Analyses of the exploratory survey results are summarized to illustrate the implementation sequence of lean elements in volatile business environment. The results of this project were synthesized to develop a unified theory for implementation of lean elements in such types of industries.

Optimizing a lean system by reducing the lead time of the value stream

SL.NO	USN NO.	NAME
1	1MS14IM011	ANKITHA N
2	1MS14IM018	DHANUSH R
3	1MS14IM051	SUDHANVA G S
4	1MS14IM060	VENKATESH H S
Mentor Name	External Mentor : Varadaraj C H Internal Mentor : P R Dheeraj	

ABSTRACT

Our project titled, 'Optimizing a lean system by reducing the lead time of the value stream', aims to reduce the percentage non-value added activities, thereby reducing the lead time and increase the productivity for BOSCH. For the purpose of this project's study, the value stream is broadly divided into 2 phases namely – Component cleaning area and Assembly area. The layout of the area, the machine, and its operators were monitored. The parameters such as productivity, operator efficiency, machine OEE were improved along with the standardization of working sequence. The current state mapped and subsequently, the intended improvements were incorporated into a VSD. The second phase of the project was carried out at the assembly area, which involved the study of leveling concepts, internal milk runner activities and standardized working sequences for the POUPs. Together, the bottlenecks existing in the scope of the study were eliminated, so as to meet the customer demand consistently, by maintaining optimal inventory buffers and reduced lead times.

Waste generation and optimization of integrated solid waste management system at Bangalore		
SL.NO	USN NO.	NAME
1	1MS14IM065	ASHISH SHARMA
2	1MS14IM003	ADITHYA NA
3	1MS14IM007	AISHWARYA.S
4	MS14IM027	KUMAR KARTIKEY
Mentor Name	External Mentor : Mr. Rajesh Babu Internal Mentor : Dr. G.S Prakash & Mr. V. Vivekananda	
ABSTRACT		
<p>The city of Bangalore has grown from a small paradise to a sprawling metropolis within a few decades and the waste management system has not been able to keep up. Rapid growth in urban population coupled with economic growth and rise in community living standards have resulted in generation of huge quantities of municipal solid waste posing serious problem to municipalities and corporations in terms of collection and disposal of solid waste. The present solid waste management problem was not foreseen by the public or municipal authorities, but the community has now woken up from its slumber and is desperately looking for some miracle to address the issue. Hence, this project titled "Waste generation and Optimization of Integrated Solid Waste Management System in Bangalore" will contribute to the society by determining the key factors that influence the generation of solid waste in households. A survey was conducted amongst the residents of Vidyaranyapura to collect their opinion about the present waste management system and determine the household solid waste output. Using statistical tools and optimization techniques, the objective of this project is to reduce waste generation and optimize the entire process of waste management by conducting an analysis to identify the factors that affect solid waste generation and to reduce the costs incurred by the municipal authorities. An integrated approach towards resolving the economic, behavioral and transportation systems will create an impact on the waste management system and help make it more efficient and effective.</p>		

Time Series and Multivariate Analysis of Factors Influencing Air Pollution across major cities in India		
SL.NO	USN NO.	NAME
1	1MS14IM056	Syed Usmanulla
2	1MS14IM064	Prathiksha S
3	1MS14IM052	Suhaib Soofi Mohammed
4	1MS14IM055	Sundaresh S Narayan
Mentor Name	External Mentor : S. Appaiah Internal Mentor : V. Vivekanand	
ABSTRACT		
<p>The alarming growth of atmospheric pollution has led many countries in the world to establish severe laws and regulations defining air quality and the required standard of emission levels. Particular attention is devoted to urban areas where the problems of atmospheric air pollution are especially worrying, because the output of pollutants are high and the number of people exposed to health hazards are growing constantly. Particular importance is given to both atmospheric pollution and air quality evaluation and forecasting. Time series analysis comprises methods for analysing time series data in order to extract meaningful statistics and other characteristics of the data. Time Series forecasting is the use of a model to predict future values based on previously observed values. The development of models to predict particulate matter less than and equal 2.5 micrometers (PM2.5) concentration is thus very useful because it can provide early warning to the population and for input into decision regarding abatement measures and air quality management. The aim of this study was to improve the predictive power of multiple linear regression models using principal components as input for predicting PM2.5 concentration for the next day.</p>		

Improving operator utilization and designing ergonomic trolleys		
SL.NO	USN NO.	NAME
1	1MS14IM004	Aditya B Raju
2	1MS14IM016	Ayush L Jain
3	1MS14IM036	N C Mohamed Faheem
4	1MS14IM037	Karan Pradyumn Patil
Mentor Name	External Mentor : Siddesh Nesvi Internal Mentor : M. R. Shivakumar	
ABSTRACT		
<p>The present work is carried out at ACE Macromatic Pvt. Ltd. The company is the manufacturer of varieties of CNC machines. Worker utilization is a technique that attempts to determine the efficiency of a company's employees i.e., proper utilization of an employee to increase the maximum produced output in a plant. The objective of the project work is to analyze the effective utilization of man & machinery and in turn maximizing the involvement if the worker in the processes. Multiple Activity Charts are drawn to determine whether the employee can work on multiple machines so as to improve the worker utilization. Trolleys are designed for better ergonomics to improve material handling and the ease of movement of heavy products inside the plant. The set-up time of setting of fixtures is reduced and utilization of workers is improved by 25 percent. Machine utilization is also improved by 10 percent.</p>		

Design of fixtures and folders to reduce dependency on sewing operator's skill and development of Industrial Internet of Things (IIOT)		
SL.NO	USN NO.	NAME
1	1MS14IM049	Shloke Garg
2	1MS14IM044	Samiksha Goyal
3	1MS15IM407	Pushpa J M
4	1MS14IM031	Manjunath C N
Mentor Name	External Mentor : S Badri Narayana Internal Mentor : Dr M. Rajesh	
ABSTRACT		
<p>The present Indian garment industry is labor intensive, manually operated and ranks high on skill requirement. So with worker absenteeism and non-availability of the required skill (A, B, C levels of tailors), the productivity of the industry reduces. Secondly, the data collection of parameters essential to maintain required quality and production levels (piece count, quality defects, alignment of fabric etc.) of the garment, is currently manual and decentralized, thus making it difficult to track and work upon. All these reasons make the garment industry less competitive in the global market. As a solution to the above stated problems, this project aims to develop jigs and fixtures to eliminate the skill required during sewing operations, develop industrial internet of things (IIOT) which will help in real time monitoring and updation of process parameters, enabling the supervisory to take the required corrective action, in reduced time, whenever a problem occurs. The industrial engineering techniques applied are pre-determined micro-motion time study, ergonomics study, lean, DFA (design for assembly), FMEA (failure mode and effect analysis) and degree of difficulty analysis. Finally, the ultimate goal of the project is to improve productivity by reducing skilled labor dependency, eliminating non-value adding activities from the processes, and providing IIOT opportunities for real time data collection and action.</p>		

Formulation Of A Sampling Plan For Aero Structural Sub-Assembly Parts Using Statistical Process Control To Reduce Inspection Time		
SL.NO	USN NO.	NAME
1	1MS14IM029	Maitri Arya
2	1MS14IM032	Meghana R
3	1MS14IM043	Riya Kapoor
4	1MS14IM045	Sanjana Menon
Mentor Name	External Mentor : Mr. Padmanabhan Internal Mentor : Dr. Shobha R & Hamritha S	
ABSTRACT		

This project focused on reducing inspection time using statistical process control tools in an industry that manufactures aero structural parts with a broad aim to improve on customer responsiveness and cost effectiveness. SPC is a method of measuring and controlling quality by monitoring the manufacturing process. Quality data for in-house machined parts of varying batch size at the industry was collected in the form of product measurements or readings from various machines or instruments. The data collected was used to evaluate the stability of the process by calculation of Process Capability Index values. Based on the results obtained after performing the stability check, sampling plans were formulated while identifying the key or critical characteristics of the process and the risks associated with them. After implementation of the proposed sampling plan, it was observed that there was an overall reduction in inspection time by 30%, i.e, from 3670 minutes to 2600 minutes. A reduction in labor cost per batch from Rs 27525 to Rs 19500 was also observed.

Integration of 4t asphalt compactor into 10t tandem compactor assembly		
SL.NO	USN NO.	NAME
1	1MS14IM017	BHUPATHI RAJU SAIPRAJWAL VARMA
2	1MS14IM020	C.A DISHAAN GANAPATHI
3	1MS14IM038	PRANAV POSHATTIWAR
4	1MS14IM066	JANICE AVREL PINTO
Mentor Name	External Mentor : Nishith Bolar Internal Mentor : Sudheer D Kulkarni & Deepak Kumar	
ABSTRACT		

The project is being conducted at the main facility of L&T CONSTRUCTION EQUIPMENT Pvt. Ltd, Bangalore. Posted in the Machinery Works department, Currently Two of the products the 4 Ton compactor and 10 Ton compactor are being assembled in two separate areas. The Objective is to integrate their assemblies in a single assembly line. During the course of the project, Sequence of Assembly operations of the 2 Product were visited and studied to understand the existing work flow process, information and material flow, objectives and improvement activities. The main objective of this project is to integrate the 4T Asphalt Compactor to the 10T Asphalt Compactor Assembly line using various IE Techniques such as Line Balancing, Simulation, and Man Power Planning. The integration of 4T model into 10T line in this Industry has brought significant improvement to the plant's layout by saving space and caused optimal utilization of manpower. Takt time and cycle time for the process were calculated from the elemental level. We developed new sequence and integrated 4T into production line of 10T to achieve even and balanced flow of production from one work station to the next. The result of the improvement have been compared to the current system in term of value of efficiency of production line. If Objective is obtained, it will unlock 72sqm of space and reduce takt time of 4T compactor from 2640 min to 440min

Redesigning the PF-Q pump layout to enhance efficiency		
SL.NO	USN NO.	NAME
1	1MS14IM022	Druthi C C
2	1MS14IM025	Kanaka J R
3	1MS14IM053	Suhani Shetty
4	1MS14IM059	Usha S
Mentor Name	External Mentor :Nagaraj K Pai Internal Mentor : Dr. C. S. Chethan Kumar & Sudheer D. Kulkarni	
ABSTRACT		
<p>Improving the productivity is one of the major challenges faced in the PF-Q pump layout at Bosch, Aduugodi Bangalore which has to be modified . The factors which are evaluated are bottleneck, length of the line, any unnecessary operation like space, storage,etc or activity by evaluating facility indices, smoothening indices, performance rating and material flow. The PF- Q line has three workstations namely Assembly Line, Calibration Process (which has 4 machines) and Packing Line. Considering the Assembly line, the length has been reduced from 10.18 meters to 5.8 meters by 1) Reducing the length of Element Assembly, DVH assembly and RS assembly from 1 meter to 0.5 meter each 2) DVH tightening from 2.03 meter to 0.7 meter and 3) Shifting the trolley out (0.9 meters) all of which amounts to an improvement by 43 percentage in the length of the Assembly Line. In the calibration, two activities were observed that caused unnecessary time consumption which could be easily eliminated, these were manual clamping and tightening; Hence Auto clamping and Toggle insertion were introduced which led to a reduction of (7 + 7) seconds which is 14 seconds together for each piece per machine that will amount to 14x4 which is 56 seconds at a time for each cycle when all the 4 machines are running. In the Packing line, Dry tightness has been removed and the length of Al Cap pressing and Visual Inspection has been reduced from 1 to 0.5 meters. After the above changes were made an improvement in the productivity was observed from 657 to 810 pumps per day.</p>		

Development and Improve the Composting Process by Using Dmaic		
SL.NO	USN NO.	NAME
1	1MS15IM402	BHEEMU RATHOD
2	1MS15IM406	HAREESHPRASAD
3	1MS15IM408	SHWETA A PATTAR
4	1MS15IM410	SUMA R BHAIRWADAGI
Mentor Name	External Mentor :Hari Prasad Internal Mentor : Deepak Kumar	
ABSTRACT		
<p>To develop and improve the process of a composting of solid food wastes produced in “Sheraton hotel” industry. Also we have observed that the sticking of oven products in the composting machine which results in delaying the process thereby increasing the cost as well as working hours and unpleasant odor of compost which affects health of employee. Creating an effective and sustainable process control methodology is also considered to improve the unexplained problems. Composting is known and easy process of organic waste management. It is a biological conversion self-heating, which generates desired end products such as substrates for cultivation of mushroom, bio-gas and fertilizers. The proper maintenance of temperature and humidity in pulverized organic waste will increase the process of bio-degradation. The study is done to evaluate the performance of compost machine. The proper management of temperature and humidity is important. Segregation of waste and to increase quality of compost or manure. The fundamental problem-solving approach is done by following the DMAIC (Define-Measure-Analyze-Improve-Control) in order to reduce the composting process variation and improvement process results. Analysis of the problem also using some tools such as Pareto diagrams, Fishbone diagrams and Analytical Hierarchy.</p>		

Cost Reduction of Cylinder by Using Shortest Path Algorithm		
SL.NO	USN NO.	NAME
1	1MS13IM030	Monica Shahi
2	1MS14IM402	Devaraja J.
3	1MS15IM401	Basavaraj Rajur
4	1MS15IM409	Sonal Singh R.
Mentor Name	External Mentor : Sai Vasudevan Mothi Internal Mentor : Dr. M. Shilpa	
ABSTRACT		
<p>The objective of the project is to reduce the distribution cost of the cylinder. Correlation between demand and trips are found for a data of 5 years. For correlations that are high, the optimum combinations for delivery of cylinder on 308 and 467 capacitated trucks are determined. The trucks travel through 87 distribution centers in Bengaluru following the RTD costing method i.e cost is calculated as per cylinder per km travelled which varies as more distance is travelled. All the 87 distribution centers are marked and nodes are made from starting point. All the distribution points are clubbed into units (making a cell) an algorithm named (Dijkstra's shortest path algorithm) is used to find the optimal path from nodal point. It has been analysed that trips depend highly on demand which is always fluctuating, depending on various factors including seasonal demand, or nearer plant facility available. By using this algorithm of Dijkstra the optimal distance which has lowest cost of travelling is determined and hence, the distribution cost is minimized.</p>		

Productivity improvement of the post-impregnation rotor line through semi-automation		
SL.NO	USN NO.	NAME
1	1MS14IM002	Adit Raj Singh Chouhan
2	1MS14IM023	Hemanth M R
3	1MS14IM042	Rhea B Zacharias
4	1MS14IM057	Tushar Nandimath
Mentor Name	External Mentor : Mahesh Patil Internal Mentor : Dr. Shilpa M	
ABSTRACT		
<p>This study is carried out at SEG automotive ltd. and is restricted to the manufacturing of RF rotor, a main component in the assembly of NBL alternator. The manufacture of rotor involves several processes; of particular interest are the nesting problems in the post impregnation line-1. The current manual loading and unloading operations in the post impregnation line has many shortcomings that is causing increased strain to the operators resulting in OEE losses, lower productivity and quality concerns. Organization and Performance losses contribute in excess of 10,000 products every month due to frequent absenteeism and repeated strain experienced by the operators respectively, resulting in company falling short of the OEE target (86%). To quantify the degree of risk the operators are experiencing, the NIOSH lifting equation has been used and found that the working conditions in the post-impregnation line are under medium risk. In order to address these problems, a semi-automated production line with a time belt conveyor and an automatic pick and place (Gantry) system is proposed. This is justified as it results in an increased production rate, improved ergonomic environment and economic savings by reduction of personnel.</p>		

Design and fabrication of hybrid car		
SL.NO	USN NO.	NAME
1	1MS14IM015	Avinash S
2	1MS14IM019	Dileep Ramu K R
3	1MS14IM021	Dnyaneshwar
4	1MS15IM403	Durga Prasad
Mentor Name	External Mentor : A. Balakrishna Internal Mentor : Hamritha S	
ABSTRACT		
<p>We might wonder why anyone would build such a complicated machine when most people are perfectly happy with their petrol (or Diesel) powered cars. The reason is twofold: to reduce emissions and to utilize the free energy that widely abundant in nature (solar. Wind and Rotational energy) And this kind of energy is properly utilized. In our model the utilization the solar energy and the conversion of that energy into electrical energy and that will be stored in the batteries and that e utilized for power transmission, so the basic intention is utilize free energy and to provide the model with more ways of power transmission and if this type of model is implemented in the complete aspects of design and working it will helpful for the future applications And the concept of our model is basically in order to improve the present model of cars and also the insert the concept of wind and solar energy and also the dynamo aspect in the one of the rotating part and that power is also stored in the battery and that stored energy is utilized for the power drive and to run motors.</p>		

Increasing efficiency in a garment industry using work study and lean techniques		
SL.NO	USN NO.	NAME
1	1MS14IM001	Aadesh D Jain
2	1MS14IM010	Ananya M A
3	1MS14IM040	Rahmathulla Khan
4	1MS14IM048	Shikharesh Rathore
Mentor Name	External Mentor : Chitra Internal Mentor :A Balakrishna	
ABSTRACT		

Pai Apparels is a small scale garment industry (job work) that is mainly focused on production of shirts. It has two facilities in Banaswadi and Makali, Bangalore. Our project was held at the Banaswadi facility. It was observed that Line 1’s output in particular was subpar compared to the other lines and the overall output for line 1 is low. The aim was to identity the cause and effect, to determine a steady flow of cloth from start to the finish stage. The main objectives included, increasing the efficiency using time study and multiple activity chart, optimizing the flow of material using flow process chart, designing of material handling box, implementation of 5S. Time study was used in Line 1 to record the observations. These observations were further implemented in the multiple activity chart, which helped reduce the production time and increase the output. Flow process charts were drawn for the stitching section to optimize the flow of material between the various sewing lines to increase overall production. Material handling box was designed to help the workers carry stacked bundles from cutting section to stitching section in a more efficient way. 5S was implemented to increase the efficiency and effectiveness in the work space.

Business process re-engineering of a retail cum B2B business		
SL.NO	USN NO.	NAME
1	1MS13IM011	Ashwini kumari
2	1MS14IM006	Aishwarya Agarwal
3	1MS14IM054	Sumit Sourav
4	1MS14IM061	Adarsh Tiwari
Mentor Name	External Mentor : Mr. Aditya Rungta Internal Mentor :Dr. C S Chethan Kumar	
ABSTRACT		
<p>Business process is set of logical, interrelated, tasks or operations which are performed to achieve a desired outcome. It can be a process of preparing financial accounts or the process of placing procurement orders or the task of selling goods to customers. The business process of any enterprise depends upon its nature, product, industry and the future goals of the enterprise. In the recent years Business Process Re-engineering has been adopted by many organizations to re-design their existing obsolete business processes to improve quality, increase profitability and reduce costs. In this project we re-design the internal business process of a B2B cum retail business of wire and cables where transactions are carried out and recorded manually. After studying the existing workflow and making detailed observations, inventory management, IT and IS, outlet and warehouse layout designs were identified as the business processes which needed to be redesigned/reengineered. In this project we redesign the existing material work flow, redesign layouts, and integrate information technology in the business process workflow by initiating the phased implementation of ERP package. A M.S. Excel based dashboard which would work in synchronization with the ERP package and facilitate business monitoring and control is also developed. The need to redesign the above mentioned business processes is critically evaluated based upon its contribution in terms of value added i.e. reduced customer service time and costs.</p>		

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING



Project
Abstracts

2017 - 2018

Crash Graphs: An Aggregated View of Multiple Crashes to Improve Crash Triage

SL.NO	USN NO.	NAME
1	1MS14IS057	Mahesh S Kalla
2	1MS14IS060	Maurine Leonie
3	1MS14IS068	Nagaraj V Moger
4	1MS15IS412	Rakshith H N
Mentor Name	Prof. Pushpalatha M N	
ABSTRACT		

Crash reporting systems play an important role in the overall reliability and dependability of the system helping in identifying and debugging crashes in software systems deployed in the field. In Microsoft for example, the Windows Error Reporting (WER) system receives crash data from users, classifies them, and presents crash information for developers to fix crashes. However, WER and open source crash reporting systems deal with crashes individually, they compare crashes individually to classify them, which may cause misclassification. Developers need to download multiple crash data files for debugging, which requires non-trivial effort. To decrease the time cost in manual work, text classification techniques are applied to conduct automatic bug triage. In this project, an approach on the open source crash report is proposed, which are an aggregated view of multiple crashes. Also, the problem of data reduction for bug triage is addressed, i.e., how to reduce the scale and improve the quality of crash data. Instance selection with feature selection to simultaneously reduce data scale on the bug dimension and the word dimension is combined. Crash reports indicate that it reduces misclassification and helps identify fixable crashes in advance.

Performance analysis of Employee Attrition prediction by applying various Machine Learning Algorithm

SL.NO	USN NO.	NAME
1	1MS14IS087	Rohit Hebbar A
2	1MS14IS094	Sanath H Patil
Mentor Name	Prof. Rajeshwari S B	
ABSTRACT		

In most of the company's Employee Attrition is a big problem. The reason behind this can be due to personal as well as company related issues such as the environment, the company offers, the distance of the company from the home, Salary, Job Satisfaction etc. According to Businessdictionary.com, employee attrition is an Unpredictable and uncontrollable, but normal, reduction of work force due to resignations, retirement, sickness, or death. The project aims to consider these issues and get a solution as to whether an employee would leave the company or not by using feature engineering, correlation analysis and data visualization in pre-processing phase and utilizing machine learning algorithms of Linear Regression, SVM and Random Forest by considering the data from both the existing employee and also from employees who have resigned. This would help the company to make sure that future employees won't resign and would help in maintaining a bond between the company and an employee.

An Effective Time Series Analysis for Stock Market Prediction Using Data Mining Techniques

SL.NO	USN NO.	NAME
1	1MS13IS050	Latha M
2	1MS14IS115	Swathi DV
3	1MS15IS416	Sahadeva M K
4	1MS15IS423	Vishwanath Rathod
Mentor Name	Prof. Savita K Shetty	

ABSTRACT

Stock price is a kind of time series in financial domain. The fluctuations of financial time series are dynamically, selectively, and nonlinear, non-stationary and with a lot of noises, which make it difficult to forecast. Stock price by using data mining or machine learning techniques in the near future has become one of the most significant issues. However, it is hard to make predictions from the principle of the efficient market hypothesis, since the stock price will follow a random work pattern. In addition, a stationary prediction strategy is also not possible because investors will soon discover such strategies and those successful forecasting rules will lead to self-destruct. There are many factors that lead to the rise and fall of financial market movement. Predictions of stock market price and its direction are quite difficult. Statistical analysis methods stand a good chance at finding the main factor that impacts the short term stock volatility. While data mining techniques have been profitably to generate high prediction accuracy of stock price movement. A great number of financial analysts and stock market investors' are convinced that they can make profits by employing one of the technical analysis approaches to forecast stock market.

Hop-by-Hop Routing Mechanism For Green Internet

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ABSTRACT

Wireless Communication and Wireless Networking is the popular research in this era. It is observed that different traffic volumes on a link can result in different energy consumption. This is mainly due to technologies such as trunking (IEEE 802.1AX), adaptive link rates, etc. A green Internet routing scheme is designed where the routing can lead traffic in a way that is green. This approach differs from previous studies where they switch network components such as line cards and routers into sleep mode. The Internet topology is not pruned. A power model is developed and validated when real commercial routers are used. It is much easier to integrate our scheme into the current Internet. One of the main considerations in designing routing protocols for Mobile Ad-Hoc Network(MANET) is to increase network lifetime by minimizing nodes' energy consumption, since nodes are typically battery powered. However, earlier works suggest a proactive protocol like Optimized Link State Routing Protocol (OLSR) to better manage the energy consumption. For implementation purpose, NS2 Simulation tool is used.

Milo: A Web Based Platform For Data Science Education

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ABSTRACT

The goal of this project is to address the challenges associated with Data Science education. Most online courses on Machine Learning, assume that students are familiar with a programming language like R, Python or MATLAB. This however raises the barrier to entry in these fields. Milo is an entirely browser based visual programming environment that is designed to help students get started with Data Science and Machine Learning. Milo provides interactive graphical blocks that act as primitives for implementing theoretical concepts. The blocks thus eliminate the prerequisite of knowing a programming language. A key design goal of Milo is to help students understand the core mathematics and theory used in ML and Data Science, by allowing users to easily create visualizations of complex topics. Once students are familiar with implementation using blocks, Milo generates source code from the blocks in a real world programming language to help transition students to more advanced courses. Milo also targets educators by providing them with an easily accessible platform for creating introductory courses covering concepts of Linear Algebra, Machine Learning and Data Science in a way that combines theory and practice.

Preventing Inadvertent Data Leak Using A Privacy Preserving Data-Leak Detection (DLD)

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ABSTRACT

Current applications tend to use personal sensitive information to achieve better quality with respect to their services. Since the third parties are not trusted the data must be protected such that individual data privacy is not compromised but at the same time operations on it would be compatible. This project implements and evaluates a new privacy-preserving data-leak detection system that enables the data owner to safely deploy locally, or to delegate the traffic-inspection task to DLD providers without exposing the sensitive data. In the model, the data owner computes a special set of digests or fingerprints from the sensitive data, and then discloses only a small amount of digest information to the DLD provider. The exposure of sensitive data in storage and transmission poses a serious threat to organizational and personal security. Data leak detection aims at scanning content for exposed sensitive data. Because of the large content and data volume, such a screening algorithm needs to be scalable for a timely detection. In this project the system proposes data leak detection (DLD). It can be outsourced and be deployed in a semi-honest detection environment. This approach works well especially in the case where consecutive data blocks are leaked.

Space And Service Prediction On Cloud For Inter Cloud Operations

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ABSTRACT

Space and Service Prediction (SSP) has been widely used in cloud computing where a data provider outsources his/her encrypted data to a cloud service provider, and can share the data with users possessing specific credentials (or attributes). However, the standard SSP system does not support secure deduplication, which is crucial for eliminating duplicate copies of identical data in order to save storage space and network bandwidth. In this project an attribute-based storage system with secure deduplication in a hybrid cloud setting is presented, where a private cloud is responsible for duplicate detection and a public cloud manages the storage. Compared with the prior data deduplication systems, there are two advantages of the proposed work. Firstly, it can be used to confidentially share data with users by specifying access policies rather than sharing decryption keys. Secondly, it achieves the standard notion of semantic security for data confidentiality while existing systems only achieve it by defining a weaker security notion. In addition a methodology to modify a cipher text over one access policy into cipher texts of the same plaintext but under other access policies without revealing the underlying plaintext.

Political Mood Determination using Twitter Data by Sentiment Analysis

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ABSTRACT

Politicians' informal conversations on social media (e.g. Twitter) shed light into their educational experiences—opinions, feelings, and concerns about the learning process. Data from such un-instrumented environments can provide valuable knowledge to inform student learning. Analyzing such data, however, can be challenging. The complexity of Politicians' experiences reflected from social media content requires human interpretation. However, the growing scale of data demands automatic data analysis techniques. In the proposed approach the algorithm will first get the tweets of political parties for a set of hash tags. Find the positive and negative polarity for each review against the political party. The party is again rated on the various attributes namely Infrastructure, Job Market, Food Prices Crime rate.

Indoor Positioning using WiFi Fingerprinting

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ABSTRACT

Due to attenuation, GPS signals lose strength inside buildings. This prevents people from locating themselves indoors and navigating accurately using traditional applications like Google Maps which heavily rely on GPS. The solution we propose to tackle this problem is to use WiFi Fingerprinting. A WiFi fingerprint is a measure of signal strength between a receiver and multiple WiFi access points in the vicinity of the receiver. These fingerprints are unique for different locations and can be used to identify the location of an end user. In this project, we provide users with an App that displays an indoor map, and locates their position using WiFi Fingerprints. Building owners collect WiFi Fingerprints via a mobile app which is used for training the machine learning model. This model can accurately identify the location of new fingerprints that are sent from the User's app to get their indoor location. We have also designed an intuitive web interface which allows building owners to upload a map of the building and add Points of Interest (POIs) which is projected to end users along with their location.

Predicting Severity of Bug reports using Text Mining

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ABSTRACT

Because of the absence of proper Bug triaging system, some severe bugs restrict the users from using the application. Bugs are prioritized based on the severity levels. Sometimes, a person is hired to label the severity of the bug reports manually, which is labor-intensive and time consuming process. This project focuses on overcoming this challenge of bug triaging process by automating the labeling of bug reports with its severity. A solution is provided using the well known Machine Learning algorithms to predict the severity of the bug reports automatically. The only effort here is to train the model, once the model is trained, it can be used to label the severity levels of any bug reports. In this project, a Web-based Application is provided to the user where he/she can input any bug reports and our system will predict the severity of that report. Unsupervised Machine Learning Algorithm is used to create different clusters of severity. This system can be used by any developer who wants to classify their bug reports according to different severity levels.

Social Media Analytics and Visualization

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ABSTRACT

Tracking social media is one of the biggest struggles which small companies and business have faced since the early stages of social media marketing. Social media marketing is all about engagement. The more retweets, likes and comments the social media posts receive, the higher the visibility of the brand. By using hashtag analysis, we can get details on target audience and optimize the social media posts for more exposure. Social networking is currently the most widely used medium for expressing emotions and opinions in public life through smartphones and other mediums of the internet. Among the most popular portals, the one which provides the most user information is twitter. The project aims to provide platform marketers, journalists and other small businessmen to perform social media analytics of twitter based on hashtag tracking and create easy to read models and layouts to simplify reporting and strategizing.

Customer Churn Prediction in Telecommunication Industry

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ABSTRACT

The driving motive behind doing the project is to provide telecom industries with an analysis tool, to handle their prominent data. An attempt has been made to develop a classification model. The model here uses the telecom operator's data to predict the customer's behavior. Every day, there are a huge number of people churning away from their telecom service provider. The work is centered on finding the customers who will churn. Of the several classification models Random Forest and Support Vector Machine were finalized as the classifiers to be used for churn classification. Applying such methodologies, results in a more efficient, fully functional classifier to predict customer churn. The list of churning customers is given to the provider along with the possible reason for their churn. Using this information, the telecom operator can come up with feasible plans to stop the customer from churning. The classification model developed in the project can strengthen the telecom provider. Such an automated model is essential for every telecom giant in the long run.

Privacy Preserving Scout Engine

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ABSTRACT

Enormous data is being generated by the enterprises and individuals. Cloud technology helps in managing and storing the data generated in an efficient manner. The data and the corresponding complex management tasks can be outsourced to cloud for flexibility and cost savings. But the data will have the privacy issues. Before outsourcing the data, it has to be encrypted for security purpose. Multiple keyword similarity search over outsourced cloud data to get the required files is performed. Considering the text files, user enters keywords to which the cloud returns the file related to the keywords. User access privacy is obtained by Blind Signature Technique. Bloom Filter technique is used which is a space efficient probabilistic data structure which is used to test if an element is a member of a set. The project aims is to achieve the search of file in cloud and retrieve it, in secure manner and efficient in terms of the search time at the cloud side.

Automated Traffic Light For Ambulance Service With Extensive Health Report Card

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ABSTRACT

Emergency medical response in India is lagging behind other countries due to the lack of technological implementations at ground level. That includes various aspects such as getting an ambulance within a minimum amount of time, providing proper treatment to the patients so that chances of survival increase etc. A.T.L.A.S, which is a smart way of managing a traffic such that there will be automated green corridor for the patient to reach the hospital without even waiting for much time has been introduced. The major functionality of this light will be to detect ambulance from 500m to 1km so that particular lane can be freed in time. The second aspect is first aid. Even when the patient is in ambulance, the nurses and doctors are bound to do blood tests and other first aid which takes a lot of time. Thus many times this also causes trouble, perhaps the patient could be allergic to some form of medicine but since doctor won't know this, it can prove to be a misery to the patient. Therefore, in order to curb all these problems E.H.R.C will be very useful as this card will contain all sorts of information like the patient's blood group and other necessary details of past treatments. In this way E.H.R.C will be highly beneficial to patient as well as doctor.

Case Study Of Protein Structure Prediction Methodologies

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ABSTRACT

Protein structure prediction is the inference of the three-dimensional structure of a protein from its amino acid sequence—that is, the prediction of its folding and its secondary and tertiary structure from its primary structure. New proteins on discovery are subject to structure prediction. A linear protein structure is derived from the protein in the form of chains which is the primary structure. The chain provides information about arrangement of the amino acids that is helix, strands, loops and turns. There are several algorithms that have been used to predict the structure of the protein. Although plenty of protein sequence data is available online, it was not easy to acquire data that was pretty classified with labels. Information from various websites are scraped allowing us to get class labels for the unsupervised data set. The proposed approach uses Feature Vectors methodology to generate a transformed view of the protein sequences, which are then used as input to classifiers like Random Forest and Naive Bayes. This assists in comparing and contrasting the precision and accuracy of the predicted sequences. Results of the comparison provide deep insights in methodologies used for structure prediction in the future.

Cloud Based Automatic Accident Detection And Rescue System

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ABSTRACT

With the advancement in technology and increasing traffic, road accidents and traffic hazards have increased, causing more chances of loss of life due to lack of timely help facilities. In emergency medicine, the golden hour (also known as golden time) refers to a time period lasting for one hour, or less, following traumatic injury being sustained by a casualty or medical emergency, during which there is the highest likelihood that prompt medical treatment will prevent death. This project is an attempt towards finding solutions for timely accident notification and to take the necessary action needed for that situation within that golden hour. The system will facilitate the users in a number of ways such as notification for immediate aid in case of accident, tracking the vehicle's location by the paramedics and the ambulance services and helping in providing the appropriate aid for the victims in the golden hour. The hardware components include the "smart device" installed in the vehicle and a mobile phone for user interaction. The "smart device" installed in the vehicle does not interfere with the normal functioning of the vehicle or cause overheads. The difference of the speed impact, the vibration impact is mainly studied.

Assistive Technology for the Visually Impaired using Computer Vision

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ABSTRACT

A good eyesight facilitates us in carrying out day to day activities. As for someone who is blind, every day presents its own little challenges. Statistics indicate that out of 15 million blind people in India, less than ten percent learn Braille and without Braille, it is difficult for a blind person to find employment opportunities. After a survey conducted at the National Association for the Blind in Bangalore, it was evident that the most crucial issue faced by the blind was the inability to read without learning Braille along with the inability to see objects around them. The proposed product makes use of two sensors, an Ultrasonic sensor which helps in determining whether the paper to be read is at the most accurate distance with respect to the camera and a Photoresistor which works on the principle of Photoconductive effect to provide adequate lighting for accurate text detection. Once the image is captured by the camera, the product reads out the text that is placed in front of the visually impaired, which could be either a book or a newspaper or any kind of board around them and convert it to audio. This can be used by the blind to read anything given to them without the help of an instructor or the need for braille. Besides this, the product also describes the objects in the view of the user, thus making it multi-functional equipment for the visually impaired.

Visionglasses - Smart Glasses For Visually Disabled People

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ABSTRACT

At present many blind assistive systems have been implemented but there is no such kind of good system to navigate a blind person. In our project, we will present blind assistive system that is Vision Glass for the Blind People. In this system the blind person is navigate through a spectacle interfaced with an android application or Raspberry Pi. The blind person is guided through English voice commands generated by the application according to the obstacle position. Using earphone either by wired or wireless processing application will send the instructions to the blind person to protect from the existing obstacle on way. The blind assistive application will find the distance and object using two camera modules. The movement of blind person will get easier by this system.

Smart Parking System Using RFID Technology

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ABSTRACT

Most of the RFID networks include a wide range of automation technologies. Such as RFID readers, RFID writers, RFID barcode scanners, RFID smart sensors and RFID controllers. In this study, a solution has been provided for the problems encountered in parking-lot management systems via RFID technology. RFID readers, RFID labels, computers, barriers and software are used as for the main components of the RFID technology. Most of the software tool now a day does the management, controlling, transaction reporting and operation tasks for parking lots located on various parts of the city. Check-ins and check-outs of the parking-lots will be under control with RFID readers, labels and barriers. Personnel costs will be reduced considerably using this technology. It will be possible to see unmanned, secure, atomized parking-lots functioning with RFID technology in the future. Check-ins and check-outs will be handled in a fast manner without having to stop the cars so that traffic jam problem will be avoided during these processes. Drivers will not have to stop at the circulation points and parking tickets will be out of usage during check-ins and check-outs. It will be avoided ticket-jamming problems for the ticket processing machines as well. Vehicle owners will not have to make any payments at each check-out thus a faster traffic flow will be possible. Since there won't be any waiting during check-ins and check-outs the formation of emission gas as a result of such waiting will be avoided. An atomized income tracking system, a car tracking system for charging and a central parking-car tracking system have been developed. An efficient and a fast operating parking-lot system have been developed.

Intrusion Detection System using Filter-Based Feature Selection

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ABSTRACT

Redundant and irrelevant features in data have caused a long-term problem in network traffic classification. These features not only slow down the process of classification but also prevent a classifier from making accurate decisions, especially when coping with big data. In this project, we propose a mutual information based algorithm that analytically selects the optimal feature for classification. This mutual information based feature selection algorithm can handle linearly and nonlinearly dependent data features. Its effectiveness is evaluated in the cases of network intrusion detection. An Intrusion Detection System (IDS), named Least Square Support Vector Machine based IDS (LSSVM-IDS), is built using the features selected by our proposed filter-based feature selection algorithm. The performance of LSSVM-IDS is evaluated using the dataset, named KDD Cup 99. This project aims at developing an Intrusion Detection System for effective detection of intrusions and anomalies.

Music Recommendation Based on Recognition and Classification of Emotions Using EEG

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ABSTRACT		

Electroencephalogram (EEG) based emotion recognition is a relatively new field in the effective computing area with challenging issues regarding the induction of the emotional states and the extraction of the features in order to achieve optimum classification performance. This project is an interdisciplinary study that examines integration of Emotion Recognition and current development in the research and discourse on music and healing. Emotion Recognition capability of machines has fuelled real breakthrough in effective computing by making the machines more empathic to the user and enabling them to act according to the observed mental state. The raw signals are processed in EEG lab followed by feature extraction prior to classification. Emotion recognition can always be controlled by voluntary actions while EEG signals concentrate on inner emotions of a person. Emotional markers are present in EEG signals and it's relatively easy and cost effective to measure the brain activity. Further, the signal values are analyzed and the emotions are classified. According to the respective emotion particular music is suggested by the software modules.

Data Analytics of Microblogging Data Using Asset Bubble Model

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ABSTRACT		

The project is predictive analytics based on "topics" in microblogs representative of real world events or phenomenon such as flu propagation, elections, etc. A new analysis and prediction method by adopting ideas from research in asset bubble models and combining with information diffusion in microblogs is proposed. The existing approaches cannot be applied on microblogging data, due to the lack of historic data associated to topics of interest. It also could be short-term duration one-time data, and not satisfying typical time series properties such as seasonality. Hence, traditional time-series forecasting approaches may not be effective. The general problem addressed in our proposed model is to develop an analytic model that could forecast events at the end of a time interval $[0, T]$ with assumptions on the model and not on the data. Asset price bubble models capture growth rate. We combine this with topic based information diffusion in the microblog domain to develop an analytics platform. The proposed method does not depend on probability models, and hence is a computationally efficient analytics paradigm well suited for a distributed computing environment, which have numerous real-world applications.

Adaptable And Dynamic Web Profiling For User Centric Quality Of Web Services

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ABSTRACT

World Wide Web is a popular Internet service. It provides abundant and diverse information resource for Internet user. Along with the Web development, the early static Web page can't satisfy the user's need, hence active and dynamic page become the dispensable contents of Web, so some kind of up-gradations and variations with respect to the users interests are becoming of utmost importance. Therefore, the aim of the project is to create a website, which delivers two major objectives. First, the web server has to be dynamic, to allow the simple and secure communication of results between user and web server. Second, the web page is to be informative and easily adaptable, by considering parameters such as age, profession, location and also the individual interest of the user that would ultimately be developed as a source of public information. For example, based on the age parameter the profile page that goes from the server should be more interesting to the user of particular age group and if the user is professional, based on his/her professional area we can project the professional information for such people. However, through such Dynamic Creation of Controls technology, we achieve the dynamic pages for each different users and adaptable web page dissemination for the individual profile through our model, would bring effective information and knowledge sharing system for the futuristic web services, especially in 3g,4g mobile computing based internet services.

A Secure Anti-Collusion Data Sharing Scheme for Dynamic Groups in the Cloud

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ABSTRACT

Cloud computing users need an effective and economical approach for data sharing among group members with low maintenance and management cost. At the same time security should be guaranteed for the shared data files. Unfortunately, because of the frequent change of members sharing the data, providing privacy preservation is still a challenging issue especially for untrusted cloud due to collusion attack. Moreover, for existing schemes, the security of key distribution is based on the secure communication channel. However having such a channel is a strong assumption and is difficult in practice. This project proposes a secure data sharing scheme for dynamic members. It also proposes a secure way for key distribution without any secure communication channel and the users can securely obtain their private keys from the group manager.

An Emotion Based Conversational Chatbot using Deep Learning

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ABSTRACT

"Messaging apps are the platforms of the future and bots will be how their users access all sorts of services." Chatbots, or conversational interfaces as they are also known, present a new way for individuals to interact with computer systems. Traditionally, to get a question answered by a software program involved using a search engine, or filling out a form. A chatbot allows a user to simply ask questions in the same manner that they would address a human. The most well known chatbots currently are voice chatbots: Alexa and Siri. We're now surrounded by hyper-connected smart devices that are autonomous, conversational, and relational, but they're completely devoid of any ability to tell how annoyed or happy or depressed we are. Our goal here is to not just create Intelligent ChatBots. It is to create Emotionally Intelligent ChatBots. Recent advances in Artificial Neural Network architectures have made it possible to model sequences of variable length. Modern Graphics Processing Units (GPUs) have been found to be well suited to performing matrix operations at large scale efficiently. This project is an attempt to build Neural Conversational Model, with a sequence to sequence Neural Network architecture at its core.

Share Performance Prediction using Machine Learning

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ABSTRACT

The share market is highly un-predictable and volatile in nature for stock brokers to take decisions on investment. Many companies are using Machine learning and Artificial intelligence in order to predict trends in the stock market and invest wisely. An exploration of various Machine Learning approaches can be taken to solve the problem. The project aims at prediction of whether to Buy/Sell stock market shares at given point in time in order to obtain maximum profit. Various Machine learning algorithms are used to do supervised learning of historic stock prices based on which machine learning model is built. The machine learning model then predicts whether the given stock is a high performing stock or a low performing stock based on which user can decide whether to invest on shares of a particular company. This project uses various Machine Learning algorithms such logistic Regression, Naive Bayesian, SVM Algorithm in order to accurately predict the performance of the shares of the companies.

Automated Toll collection System for Road Transportation & Vehicle Tracking		
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ABSTRACT		
<p>Nowadays it's been observed that Indian roads especially highways have improved a lot. Around 15 crores of vehicles travel daily through these highways. But the destructive measure taken is collecting money at toll plazas for using these highways as a maintenance fee. This results in traffic congestion, as cash is manually collected in toll booths issuing receipts for the same. This whole process takes approximately of 2-3mins per vehicle. Vehicles take longer time to just pass the toll booth. This will not satisfy the criteria of having good roads i.e. to save time saving during travel. Also, the problem becomes more critical when an emergency vehicle gets struck in the traffic. Sophisticated methods such as RFID or online payment to pay this toll fees are used traffic congestion cannot be avoided. To overcome this issue, a technological solution has been proposed in this project, keeping in mind a complete free flow of vehicle movement without even stopping it for a minute. The work mainly consists of a computerized system that automatically identifies an approaching vehicle and records its registration number, current time of movement and identifies its account and the predetermined amount to be deducted from the wallet of the vehicle owner. It also helps to keep track of vehicle going in and out of the toll plazas. The aim of this system is to reduce traffic congestion at toll plazas, lower fuel consumption and provide value for the time .This cashless transaction process is digitalized.</p>		

An Iot System to Predict the Crop to give Highest Yield using Machine Learning		
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ABSTRACT		
<p>From many years, several ways have been used to optimize the methods in the field of agriculture. This project predicts the type of crops to be grown in a particular season. At present, the farmers do not have right technology to determine the crop to be planted which would give high yield. This problem is resolved by building an IoT system and using machine learning and predictive analysis to help the farmers. The project focuses building an IoT weather station to detect the current weather. Weather data, previous crop yield and present soil conditions in the region are collected continuously. Data analysis is performed to predict the weather and the suitable crop to be planted. Different Machine learning algorithms are compared to determine the best algorithm to predict the right results.</p>		

Privacy Preserving in Social Networks Against Sensitive Edge Disclosure

SL.NO	USN NO.	NAME
1	1MS14IS074	Padhavi B
2	1MS14IS075	Palak Maheshwari
3	1MS14IS076	Pallavi Ferrao
4	1MS14IS085	Rashi Tyagi
Mentor Name	Dr.Sumana M	

ABSTRACT

With the development of emerging social networks, such as Facebook and MySpace, security and privacy threats arising from social network analysis bring a risk of disclosure of confidential knowledge when the social network data is shared or made public. In addition to the current social network anonymity de-identification techniques such as in business transaction networks or intelligence communities, the network edges as well as the corresponding weights are considered to be private. Preserving weights (data privacy) of some edges, while trying to preserve close shortest path lengths and exactly the same shortest paths (data utility) of some pairs of nodes is considered. For implementation, Greedy Perturbation Algorithm based on the graph theory is used. This strategy not only maintains a close shortest path length and obtains exactly the same shortest path for certain selected paths, but also maximizes the weight privacy preservation as demonstrated by mathematical analysis and experiments. This project addresses a balance between protection of sensitive weights of network links (edges) and some global structure utilities such as the shortest path length.

Evaluating Quality of Data in IoT Applications using Data Provenance

SL.NO	USN NO.	NAME
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2	1MS14IS052	Kiran Hebbar
Mentor Name	External Mentor : Dr. Yogesh Simmhan Internal Mentor : Prof. Myna A N	

ABSTRACT

With the rapid growth of sensors, devices, and interest in Internet of Things, smart devices have become a part of every facet of life. This, along with the current needs for better control, monitoring and management, have led to the creation of multiple systems like smart-home, smart-city and smart-grid. However, due to the sensors' ubiquity and pervasiveness, the volume and complexity of data produced and analyzed is growing exponentially. For using the data, raw or processed, to extract actionable information, the quality of data plays a pivotal role. For example, data that can be used in smart homes may not be accurate enough to be used in the medical field. The project addresses the challenge of evaluating the quality of data in IoT applications. Data provenance, which gives information about the origin and history of the data, can be very helpful in solving this problem. Hence, a combination of data provenance along with the actual content of the data, and metadata about the sensors and processing machines, is used to calculate the quality of data, hence quantifying the amount of trust which can be placed on it before taking decisions. This metric can then be used to decide suitable application domains where the data can be used.

GoFFish v3.1 - Distributed large-scale Graph Processing Platform

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1	1MS14IS124	Vishak KC
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Mentor Name	Prof. Deepthi K	

ABSTRACT

Vertex centric models for large scale graph processing are gaining traction due to their simple distributed programming abstraction. However, pure vertex centric algorithms under-perform due to large communication overheads and slow iterative convergence. GoFFish a scalable sub-graph centric framework co-designed with a distributed persistent graph storage for large scale graph analytics on commodity clusters, offering the added natural flexibility of shared memory sub-graph computation. Connected Components, SSSP and PageRank algorithms are mapped to this model and are empirically analyzed for several real world graphs, demonstrating orders of magnitude improvements, in some cases, compared to Apache Giraph's vertex centric framework. The objectives are to reduce the system resource utilization thereby increasing efficiency of this library, to improve the core functionality by introducing a new set of APIs and compressed data structures, library consistency checks, integration testing and bug fixes.

Sign Language and Static Gesture Recognition

SL.NO	USN NO.	NAME
1	1MS14IS042	Harsh Vardhan
2	1MS14IS051	Karthik Vikram Singh
3	1MS14IS070	Naina Gupta
4	1MS14IS109	Sumeet Agrawal
Mentor Name	Dr. Megha. P. Arakeri Prof. Sunitha R.S	

ABSTRACT

Gesture recognition is an open problem in the area of machine vision, a field of computer science that enables systems to emulate human vision. Gesture recognition has many applications in improving human-computer interaction, and one of them is in the field of Sign Language Translation, wherein a video sequence of symbolic hand gestures is translated into natural language. Effective sign language recognition would grant the deaf and dumb, aid-of-hearing expanded tools for communicating with other people. A gesture is scientifically categorized into two distinctive categories: dynamic and static. A waving hand means goodbye is an example of dynamic gesture and the stop sign is an example of static gesture. It is necessary to explain all the static and dynamic gestures over a period of time in order to understand full message. Gesture recognition is interpretation of human motion by computing device. Hand gesture can be detected by controller that contains accelerometers to sense tilting and acceleration of movement. This project aims at building a static-gesture recognizer, which is a multi-class classifier that predicts the static sign language gestures, and locating the hand in the raw image and feeding this section of the image to the static gesture recognizer.

Secure E-Voting System Using Homomorphic Encryption In Cloud

SL.NO	USN NO.	NAME
1	1MS14IS084	Rahul Balulmath
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3	1MS14IS100	Shivkumar
4	1MS14IS113	Sushmitha Kalkur
Mentor Name	Prof. George Philip C	

ABSTRACT

With the rapid development of cloud computing, security is the major issue that garnered attention of researchers. Data Security is a great barrier in adaptation of cloud computing. One of the ways to protect data is the standard encryption process, which changes a data form into a new one that can only be read by the chosen recipient. But the standard encryption method needs the decryption of the data at every computation. So, the use of private key to decrypt the data before executing the calculations might affect the confidentiality and privacy of data stored in the Cloud. This project proposes Paillier homomorphic encryption scheme to perform computations on encrypted data without decrypting them, which provides same results if worked directly on the plaintext. The purpose of the project is to implement the E-voting system and to prove the effectiveness of Paillier algorithm and its homomorphic property. With the Homomorphic property, the E-Voting system calculates sum of the votes in the ciphertext form without revealing the choice of the voters. The resulting ciphertext values will be different from each other even though the same plaintext is encrypted. This voting system has a simple interface that clients can use easily.

Design and development of Identifying the required keyword within an audio content

SL.NO	USN NO.	NAME
1	1MS15IS402	Chethan Kumar S
2	1MS15IS417	Shravan Kumar M B
3	1MS15IS422	Suraj Kumar B C
4	1MS15IS411	Praveen Kumar D P
Mentor Name	Prof. Naresh E	

ABSTRACT

In modern era of communication, information sharing is very easy and within reach of every common man. Hence, spreading or sharing of ideology is widely possible in very quick time and creates a huge benefit in real time information sharing. With technology there could be a huge possibility of impacting people with harmful information which cannot be tracked. Data privacy is an important factor hence tapping the voice information or monitoring the information becomes illegal so we propose a method based on voice to text conversion and then performing data filtration. The proposed method converts voice to text and looks for illegal words as described by admin and reports the same with number of occurrence of the words with time stamp. The project proposes a Smart Data Filtration (SDF) technique and extracting Mel frequency and other time domain statistical parameter associated with voice signal. The proposed system was tested on 102 samples of 20 seconds each, where the proposed methodology has shown a high efficiency in tackling the problem associated with violence and hatred speech alignment problem.

Photo Gallery Classification based on Face Recognition

SL.NO	USN NO.	NAME
1	1MS14IS091	Sagar D
2	1MS14IS121	Vikas Kishen Bhargava
3	1MS14IS097	Sharan P Jaiwant
4	1MS14IS118	Varun Tunga S
Mentor Name	Prof. Myna A N	

ABSTRACT

Face recognition is an important and challenging field in computer vision. In recent years face recognition has received substantial attention from both research communities and the market, but still remained very challenging in real applications. A lot of face recognition algorithms, along with their modifications, have been developed during the past decades. Face recognition is attracting much attention in network security, content Indexing and retrieval, and biometric study. Indexing and retrieving image data based on the appearances of particular persons will be useful for users such as news reporters, political scientists, and moviegoers. Along with this, retrieving image data based on appearance can also be used to classify the images. This project presents a system that is able to recognize a person's face by comparing facial structure to that of a known person which is achieved by using frontal view facing photographs of individuals to render a two-dimensional representation of a human head. Based on the faces recognized in the image, the photographs are then classified into different groups. Various symmetrization techniques are used for preprocessing the image in order to handle bad illumination and face alignment problem. Eigenface approach is used for face recognition. Any new face image can then be represented as a linear combination of these Eigenfaces. This makes it easier to match any two given images and thus face recognition process.

BEANSTALK - An Android Application

SL.NO	USN NO.	NAME
1	1MS14IS140	Sufiya Khanum
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3	1MS14IS142	Tareq Aziz
4	1MS14IS118	Varun Tunga S
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ABSTRACT

BeansTalk is a local mobile e-commerce platform that can revolutionize the shopping experience for people. It is aimed to become the most Interactive Shopping Manager. Users are able to place orders at the simple touch of a button and get them delivered to their doorsteps, quickly. BeansTalk enables users to walk away from the drudgery of grocery shopping while browsing through a catalogue of thousands of products. Instead, it uses voice recognition to accept various linguistics as input. These linguistics are further translated as an order. Speech Translation enables users to place an order with multiple products from various catalogues without going through the hassle of browsing through them all. Orders can be placed simply by holding down a button to voice record your order and confirm it.

Prediction of Driver Habits and Vehicle Analysis

SL.NO	USN NO.	NAME
1	1MS14IS039	Gautham AK
2	1MS14IS092	Salman Rukadikar
3	1MS14IS095	Saniya Farahath
4	1MS14IS106	Sonza Singh
Mentor Name	Prof. Lincy Meera Mathews	

ABSTRACT

The process of claiming auto insurance is always complicated. Claims can often fall through for a variety of reasons, most commonly due to insufficient information or 'proof' of accident. The project strives to remove such ambiguity from the insurance claiming process, by providing the required proof. This can be done by using an OBD-II (On-Board Diagnostics) reader to retrieve various attributes of the car in real-time. On-Board Diagnostics refers to a vehicle's self-diagnostic and reporting capabilities. OBD systems provide access to the status of the various vehicle subsystems. They do this by using a standardized digital communications port to provide real-time data, as well as standardized series of Diagnostic Trouble Codes (DTCs) to identify malfunctions. By developing an interface to read the data from the OBD, derive accurate conclusions about the driver, the car and the accident can be derived. These conclusions can then be presented to the insurance company as proof of claim. The project aims at estimating the current price of the car for second hand buyers, checks whether the car is due for service, the faulty parts in the car, checks whether the driver is experienced or not, identifies the time and location of accident and finally classifies the driver as safe, accident-prone or neutral driver.

Predicting Stock Prices Using Data Mining Techniques

SL.NO	USN NO.	NAME
1	1MS15IS419	Simran gutty
2	1MS15IS413	Saba begum
3	1MS14IS068	Monica RV
Mentor Name	Prof. Naresh E	

ABSTRACT

This project proposes an innovative approach which helps the user to predict the companies in an order of their stock market increase propagation. It is hard to make predictions from the principle of the efficient market hypothesis, since the stock price will follow a random work pattern. A great number of financial analysts and stock market investors are convinced that they can make profits by employing one of the technical analysis approaches to forecast stock market. Data mining algorithms are used to perform Sequential analysis, Sequential indexing, real time stock prediction and ranking of companies based on stock market has been done and also analyzed. A model is developed where input is accepted manually and output is displayed in a tabular format on the screen. Time series models are also expressed.

Creation of Attendance System with NFC and Motion sensors

SL.NO	USN NO.	NAME
1	1MS13IS016	Anshuman Magal
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Mentor Name	Prof. Lincy Meera Mathews	

ABSTRACT

Currently, education systems across India have the norm of confirming the attendance of a student to a particular class or an institution. This responsibility of monitoring and generating attendance records is usually the responsibility of the teacher handling the subject or some human entity to govern its success. Manually taking attendance is time consuming process as well as taxing and also loss in data integrity. Also, students like to be well informed of their attendance status to formulate plans of action and improve their attendance management. This project aims at reducing the workload of the teacher by using technology. It strives to reduce human error and effort with respect to data collection and maintaining data integrity. NFC technology present in cards linked to a particular student's online account is incorporated that reduces the workload of manual attendance of teachers. Motion sensing technology is used to compute the number of entries made in the class to maintain data integrity and coherence. An online student profile is created in which he/she can view his attendance and report anomalies. The online profile will be handled and generated information by the teacher who will in turn receive this information from the NFC-Motion sensor system. This project would streamline the process of attendance and is beneficial to every party involved and will provide a new look to education as we know it.

Redefining Cancer Treatment

SL.NO	USN NO.	NAME
1	1MS14IS031	Dev Sharma
2	1MS14IS037	Faiz Ahmed Mulla
3	1MS14IS044	Himanshu Gupta
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Mentor Name	Dr Siddesh G M	

ABSTRACT

Cancer is the most common human genetic disease and the problem of classifying patients into disease categories (tumor/normal) is of common occurrence in medical research. Over the past years rapid advances in next-generation sequencing technology and data from TCGA has improved the ability of oncologists to diagnose, treat, and prevent cancer through a better understanding of the genetic basis of this disease. Recent study shows that DNA methylation act as better bio-markers and help in improving the outcome (tumor/normal) based on several features. The project aims to tackle the problem of class imbalance and high dimensionality of TCGA data by using SMOTE algorithm combined with T-Link in pre-processing phase and utilizing several machine learning algorithms of Logistic Regression, Random Forest and Naive Bayes to the development of an approach for prognosis of seven different kinds of cancer using DNA methylation data.

Smart Environmental Monitoring using IOT Technology

SL.NO	USN NO.	NAME
1	1MS12IS005	Abhishek Bajaj
2	1MS12IS041	Gutha Munesh Chetan
3	1MS09IS035	Gaurav Prakash
4	1MS09IS026	Brijesh Kiran BV
Mentor Name	Dr. Krishna Raj P.M.	
ABSTRACT		

This project proposes an approach to build a cost effective standardized environmental monitoring device using the Arduino Board. The system was designed using Embedded C Programming language and can be controlled and accessed remotely through a computer connected to the system via LAN. It takes information about the surrounding environment through sensors and uploads it directly to the computer, where it can be accessed easily. Experimental results demonstrate that the system is able to accurately measure: temperature, humidity, and light level in the surrounding condition. This project designs a prototype of wireless environmental monitoring system to upload information from array of sensors to the database in a computer. This application allows us to observe or measuring the environmental conditions from remote location as long as they are connected via LAN. This system consists of mainly three modules namely sensor nodes, the wireless communication and a computer connected to the sensor. The sensor nodes in remote location collect the information from surrounding environmental conditions and send data wirelessly using ESP8266 to the computer. Adafruit (Input/Output) IO is a system that makes data useful. Our concentration is to allowing simple data connections with little programming required and moreover ease of use.

Offline Signature Verification using Artificial Neural Networks

SL.NO	USN NO.	NAME
1	1MS10IS096	Sidhant Patra
2	1MS13IS423	Waseem Feroz
3	1MS12IS002	Abdul Ahad Khan
4	1MS14IS423	Praveen T R
Mentor Name	Prof. Shashidhara H S	
ABSTRACT		

Signature verification is biometric identification method, with a high legal acceptance used in many commercial fields. For signature verification in computer vision, shapes are represented by the strokes of the signature. Strokes may fall apart, close up, change or simply disappear among different signatures of the same signer. The accurate systems identify dynamic features like acceleration, velocity and the difference between up and down strokes. This class of solutions is called on-line signature verification. However, in the most common real-world scenarios, this information is not available, because it requires the observation and recording off the signing process. This is why static signature analysis is still in focus of many researchers. This project proposes a process of verifying a scanned signature that was made on paper with ink. The signature in question is then compared to previous samples of the signer's signature, which constitute the database or knowledge base. It takes into account a writer-independent model which reduces the pattern recognition problem to authentic or forgery, making it possible to build robust signature verification systems even when few signatures per writer are available. In the proposed approach, prior to extracting the features, the signatures in the database are preprocessed. It consists of normalization, Noise reduction and thinning. For feature set extraction is performed on global features such as signature height-to-width ratio, maximum horizontal histogram, maximum vertical histogram, horizontal Center and vertical center of the signature, end points of the signature, signature area.

DEPARTMENT OF **ELECTRONICS & INSTRUMENTATION TECHNOLOGY**



Project
Abstracts

2017 - 2018

Leaf Disease Detection Using Support Vector Machine Based on Image Processing

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1	1MS14EI001	ABHISHEK DESHPANDE
2	1MS14EI054	VISHNU R
3	1MS14EI055	VISHWANATH KARADI
4	1MS14EI056	VRISHABHA R V
Mentor Name	DR. A SARAVANAN	

ABSTRACT

The project proposes to build a system wherein we take the images of the leaves and detect if it has been affected by any disease. Usually 30% of the crop produced is wasted because of the diseases affected; this can be avoided if we detect the disease and use appropriate pesticides. The project can be split up into two parts: the first part of the project takes the leaf images and detects the disease whereas the second part of the project is a hardware which sprays the required pesticide. The database consists of the defined diseases in it and when we give input image of the diseased leaf, it tells us the affected disease. The hardware part is a robot which has multiple sensors to check the soil temperature, moisture and humidity in the air. It uses a microcontroller interfaced wirelessly to the software part. Features of shape, color and texture are extracted from these images. After that, these images are classified by support vector machine classifier. When a single feature is used, shape feature has the lowest accuracy of and texture feature has the highest accuracy. A combination of texture and color feature extraction results highest classification accuracy.

Design and development Framework for Aquaculture

SL.NO	USN NO.	NAME
1	1MS14EI050	Varsha L Rao
2	1MS14EI034	S Jona Roshini
3	1MS14EI047	Suprama Chandra
4	1MS14EI003	Akshay Kumar
Mentor Name	J V Alamelu	

ABSTRACT

Fisheries and aquaculture remain important sources of food, nutrition, income and livelihoods for hundreds of millions of people around the world. Total global capture from fisheries in 2014 was 93.4 million tons. The United Nations report pointed out that the global amount of fishery products produced about 128 million tons per person animal protein intake of about 15% of which makes human dependence on fishery resources higher. Marine environmental degradation as a caused by global climate change, coupled with uncontrolled excessive exploitation decrease the production of marine fisheries. Therefore, alternative suppliers of fishery products are from aquaculture. However, due to a limited area and climatic conditions not always supported, these are becoming inhibiting the development of aquaculture in most countries in the world. Therefore, we need a technology that is used to increase the production of this aquaculture, a technology that monitors water quality for fish farming. This system allows a user with a mobile device to monitor the fish farm Environmental Data with instant mastery and control over the various environmental data. Temperature, salinity, pH value and water level sensing modules are incorporated in this monitoring system. The proposed framework lets the user to optimize pond conditions, with real-time data and automated alerts that help prevent death of fish and allows to respond to changes instantly.

BASKETBALL JUMP SHOT AND FREE THROW DETECTION AND CLASSIFICATION USING MULTIPLE WEARABLE IMU DEVICES

SL.NO	USN NO.	NAME
1	1M14EI005	ANMOL BHANDARI
2	1MS14EI019	KAVYA SUNDAR
3	1MS14EI022	MUBARAK HUSSAIN
4	1MS14EI042	SOWKIN SHETTY
Mentor Name	Elavaar Kuzhali S	
ABSTRACT		

The most practiced skill in Basketball is shooting as it has a direct impact on a team's success. Two important types of Basketball shots are the jump shot and the free throw. Arm motion which includes velocities, angles and timing is critical during Basketball shooting. In a jump shot, the maximal jumping height and the velocity of wrist flick can be considered as a determining factor in basketball. This study uses multiple sensor modules placed on the wrist, biceps and ankles of the leg are used to identify characteristics for performance analysis. Performance Analysis is a specialist discipline involving systematic observations to enhance performance and improve decision making, primarily delivered through the provision of objective statistical (Data Analysis) and visual feedback.

Navigation Assistance for Visually Impaired

SL.NO	USN NO.	NAME
1	1MS14EI006	Arjun Sharma
2	1MS14EI016	Jason Prabu
3	1MS14EI023	Muhammed Aqib
4	1MS14EI025	Niranjan Navaneethan
Mentor Name	Dr. Premila Manohar	
ABSTRACT		

The visually impaired are forced to always rely on other individuals to help them travel making them feel dependent. Hence, We propose to design a system that integrates all the buses deployed and the bus stops through IoT. The visually impaired individual will be provided with a Hand Held Unit that allows them to enter the bus number that they wish to use. This request will be sent to the bus stop from which they wish to board the bus through radio frequency. The modules placed at the bus stops will be connected to a gateway device. This module will publish the message to the gateway where the buses will be at the receiving end of the gateway. The bus will now know the location of the visually impaired individual and will be given the choice to accept or clear the request and an auditory signal will be heard to indicate the location of the door. The hand held unit will be connected to the bus stop modules using an RF module. The bus stop modules will have an ESP 8266 which provides the internet connection. The modules and the buses will be connected using the services of AWS IoTCore. The driver will receive messages and will be presented to him through the interface of a mobile application developed using Android studio. The auditory signal will be sent from the mobile to a Bluetooth speaker to indicate the location of the door.

Automatic Crack Detection System in Railway Tracks

SL.NO	USN NO.	NAME
1	1MS14EI007	ARMAAN LAKRA
2	1MS14EI015	HARSH KABRA
3	1MS14EI052	VIJAYLAXMI
4	1MS14EI053	VINEETH KUMAR V.
Mentor Name	K. M. VANITHA	

ABSTRACT

The aim of this project work is to introduce the integration of railway track surveying system. In our proposed system the broken rail detection system automatically detects the faulty rail track. The system consists of an IR sensor & an ultrasonic sensor. To communicate with the received information, we make use of a GSM modem. The GSM module is being used to send the current latitude and longitude data to the relevant authority as an SMS. This module is then set on top of a go-kart like vehicle which is human driven. The driver need not be an experienced railway person. This project proposes a cost effective solution to the problem of railway track crack detection which in turn tracks the exact location of faulty track which then mended immediately so that many lives will be saved.

INOVATIVE APPLICATIONS FOR SMART CITIES

SL.NO	USN NO.	NAME
1	1MS14EI010	Chaithra K
2	1MS15EI404	Nitinkumar
3	1MS15EI406	Raghavendrachari D
4	1MS15EI407	Raju Babannavar
Mentor Name	G Shivaprakash	

ABSTRACT

Due to resource constraints, there will be a problem in the future to provide all the services to the residents. To continue to serve and improve the standard of living of the growing population, it is necessary to develop smart cities. The Smart City aims to make optimal and sustainable use of all resources, while maintaining an appropriate balance between social, environmental and economic costs. In the Smart City, maximum use is made of Information and communication Technology (ICT) to improve the functioning, management, and supervision of the variety of systems and services, with an emphasis on saving energy, water, land and other natural resources. With these information in mind, in the proposed study we are demonstrating green technologies for the betterment of the Urban population. Technologies used in the demonstration are Solar power generation, smart street lights, solar bus stop and GSM Based smart home. All these ideas are implemented to demonstrate feasibility of smart city and green city like concept.

Dynamic Track & Follow using Quadcopter		
SL.NO	USN NO.	NAME
1	IMS14EI011	Deepanshu Sharma
2	1MS14EI027	P. Abhiraj
3	IMS14EI031	Rakesh Menon
Mentor Name	AJAY OVHAL	
ABSTRACT		
<p>We will be aiming to create a quad-copter system where we'll program the given quad-copter drone such that it will be able to detect and follow a moving object in real time. The project will be using advanced control systems and machine learning algorithms to make sure the quad-copter doesn't lose track of its target. Cameras will be set up in the drone to continuously take images of the object if it enters the area covered. Real time image processing will be done so that live co-ordinates are calculated and transmitted to the drone. The drone, on accepting these co-ordinates, will travel to the location it receives and hover above the location pending further instructions. The project will also aim to be fully automated, "Switch On And Forget" will be the goal. There are a varied number of applications for this device, namely , tracking of an Olympic sprinter as he makes his way along the track, or as a surveillance drone that moves into action when an intruder enters the mapped grid, etc.</p>		

AUTONOMOUS DRONE SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14EI013	ELRIYA NORONHA
2	1MS14EI057	VRUSHAB T D A
3	1MS14EI020	KISHAN S B
4	1MS14EI059	YOGIN SHETTY
Mentor Name	ELAVAAR KUZHALI	
ABSTRACT		
<p>The goal of this project is to design a system containing the algorithms necessary to allow a drone to autonomously locate, hover, travel and land on a designated pathway. In the last few years, drones have been used in a wide range of operations, which include, surveillance, infrastructure maintenance, terrain monitoring, inspection of flooded areas and so on. The flying capabilities provided by the drones make it a very valuable asset, however the flight range of the remote controlled drone is limited to the line-of-sight of the controller. Such issues have motivated the project and the design for autonomous system guidance which could both stabilize and also guide the drone precisely along a reference path. Small autonomous drones have demonstrated to be a useful platform for a number of airborne-based applications such as aerial mapping and photography, surveillance (both military and civilian), power line inspection and agriculture monitoring. From this project, our main aim is to ensure that drones perform the required operation with minimal human interference or assistance.</p>		

EMG and Sensor Controlled Robotic Arm Using Embedded Systems

SL.NO	USN NO.	NAME
1	1MS14EI018	Karthik Raj.S
2	1MS14EI024	N. Soundarya
3	1MS14EI035	Sahar Akhtar
4	1MS14EI051	Varun Uchil
Mentor Name	K M VANITHA	

ABSTRACT

On thorough analysis in the field of biomedical systems, we have found that remote control and mimic of humanoid robot for various applications is still in its premature state. There is scope for improvement in the sensitivity and accuracy with which the arm is controlled remotely. Our product comprises of two subsystems, a 3D printed humanoid arm and an embedded system mounted on a human arm. We intend to develop an efficient product that will assist medical professionals in performing invasive surgical operations remotely as well as reduce human involvement in hazardous work environments. EMG or electromyography is a technique for evaluating and recording the electrical activity produced by muscles. These impulses make the muscles react in certain ways. We use an EMG sensor to control the movement of the arm and flex sensors to control individual finger movements. The communication between the 3D printed arm and the embedded system mounted on the human arm is achieved via RF module and servo motors facilitates the actuating motion

DESIGN OF OPEN SOURCE PLC FOR REAL TIME APPLICATION

SL.NO	USN NO.	NAME
1	1MS14EI026	NIVETHA S
2	1MS14EI028	POOJA K S
3	1MS14EI037	SHREELAXMI
4	1MS14EI041	SOUMYA S
Mentor Name	External Mentor : Nivedita Internal Mentor : J.V.Alameu	

ABSTRACT

The project is based on building a development board based on only required amount of inputs and outputs using appropriate microcontroller. The microcontroller is programmed to act as programmable logic controller (PLC) for the specific task alone. The task done here is automated stamping which can be used in post offices, courier offices etc. Designing of microcontroller as PLC reduces the overall cost, accuracy and speed of the system can be improved. The microcontroller is programmed using ladder diagram in Ladder software. In this project conveyor belt is used to move the courier or the object to be stamped to correct position. A PIR sensor is used to detect this position. So once the signals are acquired from sensor the stamping process starts according to the ladder logics. Once stamping is done the object is moved forward using the conveyor belt, the process repeats for next object

INNOVATIVE SOLUTION FOR SMART MANUFACTURING & PACKAGING OF FOOD PRODUCTS		
SL.NO	USN NO.	NAME
1	1MS14EI038	SHREYAS S
2	1MS15EI410	SUHAS S V
3	1MS13IT043	PRIYANKA
4	1MS14EI058	YASHA SHANDILYA
Mentor Name	G SHIVAPRAKASH	
ABSTRACT		
<p>Bulk preparation of food demands stringent attention to hygiene and quality of the product. Automatic Dosa maker will be a useful appliance which will solve all the problems associated with dosa preparation. Automatic Dosa maker is useful for small-scale industries. The machine delivers dosa with the press of a button without any further human intervention. PLC is used where step by step approach is followed for the efficient functioning of the Dosa preparation process leading to automation of the entire process of Dosa making. IR Sensor is used for keeping a count of the number of Dosas produced. Implementing a smart monitoring through IoT technique increases the efficiency of the machine, as it can be monitored remotely and can be easily maintained. The machine was tested and the production rate is found to be one dosa per five minutes. Automatic Dosa maker reduces the time as well as manpower required for preparation of Dosa. Therefore, this machine is an ideal solution for hygienic and low-cost Dosa manufacturing and packaging with built-in security measures. The machine uses state of the art technologies like automation and IoT for its working.</p>		

ELECTRONIC VALVE WITH QUANTITATIVE CONTROL SYSTEM		
SL.NO	USN NO.	NAME
1	1MS15EI400	CHUDAMANI
2	1MS15EI405	PRASHANTH KUMAR
3	1MS15EI402	MAMATHA S
4	1MS14EI039	SHWETHA N
Mentor Name	M D.NANDEESH	
ABSTRACT		
<p>In order to achieve the function of the quantitative control in a variety of flow systems, a new type of electronic valve with quantitative control is designed. Electronic valves have been widely used in production and daily life. Now electronic valves are moving towards four directions of streamlining, intelligent, generalization and customization. In this project we are interfacing a load sensor to the ARM micro controller, this load sensor will sense the weight of the chemicals and displayed it on the LCD display. This project can be implemented in automatic flow control of glucose in hospital, in physical vapour deposition, in chemical supply control of plants which grows in water(hydroponics)</p>		

SMART ATTENDANCE MANAGEMENT USING REAL TIME FACE RECOGNITION

SL.NO	USN NO.	NAME
1	1MS15EI401	Madhusudhan R V
2	1MS15EI403	Manjushree C
3	1MS15EI411	Surya M
4	1MS13IT036	Nikhil K
Mentor Name	M.D Nandeesh	

ABSTRACT

Smart Attendance Management (SAM) is an affordable system to bridge the gap between client and server to specify information in finger tips. SAM provides an efficient parent and staff relationship we have to incorporate a goods interconnection system, which shows the presence/absence and improvement of the ward to their guardians. Performance of the students and staffs in organizations/institution are checked and maintaining the login and logout timings. This project deals with an innovative methods of handling attendance automatically. In this system facial features are used to extract the person's identification for authentication of his presence in the class room. Database is used to maintain the status of the ward that can be retrieved at any time. In case of empty room, automatic switching of fan and light is taken care by motion sensors, so that power consumption can be efficiently saved.

Design of Functional Electrical Stimulator

SL.NO	USN NO.	NAME
1	1MS14ML001	Abhilash G Dutt
2	1MS14ML002	Abhishek C Mouli
3	1MS14ML030	Mukund Balaji
4	1MS14EI045	Sujith N Gowda
Mentor Name	External Mentor : Dr. M K Pushpa Internal Mentor : S.J Mahendra	

ABSTRACT

Functional Electrical stimulators are therapeutic rehab devices. They are also used in algology as a pain reduction technique for neuromuscular discomforts. The basic idea of this device is to fire the motors cells in our body in order to help the weak locomotors to cross its firing threshold. Various electrical signals are used in order to achieve this. The primary demarcations are constant current signals or voltage signals and its dropdown specifications which are monophasic or biphasic. This project has used the current signal platform with biphasic signals to stimulate the motor units. We have designed a multi-mode platform which incorporate a burst stimulation mode, pulse width modulation stimulation mode, a pulse train oscillator mode and a trial frequency modulated stimulator mode. Therefore these various modes of operation are incorporated to bring about locomotion in individuals in need of assistance.

SMART CONNECTED ELECTRIC BICYCLE		
SL.NO	USN NO.	NAME
1	1MS14EI048	SURAJ PRAKASH SINGH
2	1MS14EI046	SUMIT KUMAR
3	1MS14ME007	ABHISHEK PRATAP
Mentor Name	DR. PREMILA MANOHAR DR. RAJI GEORGE	
ABSTRACT		
<p>An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. SMART:As it recognizes you, CONNECTED: It is equipped with internet access ,ELECTRIC: We believe no hills, head wind or extra mile should stop you go twice as fast with minimal effort. The main components of e-bike are: Motors and drive trains: There two types of electric motors are available varying in cost and complexity. First is BLDC geared hub motor and another one is MID DRIVE unit. Controllers: An electronic controller provides assistance as a function of the sensor inputs, the vehicle speed and the required force .Batteries: Battery systems in use include sealed lead-acid (SLA), nickel-cadmium (NiCad), nickel-metal hydride or lithium-ion polymer (Li-ion). Batteries vary according to the voltage, total charge capacity (amp hours), weight, the number of charging cycles before performance degrades, and ability to handle over-voltage charging conditions. By using Electric vehicle one can save Rs1,18,000 in 5years in comparison to petrol two wheeler. And also one will reduce the CO2 emission Of 1.9 metric ton in 5 years (by one person).</p>		

DESIGN AND IMPLEMENTATION OF CLEANING ROBOT		
SL.NO	USN NO.	NAME
1	1MS14IT411	Yashas K R
2	1MS14EI040	Sneha R
3	1MS15EI409	Sharath Babu
Mentor Name	Dr.H S Niranjan Murthy	
ABSTRACT		
<p>In this paper, we are implementing a human-friendly cleaning robot system for the domestic ubiquitous environment. Though conventional automatic cleaning robots already exist, these robots do not work in sync with humans. These robots' cleaning operations often obstruct a person in the home. Therefore, a robot that does not interfere with human activity in the home is required. What indicates obstruction most in the home is the human movement or obstacles like walls,doors etc. In our system, a robot can identify where humans are active by receiving the usage status of IR sensor . The usage status of I R Sensors changes the robot's running pattern and consequently the robot avoids humans and cleans without causing obstruction .We conduct an operational experiment of our prototype system in a room in which some sensors are installed to create an experimental environment. We then measure the execution time of the prototype system .From the results of experiments, it is found that a cleaning robot system which works through interaction with obstacles by taking diversion and does not disturb humans can become a reality.</p>		

DEPARTMENT OF **MECHANICAL ENGINEERING**



Project
Abstracts

2017 - 2018

Conceptualization And Design of Knee Modular Exoskeleton		
SL.NO	USN NO.	NAME
1	1MS14IT411	Yashas K R
2	1MS14EI040	Sneha R
3	1MS15EI409	Sharath Babu
4	1MS15EI409	Sharath Babu
Mentor Name	GURURAJ BHARADWAJ ANILKUMAR	
ABSTRACT		
<p>Knee joint is one of the most extensively used joints in the body. Knee injuries and knee bone degeneration (wear and tear) is prominently seen in athletes and old age people. Many attempts have been made in order to ease and enhance human performance by using various external rigid mechanisms attached to the body especially in the knee region. These conventional forms of exoskeleton suffer from many drawbacks like energy shortage, rigidity, heavy weight etc. Soft robotics is an emerging branch in robotics which makes use of soft and flexible materials (like silicon, latex etc.) in order to achieve the desired actuation. These materials have many advantages over the conventional rigid linkages and motors. They are light weight, soft, have high strength to weight ratio and can be actuated in different ways by changing simple configuration. This project is an attempt to make modular knee exoskeleton using flexible materials powered by a suitable pneumatic source. We have used pneumatic muscles to achieve desired actuation, which can assist and enhance a person's locomotive abilities. Improvement in these exoskeletons can lead to applications in the field of medicine (for rehabilitation of patients), military usage, climbing, etc.</p>		

Experimental Determination Of Thermal Conductivity Of Nanofluids and Its Measurements		
SL.NO	USN NO.	NAME
1	1MS14ME021	ALOK DHABALE
2	1MS14ME028	ANIL HONAKERI
3	1MS14ME031	ANKIT
4	1MS14ME050	DHANUSH M S
Mentor Name	External Mentor : Dr. BALARAM SAHOO Internal Mentor : Dr. VEERANNA B NASI	
ABSTRACT		
<p>Nanofluids are a new class of engineered colloids made up of base fluids and nanoparticles. Heat transfer through nanofluids has applications in engine cooling, refrigeration process, cooling of heat exchange devices, cooling in machinery, etc. Based on the results available from literature, it has been found that nanofluids have higher thermal conductivity and heat transfer coefficients than their base fluids due to increase in surface area of nanoparticles and no settlement in the base fluids. The thermal conductivity of different fluids is found with the help of steady state PPTC(Parallel plate thermal conductivity) apparatus by filling the test section of PPTC apparatus with the test fluid .The base fluids with different nanoparticles such as carbon nanotubes,Reduced graphene oxide and polyamide etc., at different volume fractions of 1%, 2% ,3% and 4% are dispersed in the basefluids and the thermal conductivity was found.Nanoparticles at particular volume fraction and at particular size in the nanofluid was found to carry more amount of heat and have significant industrial applications. However there are few barriers and challenges that have been identified and must be carefully addressed before it can be fully implemented in industrial applications.</p>		

Internet of Things Based Water Level Monitoring System for Smart Village

SL.NO	USN NO.	NAME
1	1MS14ME035	ARCHIT RAGHAVENDRA BAGAL
2	1MS14ME216	ARPIT MACLAY
3	1MS14ME059	HAMZA ALI
4	1MS14ME127	ESHAN PRABHUDESSAI
Mentor Name	P N GIRISH BABU	

ABSTRACT

Water level monitoring using (IoT) Internet of Things involves the use of ultrasonic sensor to relay real-time water level data. The time taken for the sound waves to be reflected back is a function of the total volume under consideration. The calculated values from the sensors can be processed by the Microcontrollers and uploaded to the internet through the Wi-Fi module. Analysis can also be done on sensed data to obtain graphs. In design, various controllers like Arduino Uno, Raspberry PI are used as a core controller. The project has used some IoT modules for accessing sensor data from the core controller and transferring it to the cloud. The data which is obtained from the sensors can be shown on the internet and on mobile phones or web application. Water level monitoring is essential to prevent backflow in a system. Similarly it may be used to preserve water or to study the water usage of a water source. This project proposes a (IoT) Internet of things based Water level monitoring system which is 100% efficient (powered by solar power) and can be implemented in future smart villages in India.

Obstacle AVOIDER Robotic Vehicle

SL.NO	USN NO.	NAME
1	1MS14ME159	SARAS KUMAR CHOUDHARY
2	1MS14ME069	JAYESH KIRTI
3	1MS14ME193	UTKARSH
4	1MS14ME165	SHANU KUMAR
Mentor Name	Dr. NIRANJAN MURTHI	

ABSTRACT

In this project, we develop an obstacle avoiding experimental vehicle to prevent collision against obstacles. Obstacles are detected by all the ultra-sonic sensor in the front of the vehicle chassis. The signal is then shared with micro-controller which then shares the signal with DC motors via motor driver IC. Micro-controller can either stop the vehicle or maneuver it around. The control unit is connected to pneumatic bumper and Pneumatic braking system which will activate simultaneously before the collision

Heat Dissipation Device For Cutting Tools		
SL.NO	USN NO.	NAME
1	1MS14ME064	HEMANTH R
2	1MS14ME040	ASHWINKUMAR
3	1MS14ME080	LOHITH K B
4	1MS14ME065	IMRAN M HUSSAIN
Mentor Name	MOHANDAS K N	
ABSTRACT		
<p>New method to reduce heat generation, and hence increasing tool life. Implementing a heat sink mechanism to increase the overall heat dissipation across the tool. By increasing heat dissipation increasing quality of surface It can be achieved by making a structure which increases the surface area by wrapping it around the cutting tool. To reduce the use of cooling fluids in small operations in Sustainable manufacturing Improving dry machining capabilities. Conventional mineral based fluids are being widely used as coolants and lubricants in machining operations throughout the world. These cutting fluids are the source of many environmental and biological problems.</p>		

Fabrication and Testing of Bio-fiber Reinforced Polymer Matrix		
SL.NO	USN NO.	NAME
1	1MS14ME004	ABHIJEET
2	1MS14ME018	AKSHAY KUMAR PAREKAR
3	1MS14ME024	AMAN S AMBLE
4	1MS14ME027	ANAND SHIDARADDI
Mentor Name	BALASUBRAMANYA H S	
ABSTRACT		
<p>Polymers are finding many applications in our daily life due to their unique properties such as higher strength to weight ratio, lightness, economy, biodegradability and are renewable. The aim of the work is to study the mechanical properties of sisal fiber reinforced polymer composite. This work comprises of fabrication of sisal fiber polymer composite followed by testing of its mechanical properties. The strength analysis of the sisal fiber reinforced polymer composites has been made with weight fraction and random orientation.</p> <p>The preparation process of composite involves treatment of sisal fiber with alkaline solution (10% NaOH). The percentage of sisal fiber is varied from 24% to 36% in steps of 6%. The sisal fiber composites were prepared by hand layup technique. The specimens are cut according to ASTM standards by water jet machining and detailed mechanical properties (tensile, bending, impact, hardness etc.) of the composites have been studied. The outcome of the work is conventional materials used in automobiles interior works like seat, fiber carpets in the headliner and floor can be replaced by this composites. In the housing sector partition walls between office cubicles can be replaced by this composite.</p> <p>Keywords: Sisal fiber, Epoxy L-12, K6 Hardener, Hand Layup.</p>		

Magnesium-Bioglass Composite Materials for Microporous Absorbable Orthopedic Implants		
SL.NO	USN NO.	NAME
1	1MS15ME402	G K T P SWAMY
2	1MS15ME413	C. PRASANTH KUMAR
3	1MS14ME220	PRAJWAL JEEVAN MONIS
4	1MS15ME413	KIRAN KUMAR
Mentor Name	External Mentor : Bhaskar Manne Internal Mentor : Dr.Prakrathi S	
ABSTRACT		
<p>The rapid advancement in the area of bio materials has a great impact on the field of medicine. Bioglasses have been used in orthopedics as bone substitute, bone tissue engineering, dental applications. Bioglass possesses excellent bioactivity, osteoconductivity, osteoinductivity and biocompatibility which plays a vital role in selection of this material. Magnesium alloy - Bioglass implants which can be used in the orthopedic has various advantages compared to other material. Magnesium alloy – Bioglass were synthesized using Sol Gel method. The advantages of Sol Gel method like low temperature processing, close composition control and incorporation of metallic elements makes it more feasible method over synthesizing techniques for Bio glass. In the present work composite materials were produced through powder metallurgy technique. Sol gel synthesized bio glasses along with the Mg alloy chips were mixed. The mixture is then compacted and sintered to produce final Mg Bioglass composite materials. The composite material is then characterized using optical microscopy. The corrosion resistance test is conducted to check the biocompatibility of the material. Compression test and Micro-hardness test were also carried out to check the mechanical properties of the bio glass.</p>		

Numerical Simulation Of Flapping Flight And Understanding Of Flow Physics Associated With It.		
SL.NO	USN NO.	NAME
1	1MS14ME130	PRAMOD GP
2	1MS14ME147	ROYAL DIAS
3	1MS14ME112	NIHAL G
4	1MS14ME105	MUQUEETH A
Mentor Name	External Mentor : SENTHIL KUMAR G Internal Mentor : BHARADWAJ GURURAJ ANILKUMAR	
ABSTRACT		
<p>Recent developments in high-speed videography and tools for computational and mechanical modeling have allowed researchers to make rapid progress in advancing our understanding of insect flight. These mechanical and computational fluid dynamic models, combined with modern flow visualization techniques, have revealed that the fluid dynamic phenomena underlying flapping flight are different from those of non-flapping, 2-D wings on which most previous models were based. In this project we have carried out a numerical simulation of flapping flight using FLUENT and also we have studied about the various forces and moments that are acting on a flapping flight wing and the flow physics associated with it. A prototype of a bird model is been designed by us which will help us more in understanding flapping flight. We are pursuing this project in CEMILAC(CENTRE FOR MILITARY AIRWORTHINESS AND CERTIFICATION), DRDO, Bangalore. Finally, the effect of varying the following kinetic parameters on the force production is examined in the study:stroke deviation, rotational time, phase angle between plunging and pitching, reynolds number and amplitude of pitch oscillations. “Drones of the future won’t just fly alongside birds. They’ll actually fly a lot like them”, based on this statement this flapping flight is the future of aviation and our study might help research in this field.</p>		

Fabrication And Comparative Studies On Dssc (Dye Sensitized Solar Cell)

SL.NO	USN NO.	NAME
1	1MS14ME171	SHASHWATA PAL
2	1MS14ME175	SHYAMNANDAN H
3	1MS14ME200	VINAY KUMAR C L
4	1MS14ME206	YASHUKUMAR V
Mentor Name	External Mentor : Mr. YOGANAND Internal Mentor : Mr. BHARATH M R	
ABSTRACT		

DSSC, Dye Sensitized Solar Cells represent a low cost and attractive photovoltaic technology. DSSC's use specialized materials for specific cell functions such as photon absorption, charge separation and charge transport. The solar cell will be developed on a glass substrate. Glass provides an effective barrier to water and oxygen penetration into the device. The objective of the project is to fabricate and test a multitude of dye sensitized solar cells, on a glass substrate in order to fully grasp the role of each component in the overall functioning. A DSSC is typically built of a photo-anode, consisting of a transparent conducting oxide coated glass substrate with a layer of mesoporous network of wide body metal semiconductor such as TiO₂ which is sensitized by a suitable dye; an electrolyte with redox species and a counter electrode. Comparative studies on efficiency will be carried out with the help of solar cell simulator. Experimentation on counter-electrode which is Pt based by standard, will be done by it's replacement with graphene. The usage of two different electrolytes and glass substrates further enhance the comparative studies, throwing light on the potential improvements to be carried out on the DSSC.

Design, Analysis and Fabrication of Natural/Synthetic Fiber Reinforced Composite Based Bicycle Frame

SL.NO	USN NO.	NAME
1	1MS14ME422	NAYANA G
2	1MS15ME401	DEVAPPA H
3	1MS15ME404	KIRAN K G
4	1MS15ME408	MALLIKARJUNA
Mentor Name	Dr.M. R.SANJAY	
ABSTRACT		

In the present scenario, hybrid materials of any class are essential for current demands and there has been a rapid attention in research and development in the natural fiber composite field due to its better formability, abundant, renewable, cost-effective and eco-friendly features. This project exhibits an outline on natural fibers and its composites utilized as a part of different commercial and engineering applications. This project deals with the hybrid effect of composites made of Kenaf (natural) and Carbon (synthetic) fibers which are fabricated by hand lay-up method using an Epoxy resin and a hardener. The properties of this hybrid composite are determined by testing like tensile, flexural, impact, and inter laminar shear strength which are evaluated experimentally according to ASTM standards. The growing ecological, economical and environmental awareness has driven efforts for development of new advanced materials for various applications. From the existing literature, it can be inferred that most research articles reported the mechanical properties of natural fiber reinforced hybrid composites, but less work has been carried out on the use of natural fibers with the glass fibers for engineering applications. Hence, the present study mainly focus on the incorporation of Kenaffiber with carbon fiber for fabrication of Bicycle frame.

Fabrication Of Pneumatically Operated Exoskeleton For Weight Lifting

SL.NO	USN NO.	NAME
1	1MS14ME166	SHARATH BABU C G
2	1MS15ME417	RITESH SURYAW ANSHI
3	1MS15ME424	SHRAVAN GHATAGE
4	1MS15ME432	VAIBHAV S
Mentor Name	Dr. C M RAMESHA	

ABSTRACT

In the modern world of mechanical industries, lifting of heavy and medium weights is done by various material handling equipments such as fork lifters, AGVs and cranes which are often incapable of handling heavy materials over a rough terrains, up-staircases and also consumes more power and requires more space to operate. It can be eliminated by incorporating an outlined skeleton with a pneumatic system to a human body termed as 'External skeleton'. This flexible wearable system uses a human body as its base. Sequence of links which forms the outlined skeleton (upper arm, elbow and forearm). Pneumatic cylinders are used to operate these links which has pivotal joint at elbow, connected between upper and forearm and at the end forearm gripper is provided. Air compressor, belting systems and pipings. Hence by this arrangement human has to apply only 20-30% of the total effort, remaining effort has been taken by the outlined skeleton. This project aims to reduce the human effort in industries for lifting the weights, to reduce unnecessary load, fatigue to the operator. This project is intended to provide an auxiliary source of strength for any or physically disabled person willing to perform a task. This technical system can be employed in various mechanical industries such as foundries for handling heavy mould boxes and ladles, assembly lines, fabrication units, machine shop, workshops etc to carry out loading and unloading work parts in work station, and domestic purpose. The fabrication is done for one arm but can be extended to the other arm as well. The exoskeleton arm is a subassembly of an entire portable suit, and it permits the transfer of external loads to the stronger sections of the body by means of accurately placed linkages and joints.

Power Generation Through Footsteps

SL.NO	USN NO.	NAME
1	1MS13ME093	MEGHAL GUPTA
2	1MS13ME098	MUHAMMAD SHOAIB KHAN
3	1MS13ME143	ROHIT KUMAR GUPTA
4	1MS14ME119	OMKAR KUMAR
Mentor Name	BIJAYALAKSHMI DAS	

ABSTRACT

This project is about the generation of electrical energy through non-conventional way, when people walk on the floor. So the idea is to convert mechanical energy of footsteps that is exerted by a person during walking into electrical energy. Now a day, demand of electrical energy is increasing and Energy crises have become the root issue all over the world. Conventional sources are not enough for fulfilling total demand of electrical energy. The principle goal of this research work is to face these energy disasters, despite the fact that it won't meet the requirements but at least to vary and reduce the dependency on conventional electricity generation.

Pneumatic 4-Axes Materials Handling Robot		
SL.NO	USN NO.	NAME
1	1MS14ME134	PUSTAM RAUT
2	1MS14ME148	ROYSTON CLEATUS MASCARENHAS
3	1MS14ME149	SACHI TAMRAKAR
4	1MS14ME155	SAMIR ALAM KHAN
Mentor Name	Dr. P. DINESH	
ABSTRACT		
<p>The innovation and technology of pneumatics have gained tremendous importance in the field of workplace rationalization and automation from old-fashioned timber works and coal mines to modern machine shops and space robots. Certain characteristics of compressed air have made this medium quite suitable to be used in modern manufacturing and production industries. It is therefore important that technicians and engineers should have a good knowledge of pneumatic system, air operated valves and accessories. A pneumatic system consists of a compressor plant, pipe lines, control valves, drive members and related auxiliary appliances. The air is compressed in an air compressor; and from the compressor plant, the flow medium is transmitted to the pneumatic cylinder through a well laid pipe line system. To maintain optimum efficiency of pneumatic system, it is of vital importance that pressure drop between generation and consumption of compressed air is kept very low. Pneumatic material handling system is used to move the components from one place to another with a maximum weight of 3.5 kg. It is used in the following places: Chemical laboratories, Welding, Foundry etc. The experimental setup consist of four cylinders, all are of double acting type. The cylinder1 is used to actuate rack and pinion assembly; piston rod of cylinder1 is connected to rack, which is meshed with the pinion. By operating the cylinder1, rack and pinion turn the whole assembly for 260°. By varying the length of the rack the turning angle can be altered. Vertical cylinder or cylinder2 is used to increase the height of the setup. The height is limited to piston rod length. Horizontal cylinder or cylinder3 is used to increase the arm length, the working area of the arm is limited to length of the piston rod length. Gripper cylinder is used to actuate the gripper.</p>		

SILAR Coating System		
SL.NO	USN NO.	NAME
1	1MS15ME400	BASAVARAJA
2	1MS15ME406	KISHOR
3	1MS15ME416	RAVIKIRAN K.N.
4	1MS15ME418	SACHIN
Mentor Name	PAVANKUMAR M.V	
ABSTRACT		
<p>An in-house Arduino microcontroller platform, with a control algorithm and, keypad, LCD and stepper motors as an instrument for nano thin films deposition is developed. The purpose of this instrument is to aid the sample coatings in SILAR technique.</p>		

Performance Evaluation of SS & GI Material for Solar Heating Storage Tank of ETC System and FPC Based Solar Water Heating System

SL.NO	USN NO.	NAME
1	1MS14ME053	FAYISMUSTHAFA P P
2	1MS14ME153	MOKSH V CHOWHAN
3	1MS15ME414	PREMANANDPATTAR
4	1MS15ME423	SHASHIDHAR
Mentor Name	External Mentor : Mr. Venugopal Internal Mentor : Mr. Pradeep Kumar K V	
ABSTRACT		

Sun is the source for solar energy which emits high intensity of radiation and light. This radiation and light energy can be used for many applications like solar water heating system, heating water in swimming pool, etc.,. Hot water has a demand for almost throughout the year and this leads to the development of solar water heaters. The solar heaters work on "Black body heat absorption principles", that states the black colour absorbs maximum radiation than any other colours. The flow of water in this solar system takes place due to density differences, the hot water flows upwards and the cold water having high density flows downwards and the process of heating takes place. The hot water stored in the solar storage tank loses its heat with time because sun radiation is effectively available only during day hours specifically between 10am to 5pm, and during night hours the storage tank even though it is insulated will loses certain amount of heat because of the absence of radiation. This loss in heat depends on the materials used for the construction of solar storage reservoir. The main aim of our project is to evaluate the performance of the solar Evacuated tube collector heating system, selecting two evacuated tube collectors, one with Stainless steel as inner material of the tank and other with Galvanized iron, and then compare efficiency of both solar water heaters. Also, evaluation of flat plate collector based solar water heating system involves consideration of two Flat plate collector system having single cover glass and double cover glass and with continuous flow of water at 2.4lpm for a duration from morning to evening. This process involves evaluation of the efficient system that holds more thermal energy and gives satisfactory results among both.

Water Vortex Turbine

SL.NO	USN NO.	NAME
1	1MS14ME091	MANOJ SAMEUL BAPTIST
2	1MS14ME128	PRADHAN S BAGMANE
3	1MS14ME086	M N S SANDEEP
4	1MS15ME433	VIGNESHA S
Mentor Name	External Mentor : Mr. Michael S Internal Mentor : Dr. P. B. Nagaraj	
ABSTRACT		

Gravitational water vortex turbine is a green technology that generates electricity from alternative or renewable energy source. The simplicity of this turbine can be utilized to reduce carbon foot-prints, enabling an eco-friendly and efficient tomorrow, bypassing the conventional methods of energy generation. In the vortex power plant, water is introduced into a circular basin tangentially that creates a free vortex and energy is extracted from the free vortex by using a turbine. The main advantage of this type of power plant is the generation of electricity from ultra-low head and less pressurized discharge. Since the hydraulic head required is as low as 1m, this type of power plant can be installed at a river or a stream to generate electricity for few houses. The water vortex striking the turbine blades has been modeled as a jet of water striking the turbine blades like in cross-flow turbines. Taking the inlet jet to be circumferential to the turbine case, experimental tests will be carried out using different sets of blades and several geometric parameters of basin design and their effect on vortex formation and energy. A site testing also has been carried out to ensure the performance of system

Maglev Wind Turbine		
SL.NO	USN NO.	NAME
1	1MS14ME071	Kartikeya
2	1MS14ME157	SangeethSatheesh
3	1MS14ME120	Omkar M Kulkarni
4	1MS13ME094	MdFaizuddinShadaab
Mentor Name	Nishanth Acharya	
ABSTRACT		
<p>The Maglev wind turbine design is a vast departure from conventional propeller designs. Its main advantages are that it usesfrictionless bearings and a magnetic levitation design and it doesnot need to vast spaces required by more conventional wind turbines. It also requires little if any maintenance. The unique operating principle behind this design is through magnetic levitation. Magnetic levitation is supposedly an extremely efficient system for wind energy. The vertically oriented blades of the wind turbine are suspended in the air replacing any need for ball bearings. When the air strike the blade of the turbine, due to the action of repulsive force of the magnet the rotation of the blade increase resulting in rotation of the shaft. Hence induced emf is generated in the generator. Output of turbine is AC power. The bearing arrangement is totally replaced by the neodymium magnet which gives high repulsive force. With the help of this force small amount of air pressure gives maximum rotation which results in large power generation. The result obtained due to utilization of magnetic levitation is that there is reduction in starting wind speed due to elimination of friction the power output is increased for the same value of wind speed. Hence reduction in starting speed is obtained.Design of conventional wind turbine rotor has largely been affected. The conclusion is that the turbine efficiency is improved by utilization of magnets helping to spin with fast speed with negligible friction as it cancels out the stress on the shaft of the turbine. This modern design of turbine gives more power output with higher efficiency compared to conventional wind turbine. For avoiding the vibration of the rotor, shaft was used.</p>		

Production Process And Manufacturing		
SL.NO	USN NO.	NAME
1	1MS14ME111	NESARA RAO
2	1MS14ME115	NIKHIL K.A
3	1MS14ME169	SHASHANK KASHI
4	1MS14ME205	VISHWA KRISHNA
Mentor Name	External Mentor : SateeshPilibunter, N.B. Harish Kumar, B.N. Anand and P. Srinivas Internal Mentor : Bharath M.R	
ABSTRACT		
<p>Content of the Abstract:Production is process of combining various material inputs and immaterial inputs in order to make something for consumption. It is the act of creating output, a good or a service which has value and contributes to the utility of individuals. Manufacturing is the process of converting raw materials, components, or parts into finished goods that meet a customer’s expectations and specifications. KS&DL is a Public Sector Undertaking of State Government of Karnataka, engaged in manufacture of Soaps, Detergents and Agarbathies and promotes the growth of Sandalwood trees. Through this project, our aim is to study, understand and optimize the production process and manufacturing of various types of sandal soaps and detergents produced in Karnataka Soaps and Detergents Ltd.</p>		

Automatic Stair Climbing Wheel Chair		
SL.NO	USN NO.	NAME
1	1MS14ME212	R.Yamini
2	1MS14ME222	ShauryaSuryakumar
3	1MS15ME407	Madhu K
4	1MS14ME002	A Yateendra Kumar Reddy
Mentor Name	Dr. C.Siddaraju	
ABSTRACT		
<p>With a sharp increase of elderly and disabled people, the work focusing on making life easier for them has been paid more attention. The first wheelchair model evolved during the 18th century, but rapid development in this field initiated since mid of 20th century. Since then, a broad range of models have been designed. Architectural barriers still represent a great reduction of autonomy for these people. Often the problem is solved with accessibility adaptations like fixed or mobile stair lifts. However, these require an additional device which may not be available everywhere This project involves the design and fabrication of a prototype wheelchair that moves on flat ground and climbs the stairs without any additional device. The main component of this design is a three-wheel locomotion unit following the planetary wheel mechanism that allows obstacle climbing. The features include compact structure, flexible movement, good stability and small fluctuation of the gravity center. A seat backrest adjustment system is added to adjust the center of gravity of the wheelchair, keeping the seat always in level with the ground irrespective of the motion and to prevent it from overturning. A physical prototype indicating the structure and functionality is developed.</p>		

Pneumatic Actuator Based Exoskeleton Arm		
SL.NO	USN NO.	NAME
1	1MS14ME087	MANDAR DIXIT
2	1MS14ME173	SHREYAS BILAGI
3	1MS14ME089	MANJUNATH REDDY
4	1MS14ME150	SACHIN H PATIL
Mentor Name	GIRISH V. KULKARNI	
ABSTRACT		
<p>Pneumatically actuated exoskeleton arm is basically an exoskeleton, also known as powered exoskeleton, exoframe , is a mobile machine consisting primarily of an outer framework worn by a person, and powered by a system of motors, hydraulics or pneumatics that delivers at least part of the energy of arm movement. The main function of a powered exoskeleton is to assist the wearer by boosting their strength and endurance. They are commonly designed for military use i.e.; to help soldiers, carry heavy loads both in and out of combat. And another prime area of application of exoskeleton is in medical field for the physically disabled people and for carrying the heavy patients up the ramps. Esko Bionics is currently developing and manufacturing intelligently powered exoskeleton bionic devices that can be strapped on as wearable robots to enhance the strength, mobility and endurance of soldiers and paraplegics. The Exoskeleton will contribute in many ways for the benefit of the mankind in the upcoming future and that future is not that far away.</p>		

Design and Fabrication of Portable Plastic Recycling Machine

SL.NO	USN NO.	NAME
1	1MS14ME056	GIRISH R KHOT
2	1MS14ME074	KUMAR ANURAG
3	1MS14ME075	KUMAR GAURAV
4	1MS14ME132	PRANAY TOTA
Mentor Name	Dr. B P HARICHANDRA	
ABSTRACT		

Plastics are alternative to many materials used in daily life by people throughout the world. But due to the quality requirements for plastic and the subsequent high costs of recycling, a very small fraction of the plastic waste is recycled. Furthermore, such industrial infrastructures require massive investments and access to technologies. As a result, plastic waste is vastly considered undervalued by industrial-scale economics. Small-scale recycling of plastic can be achieved by implementing compact-portable machine based recycling models. Recycling plastic locally eliminates the need to transport waste to distant recycling facilities. Instead of producing generic, industry-grade raw materials, the output of decentralized recycling of plastic can be locally utilizable products. Thus, eliminating the need for the process to be profitable and enabling concerned parties to dwell around this idea in an affordable way. The aim of project is to design and fabricate a compact and portable thermo plastic recycling machine which enables to localise and distribute plastic recycling technologies and knowledge. The ultimate goal is to decentralize recycling process and revalorise plastic to eliminate its waste altogether, reducing the demand on virgin plastic and closing its materials cycle.

Electric Powered Wheel Chair

SL.NO	USN NO.	NAME
1	1MS14ME186	SURESHA B S
2	1MS14ME192	TARUNKUMAR C H
3	1MS14ME204	VISHNUPRASAD B U
4	1MS14ME070	JEEVAN K N
Mentor Name	Dr. Raji George	
ABSTRACT		

Physically disabled persons find their movements very tough with the existing wheel chair devices. Although there are many wheel chairs are available in recent times to enable their mobility, but they require fine, accurate control & portability. The technology today gives more and more possibilities for all humans to control, but the technical advanced wheel chair devices are not user friendly. The researchers are working for improved control of Electric powered wheelchairs to provide enhanced comfort, safety at the lower cost. In our present project work, Electric powered wheel chair is controlled through the Arduino Uno and Joystick. It can be also activated through voice & head control. These wheel chairs are usually difficult to transport, so to make it easy for transportation it has been assembled in foldable manner and can be carried to desired location easily, so that it can be used anywhere. These wheel chairs can go up to speed of 4-6 km/hr with enhanced safety. It can carry up to a weight of 100 kgs and the control arrangements are portable which can be accessed easily and the wheel chair is designed with an optimal cost so that it can be reached to every person with physical disabilities to make their life easy and productive.

Fabrication Of Multi-Crop Cutter		
SL.NO	USN NO.	NAME
1	1MS14ME141	RAVI MEGHULAMANI
2	1MS15ME420	SANDEEP H
3	1MS15ME426	SOMASHEKHAR M
4	1MS15ME419	SANDEEP GN
Mentor Name	VinayakTalugeri	
ABSTRACT		
<p>This project addresses the development and performance of human-powered multi-crop cutter. We have developed a mechanism for the harvesting of crop cutter so that we can an easy harvesting in a minimum period. This set up is used to cut the crop which helps farmers. Also, this set up uses the manpower of labor by pushing force which is provided with different sprocket, chain, and bevel gear mechanisms which result in the transmission of this manual motion into rotary motion of cutter at the end of which the crops get cut easily without any hard effort.</p>		

Automatic Railway Track Inspection And Marking Vehicle		
SL.NO	USN NO.	NAME
1	1MS14ME015	AKHIL GADDE
2	1MS14ME078	LAXMAN NS
3	1MS14ME085	MAHESH CHURI
4	1MS15ME412	PHANEESH M M
Mentor Name	MAHANTESH MATUR	
ABSTRACT		
<p>India has one of the world's largest railway networks and is the backbone of the country's transport infrastructure. In India most of the commercial transport is being carried out by the railway network , the rapidly improving economy of India has resulted in exponentially increasing demand for transportation in recent years and this has resulted in huge rise in the volume of traffic in the Indian railway network.Traditionally rail defects were inspected manually by a trained person who views rails visually, but human inspection is however slow subjective and dangerous. And hence the need of an autonomous vehicle for detecting the crack is necessary.The project aims in designing railway track crack detection autonomous vehicle using microcontroller, IR obstacle sensors assembly system which detects the crack along its path, our project not only detects the crack but also aims in making a suitable marking where the crack is detected so that it becomes easier to the workers during repair of track. The vehicle is powered with the help of solar panel and lead acid battery assembly. The vehicle moves along the track and IR obstacle sensors mounted on the vehicle front end will inspect the crack along the path. When any crack or deformation is detected on the track the vehicle stops, the crack is identified and the solenoid valve attached to the vehicle opens and drops the paint on the crack , once the marking is done the vehicle continuous to move forward to detect further cracks.</p>		

Walking Assist Device		
SL.NO	USN NO.	NAME
1	1MS14ME022	AMAN KUMAR
2	1MS14ME093	MAYANK KHANDELWAL
3	1MS14ME108	NAGINENI SANDEEP
4	1MS14ME218	SIDDHARTH KOTHARI
Mentor Name	HEMAVATHY S	
ABSTRACT		
<p>In today's world every sector is seeing technological advancements, be it in transportation, healthcare, manufacturing or in space research. Everywhere technology is helping to make our life easier and simpler so why not use technology to help us walk. So here we are with an innovative idea that can help you walk more than your capacity. The objective of this project is to conceptualize, design and develop a device that can assist people in walking. By wearing this device a person can walk more and for a longer time while spending the same amount of energy. This device works on the principle of conversion of electrical energy to mechanical motion of the links which are driven by dc motors. These motors are supported on a belt which houses all the circuitry. Users are required to wear an adjustable pad with links attached to them. Pads have force sensors attached to them so as the person walks the sensor senses their movement and sends Analog signal to Arduino Uno which directs the motor to rotate and assist users while walking. This finds great military applications where soldiers are required to walk for longer distances in order to go from one place to another by wearing this device they will be using only a fraction of the energy what they used before. Even elder aged group people find it difficult to walk so they can use this device to walk with ease, with much less effort. Through this project we aim to bring the technology to use in various day to day activities and also to make peoples life simpler and much easier through innovative solutions.</p>		

Design and Development of an Orthotic Device to Assist Limb Movement		
SL.NO	USN NO.	NAME
1	1MS14ME061	HARSH.M.SHAH
2	1MS14ME083	M.SUSHIL KUMAR
3	1MS14ME217	KAUSTUBHA PATIL
4	1MS14ME218	SIDDHARTH KOTHARI
Mentor Name	External Mentor : Vinay Sridhar Internal Mentor : Christiyan K. G.	
ABSTRACT		

Foot drop is a gait abnormality caused by weakness or partial paralysis of the muscles involved in lifting the front part of the foot (dorsiflexion). In this condition the affected person has to drag his/her foot along the ground while walking. The aim of this study is to develop a device that is a hybrid lower limb orthosis to help in the process of physiotherapy and rehabilitation of patients affected by foot drop. Our device will use the combined action of electrical stimulation supported by an external mechanical device, which will help the person walk and in theory, speed up his recovery time thereby exploiting the combined strengths of both systems. Sensors track the movement of the patient's leg and send signals to a motor, which will drive a belt that physically lifts the leg. Additionally an electronic stimulator simultaneously sends electric signals into the muscle directly. This device is the first to combine mechanical and electrical stimulation of the muscle for recovery of patients with foot drop. By combining modern manufacturing techniques such as 3D printing, with the use of 3D scanning we would be able to create custom devices for every patient thereby increasing the effectiveness of the treatment.

Effect Of Silicon Carbide Filler On Century/Carbon Fiber Reinforced Composites		
SL.NO	USN NO.	NAME
1	1MS14ME183	SUMEET G DUDDAGI
2	1MS14ME184	SUNIL S P
3	1MS14ME187	SUSHANT KOTIN
4	1MS14ME202	VINOD G GOWDA
Mentor Name	Dr. M. R. SANJAY	
ABSTRACT		
Natural fibers composite have been widely used in the manufacture of composites because of their low cost, abundance, renewable, better formability and eco-friendly features. The composites which are made by both natural and synthetic fiber would enhance the properties. The performance of hybrid can be improved by adding filler to them. For this study, we fabricate four laminates, with century fiber being one of them and second laminate includes carbon fiber on both sides with century fiber embedded between them and other two laminate includes study of these laminates when filler is added to them respectively. Proceeding with this, we study mechanical properties (tensile, impact, flexural and ILSS(Inter laminar shear strength)) of century/ carbon fibers added with epoxy resin and silicon carbide filler material.		

Design And Fabrication Of A Morphing Wing System Employing Compliant Mechanisms		
SL.NO	USN NO.	NAME
1	1MS14ME176	SHYLESH PALA
2	1MS14ME195	VAISHNAVIMANOJ
3	1MS14ME199	VIKAS C C
4	1ME14ME207	ZEESHAN AHMED SHAIKH
Mentor Name	Dr. SunithBabu L	
ABSTRACT		
Aircrafts are designed considering a wide range of factors, one of them being mission profiles. A mission profile is a detailed description of an aircraft's flight path and its in-flight activities such as take-off, ascent, cruise, loiter, descent, approach and landing. In each of these profiles, the optimal flight conditions are diverse and aircrafts are designed and built as a compromise between these conditions. The concept of morphing wings, inspired by the evolutionary biomechanics of birds, saw its inception with the intent to overcome this drawback. There are several aspects of a wing that can be altered and this dissertation will take up camber morphing and sweep angle morphing. A Compliant Mechanism is a monolithic mechanism that uses elastic deformation to transmit or transform motion, energy or force. The benefit of using such a mechanism is that they require minimal assembly as there are no joints, resulting in reduced maintenance cost. Also, since the stresses are distributed, they have enhanced fatigue life.This project endeavors to design and fabricate a Novel Wing Mechanism that can alter its Leading Edge Camber, Trailing Edge Camber and Sweep Angle for use in Unmanned Aerial Vehicles (UAVs). Each pursued to fulfill optimal flight conditions in various configuration. The Leading Edge Camber and Trailing Edge Camber Morphing is achieved by developing a monolithic aerofoil rib design that upon actuation can deform to provide the necessary lift and drag so as to eliminate the use of control surfaces like flaps and ailerons. The Sweep Angle Morphing is being looked into to achieve reduced drag at higher flight speeds. The mechanism is modeled on a Computer Aided Design (CAD) software and later analysed on various software that relate to the fields of Finite Element Method (FEM), Computational Fluid Mechanics (CFD) and airfoil analysis softwares. Various polymeric materials will be used in order to synthesize a prototype. The prototype will be actuated using 7 RC Servo Motors. Keywords: Camber Morphing, Sweep Angle Morphing, Compliant Mechanism, Flexible Plastic		

Collapsible Steering System		
SL.NO	USN NO.	NAME
1	1MS14ME170	SHASHANKSHEKHAR
2	1MS14ME208	ABHISHEK GUPTA
3	1MS12ME128	RISHABHKHARE
4	1MS14ME104	MUHAMMAD ASIFULQURNAIN
Mentor Name	Dr. Sridhar B.S.	
ABSTRACT		
<ul style="list-style-type: none">• The steering wheel is an important cause of fatal injury for drivers in frontal collision.• When frontal collision occurs, due to the kinetic energy of driver or occupant body, it moves forward against steering wheel and wind shield. Actually in a frontal collision forces will be first transmitted through driver's feet which act as fulcrum so the body will rotate about it.• For the taller driver steering works as fulcrum. Driver head & chest hit the steering or windshield which may cause severe injury or death.• Considering the injury potential of steering wheel we are presenting a new idea Pneumatic Collapsible Steering Column (PCS).• In crash terminology, the 'first impact' is often defined as the real crash event, whereas the 'second impact' is defined as the occupant hitting the car interior.		

Production, Characterisation And Combustion Analysis Of Blended Bio-Diesel In Ci-Engine.		
SL.NO	USN NO.	NAME
1	1MS14ME106	MUTTURAJ
2	1MS14ME123	PAWAN
3	1MS14ME152	SAGAR
4	1MS14ME153	SAGAR
Mentor Name	Dr. Nagesh S N	
ABSTRACT		
<p>The rapidly increasing consumption of fossil fuel and petroleum products has been a matter of concern for the many countries which imports more crude oil. Because it causes huge foreign exchange out-go on one hand increasing exhaust emission on the other. Therefore it is necessary for the development of renewable energy sources. Vegetable oils have become more attractive recently because of their environmental benefits and it is made from renewable resources. Biodiesel commands crucial advantages such as technical feasibility of blending in any ratio with petroleum diesel fuel, use of existing storage facility and infrastructure, superiority from the environment and emission reduction, its capacity to provide energy security to remote and rural areas and employment generation. There are many alternate fuels such as biodiesel of alcohols which has been commercialised in the industrial sector as well as in transportation sector. In this context cottonseed oil and ethanol renewed our interest. The aim of our project is to discuss the impact of bio-fuels on diesel engines emission. We will be carrying out emission test of CI-engine using blended oil with ethanol, diesel and cotton seed oil.</p>		

Study of Graphene Nanofluid in Heat Transfer Systems

SL.NO	USN NO.	NAME
1	1MS14ME227	ANMOL BHOJ
2	1MS14ME032	ANMOL KATHAIL
3	1MS14ME224	SANKET BAJAJ
4	1MS14ME160	SAYAN SAHA
Mentor Name	Dr. Veeranna B Nasi	

ABSTRACT

Cooling plays a very important role in the stability and safety of systems that utilize or generate heat. This coupled with the increased energy demand due to modernization of the world gives need for higher capacity generation systems, which in turn require more efficient cooling. Literature surveys backed by computational analyses have shown that Graphene Nanoparticles when dispersed suitably in water improves its heat transfer capability. Such an improvement will be useful in modern heat transfer systems, which use water as the main working fluid. Thus by implementing Graphene nanoparticles along with a suitable surfactant, the efficiency can be improved without majorly overhauling existing systems. Our experimental setup consists of a custom-made heat exchanger with hot water in the outer jacket and an inner coil through which a solution of 0.3% w/v graphene nanofluid is made to flow. The resulting gain in temperature of the nanofluid is then compared to that of plain water and the corresponding heat transfer coefficients are calculated. The purpose of this experiment is to show the increase in heat transfer coefficient of the nanofluid over plain water.

Kinetic Energy Reservoir System

SL.NO	USN NO.	NAME
1	1MS14ME042	AYUSH NEMA
2	1MS14ME012	ADITYA BHANAWAT
3	1MS14ME051	DIVAKAR KUMAR
4	1MS14ME003	AADITYA KUMAR SINGH
Mentor Name	K. LOKESHA	

ABSTRACT

In Today's world, the need to avoid energy losses is one of the key factor along with energy production to fulfill the needs of the world. Therefore, a slight up gradations in the existing designs of machines in order to increase the efficiency is being tried everywhere. So in order to contribute in this field, we built an energy storing mechanism in a bicycle consisting of an energy storing device (flywheel) and a controllable engaging and disengaging system which will provide the energy back to the system whenever required and thus reducing the total energy loss. Our aim was to save the human effort wherever was getting wasted while riding a bicycle, majorly in braking. This system enables us to store the kinetic energy which earlier was getting dissipated in the form of frictional and heat losses, thus increasing the efficiency of transportation and decreasing the manpower. This conserved energy is stored in the rotating flywheel and thus reduces the kinetic energy of whole system. A pickup boost can be provided by the rotating flywheel by engaging back the system to reduce the human effort of getting the vehicle into motion.

Assessment of Eigen Values using Finite Element Method to estimate the Natural Frequencies and Buckling Factors of a thin Cylindrical Liner of an Aero Gas Turbine Engine.

SL.NO	USN NO.	NAME
1	1MS14ME113	NIKHIL C
2	1MS14ME116	NISHANTH N GOWDA
3	1MS14ME156	SANGAMESH K
4	1MS15ME434	VINAY S M
Mentor Name	External Mentor : SHRI BALAKUMAR Internal Mentor : RAJESH S	
ABSTRACT		

Thin Cylindrical Liners are used in Aero Gas Turbine Engines. The predominant failure mode of the liner is buckling which is due to compressive stress acting on the liner. Natural Frequencies are found out to study the possible resonance that might happen during engine operations. In order to estimate natural frequencies and buckling factors the eigen value concept is applied. Eigen value provides the buckling factors when stress and stiffness matrix are considered. In this project a one dimensional case was studied which was followed by the estimation of the same for a thin cylindrical liner of an Aero Gas Turbine Engine. An assessment of one dimensional cantilever beam subjected to external load was carried out, frequencies were determined using classical method, FEA analytical method and Ansys method. The same was done on a complex beam. Buckling analysis was carried out on a simple I c/s beam, on a 2D plate to determine the crippling load. Multiple cylindrical liners were created in Autodesk Inventor, meshing was carried out and analysis was performed in Ansys. The results were compared and the best design among them was identified.

Development Of Optimum Screw Design For Use In All-Terrain Mobility Systems

SL.NO	USN NO.	NAME
1	1MS14ME025	AMIT S HERKAL
2	1MS14ME030	ANIRUDH D V
3	1MS14ME036	ARJUN K G
4	1MS14ME046	DARSHAN R
Mentor Name	Dr. K R PHANEESH	
ABSTRACT		

The tires employed in today's world have been in use since the invention of automobiles and the room for innovation is minuscule. It is difficult for a particular type of tyre to be truly all-terrain and this being a necessity, calls for a true solution to the problem especially in the field of robotics. The system must be capable of handling instant changes in terrain without any hassle. Screw-wheels are well suited for such applications. It has found wide applications in the military space. After a period of dormancy, it is now again seeing a rise in innovation after a spike in its use in the commercial as well as the surveillance sectors. Our project aims to develop the optimum design of the screw-wheel such that it is suited for all terrains. We plan to test out multiple design iterations and optimise the design which is equally balanced in all aspects (speed, traction, mobility etc). The optimum design of the screw-wheel will be able to propel the system through terrains like mud, snow, water, grassy, etc with ease.

Design and Fabrication of Mechanized and Portable Suturing Device

SL.NO	USN NO.	NAME
1	1MS14ME117	NISHANTH RAO
2	1MS14ME118	NUTAN GR
3	1MS14ME126	PRABHAVKINI
4	1MS14ME214	PULKIT DAVE
Mentor Name	Dr. N.D. PRASANNA	

ABSTRACT

Suturing techniques are widely used to hold body tissues together after an injury or a surgery. This technique is usually performed manually by the doctors onto patients. These techniques are applied for both internal as well as external injuries. However, many doctors and surgeons tend to perforate themselves while carrying out the suturing technique which can become a risk factor. In this project, a working prototype of mechanized suturing equipment is designed, developed to minimize the risk factor that the doctors are facing while carrying out suturing techniques. The proposed design works on the simple principle of a mechanical arm with 3 degrees of freedom. The benchmark products for this design are PROXISURE and ENDO360, both of which are available in the US market, but not readily in India. Simulation and modeling studies has also been carried out to validate the same. The product is modeled in a manner that it meets the objective of performing external sutures. This product is developed keeping the cost and easy access in mind. The design is also required to meet the expectations of the doctors with precision stitches at uniform intervals. The product ensures easier applications for external suturing and results in risk reduction for doctors.

Experimental Study Of Fretting Wear And Its Influence Under Various Parameters

SL.NO	USN NO.	NAME
1	1MS14ME095	MDSHOEB PASHA
2	1MS14ME097	MOHAMAD FAIZAN ASIF
3	1MS14ME135	RAHUL SHENOY B
4	1MS14ME151	SADIQ PATEL
Mentor Name	External Mentor : Dr.Satish Vasu Kailas Internal Mentor : - Dr.Jyothilakshmi R.	

ABSTRACT

Fretting is a phenomenon in which there is small amplitude oscillations taking place at high frequencies. Usually, the fretting is difficult to study in situ in working conditions so laboratory experiments are carried out to study it. The contact configuration taken is ball on flat. When the normal force is applied, the surface stresses in the ball and flat can be calculated using Hertz contact analysis. There are contours of shear stresses due to application of normal load. These contours gets deformed when a tangential force is applied and its locus dictates the regions where stresses exceeds the yield strength and wear occurs. Due to this, wear debris are generated and debris get entrapped between the ball and the flat which may further accelerate the wear rate due to other wear mechanisms like abrasion. This project is an attempt to gain insight on fretting wear and also study the influence it can have on material wear and debris formation. So experimental studies on load, amplitude, surface texture pattern and ball diameters for a number of cases under non lubricated conditions has been performed on displacement controlled fretting machine. Keywords: Fretting wear, SS-316L, hertzian contact, displacement controlled fretting machine, amplitude of fretting, normal load.

Finite Element Analysis Of Newly Designed Eye End Of Booster Rod		
SL.NO	USN NO.	NAME
1	1MS14ME223	AKSHAY S MURTHY
2	1MS14ME037	ARUN KUMAR R
3	1MS14ME225	KANISHKA P
4	1MS14ME219	UMASHANKARA M N
Mentor Name	External Mentor : Mr. PANKAJ PRASOON Internal Mentor : Dr. SIDDARAJU C.	
ABSTRACT		
<p>The Helicopter Transmission system comprises of Main Gearbox (MGB), Intermediate Gearbox (IGB), Auxiliary Gearbox (AGB), Tail Gearbox (TGB), Tail Drive Shaft segments, Main Drive flexible shaft, Connecting rods, Hydraulic Actuators and Booster rods. These assemblies are built from critical components, which are designed with high degree of reliability. Any premature failure of these components jeopardizes the flight safety and system safety of entire Helicopter. There should be total control on the design, manufacturing from the raw material to the finished component and its installation on the Helicopter. Main Gearbox (MGB) drives the main rotor and the power is tapped off to drive the tail rotor. MGB also drives various accessories like alternators, hydraulic pump, Lubricating oil pump which are arranged at LH and RH sides. The MGB is freely suspended on the Lift rods which are connected to the VIS. The MGB is connected to the control stick through Connecting rods and Booster rods along with Actuators. A Booster rod consists of an Eye end and Fork Assembly on either ends. The Fork assembly is connected to the MGB via Bell Crank Mechanism and the Eye end is connected to the Actuators directly. A crack was observed on the Eye end of the booster rod on one of the Helicopter after a force landing in a remote area away from maintenance base. There is a need to evolve a new design of the eye end by calculating the various loads acting on it. The present project work involves evolving a new design with the existing Titanium eye end, design analysis to show improvement in the margin of safety, study on the possible reasons of failure and suggesting remedial measures to be taken to prevent occurrences of such failure.</p>		

Automobile Movable Headlight With Automatic Dim and Dip Control		
SL.NO	USN NO.	NAME
1	1MS14ME034	ANURAG MISHRA
2	1MS14ME055	GAURAV KUMAR SINGH
3	1MS14ME057	GOURAV ROY
4	1MS14ME226	SINCHAN KHAN
Mentor Name	D K VISHWAS	
ABSTRACT		
<p>Night driving is one of the major problem that most of the drivers faced. Driving in sharp turnings in hilly areas is very risky. The bright headlights are a major cause of accidents which blinds the drivers of other vehicles for a couple of seconds leading to accidents, especially on roads that have two lanes. System uses rack and pinion arrangement which give drive to the optical axes on which headlight are mounted so when a tie rod arms are moved with steering arm that give pre-defined motion to the wheel as well as headlights. This automatically switches the high beam into low beam thus reducing the glare effect by sensing the approaching vehicle. It also eliminates the requirement of manual switching by the driver which is not done at all times.</p>		

Design, Analysis And Fabrication Of Fin Propelled Unmanned Underwater Drone		
SL.NO	USN NO.	NAME
1	1MS14ME177	SINDHOORA V
2	1MS14ME179	SRI KRUTHARDH PEDDADA
3	1MS14ME180	SUBRAHMANYA GAONKAR
4	1MS14ME181	SUBRAHMANYA UG
Mentor Name	VISHWANATHKOTI	
ABSTRACT		
<p>The development of Unmanned Underwater Vehicle (UUV) in the recent decade has opened up new applications in navy and marine platforms. An Unmanned Underwater Vehicle or Underwater drones are either autonomous or radio controlled robots that are able to operate underwater without a human occupant. Maneuverability has to be considered with higher priority during the development stage of the drone. Any vehicle that mimics biological organisms have better performance and efficiencies. The UUV being fabricated is propelled with the help of two Undulatory Fins inspired by the locomotion of Rays and Cuttle fish. Each fin mechanism is comprised of individually actuated fin rays, which are interconnected by elastic membrane. An on board microcontroller is used to generate the motion pattern that results in fin undulations which propels the UUV. The drone will be controlled wirelessly. The designed Hull portion consists of electronic components with leakage proof and also holds the fin. An attempt has been made to develop the Unmanned Underwater Vehicle (UUV) with improved maneuverability and performance features.</p>		

Air Powered Bike		
SL.NO	USN NO.	NAME
1	1MS15ME431	VADAKAPAVANKARTHIK
2	1MS15ME425	SOMASHEKAR H M
3	1MS14ME194	VAISHAK G
4	1MS14ME067	SUPARN KUMAR J
Mentor Name	Dr. PUTTA BORE GOWDA	
ABSTRACT		
<p>The compressed air bike is an eco-friendly bike that uses compressed air as the source of energy .Here the normal piston engine is replaced with a turbine. The turbine is used as the energy converter in this bike, the pneumatic energy of compressed air is converted into mechanical work with help of turbine. The air under pressure which have energy is given into the turbine .As this compressed air enters into the turbine the compressed air expands and the energy is released which is used to move the turbine vane and produce work output through the turbine shaft . The turbine output shaft is coupled to the rear wheel shaft with the help of sprocket chain arrangement. The efficiency of compressed air bike is increased by implementing an air pressure amplifier and a mini-compressor connected to the compressed air storage tank to keep constant pressure of compressed air. Hence the concept of compressed air bike in practice reduces the air pollution to large extent as its exhaust is nothing but cool air and cost of the fuel is very less as the air is an abundant source, we need some energy for conversion of compressed air.</p>		

A Detailed & Contemporary Approach Towards The Analysis Of Banana Peduncle-Carbon Fiber Composites For Prospective Applications

SL.NO	USN NO.	NAME
1	1MS14ME182	SUHAS SRIDHAR
2	1MS14ME188	SYED AAQUIB ASHFAQ
3	1MS14ME063	HARSHA VARDHAN S
4	1MS14ME144	ROHAN PATIL
Mentor Name	External Mentor : Dr. M. R. Sanjay Internal Mentor : - Dr. T. Anil Kumar	
ABSTRACT		

This project presents the study, achievements and future prospects in the area of natural fiber production with special emphasis on the use of Banana Peduncle. The work involves recycling and extraction of new cellulosic fibers from the plant and to investigate its properties. BP fibers have high specific strength and good binding properties due to their light weight and presence of high cellulose, low lignin and wax. Nowadays the position of natural fibers in the world fiber is stable, thanks to the growing area of their application, not only in textiles but also in more ecofriendly composites, and this project focusses on the development of a novel product in this field that can possibly replace conventional materials

Processed fibers soaked in Sodium Hydroxide (NaOH), dried and separated are used in conjunction with several materials to produce multiple variants of composites as given below:

1. Banana Fiber Composite
2. Banana Fiber with Carbon fiber
3. Banana Fiber and Silicon Carbide Filler
4. Banana Fiber with Carbon fiber & Silicon Carbide (Filler)

The specimens are to be subjected to numerous tests such as tensile, flexural, ILS (Inter-Laminar shear test) impact and macro hardness assessments, and results duly presented. The application of the result of this research will be highly beneficial as it serves as an alternative due to it being harmless, renewable and cost-effective with high specific strength in comparison to synthetic fibers.

Fabrication And Analysis Of Aluminium Metal Matrix Composites.

SL.NO	USN NO.	NAME
1	1MS15ME429	SYED MOHAMMED KHALANDER
2	1MS15ME427	SURESH R
3	1MS14ME107	VENKAT SANTOSH PRATEEK
4	1MS15ME430	UDAY KUMAR S G
Mentor Name	NISHANTH ACHARYA	
ABSTRACT		

Aluminium metal matrix composite are being used for a variety of applications such as military, Aerospace, electrical industries and automotive purposes due to their superior physical and mechanical properties. The addition of reinforcements into the metallic matrix improves the stiffness, specific strength, wear resistance, creep and fatigue properties compared to the conventional engineering materials. The excellent mechanical properties of these materials and relatively low production cost make them a very attractive candidate for a variety of applications both from scientific and technological viewpoints. Present study is focused on the study of tribological properties of Al7079 reinforced with different percentages of Aluminium Nitride (AlN) composites which are fabricated using Stir casting technique. The properties of these composites are determined by testing like tensile & compressive strength, hardness and wear rate which are evaluated experimentally according to ASTM standards.

Modelling Of A Test Bench For Testing Hydraulic Packages During Overhaul		
SL.NO	USN NO.	NAME
1	1MS14ME060	HARISH MANJUNATHESWARAN
2	1MS14ME049	DHANUSH KRISHNAN G
3	1MS14ME068	JATIN MALIK
4	1MS14ME058	HAAFIZ K HUSKER
Mentor Name	External Mentor : Mr. Srinivasan Internal Mentor : - Mr. R Kumar	
ABSTRACT		
<p>Hydraulic system plays a key role in the Helicopter control system and its components such as Linear Actuators and Hydraulic Packages have to be at their optimal working conditions for safety purposes. Thus a requirement arises for the testing of hydraulic components during overhaul at a ground level station before flying commences.They have to undergo a series of Acceptance Tests such as a Low Pressure,Manifold,Flow and Level tests. The existing test bench at HAL is capable of facilitating only Pre-Installation checks. Therefore, this project work has been proposed to develop a comprehensive test bench, which has the capability to perform the Pre Installation and Acceptance tests on the hydraulic package at ground level stations. The model of the test bench was developed and drafted on CATIA V5. It comprises of a main structure based on a stainless steel cabinet assembly and a power pack comprising of a pump and a drive capable of producing pressures upto 206 bar and flow of 32 lpm. A hydraulic test panel and hand pump system are provided on the left hand side to produce a low pressure of 20 bar. Another hand pump system is provided on the right hand side to produce a high pressure of 310 bar. The hydraulic circuits of the test bench and test procedures are drafted using EZ Schematics. The proposed model reduces inspection time and increases the accuracy.Owing to it's simplicity, it is easy to fabricate.</p>		

Modification Of Test Rig Used For Testing Of Hawk Components		
SL.NO	USN NO.	NAME
1	1MS15ME409	MOHAMMADIRFAN
2	1MS15ME410	NAGARAJ K
3	1MS15ME411	NITHIN C
4	1MS15ME415	RAJKMAR
Mentor Name	External Mentor : Mr. Praveen P K Internal Mentor : - Mr. Rajendra P	
ABSTRACT		
<p>Testing facilities and test rigs come in many forms and are used within a broad spectrum of industries. They perform a variety of key functions from product validation through to the training and development of operations. In this paper we focused on “MODIFICATION OF TEST RIG USED FOR TESTING OF HAWK COMPONENTS”. The used aluminum block in modified test rig serves as a pressure switching device with the help of two ON/OFF valve. Hawk Emergency Oxygen Cylinder (EO2) requires testing at different pressure, i.e, at high pressure and Low pressure for testing of main assembly and relief valve operation. EO2 cylinder is used in Hawk aircraft in emergency conditions such as it provides the pilot with the quantity of oxygen required for descent to a safe altitude and breathing supply from the main oxygen system if the aircraft oxygen system fails, to provide time for descent to safe altitude. Hence the concerned test rig has to be modified and right design has to be made to test the Hawk EO2 cylinder. The purpose of this project is to modify the existing test bench which enables the testing of Hawk EO2 cylinder. By doing this there is no need to buy new equipment from OEM (Original Equipment Manufacturers) which otherwise result in investing huge amount and also dependent on OEM for supply.</p>		

Passenger Alighting System For Moving Train		
SL.NO	USN NO.	NAME
1	1MS14ME197	VEERABHADRAYYA G H
2	1MS14ME201	VINOD BISE
3	1MS15ME422	SANTOSH SHRIKHANDE
4	1MS15ME435	YATHISHGOWDA S B
Mentor Name	ASHOK KUMAR K	
ABSTRACT		
<p>One of the main system in the world of transportation is railways, which carries heavy loads next to the shipping. The loads may be in the form of passengers or cargo. Trains carry huge load of passengers and luggage thereby utilizing too much fuel and energy for transportation. The energy required in terms of fuel consumption for the train to start and stop at a given station is more than what it is required during its normal operation. On the other hand, at some remote stations very few entities are required to alight and detrain which causes more consumption of time and fuel. In the present work an attempt is made to design a PASSENGER ALIGHTING SYSTEM which provides a way for effective utilization of time which leads to optimum fuel economy. In this system the train need not to be stopped at the station instead of that it should be slowed down to a speed around 20Km/hr. At this speed train requires around 3 mins to cross the platform and in that span of time the system gets aligned with the train's general compartment with same speed of that train.</p> <p>After speed matching the alighter system is parallel to the general compartment, in this situation the alighter system is connected to the compartment by the electromagnetic system then the system's door gets stepped over the doors of the compartment. Through these doors passengers get into and out of the train. (This process hardly takes 2 mins). After this, the system detaches from the compartment and decelerates to the rest position. The system saves appreciable amount of fuel while starting and stopping of train. Increased average speed and provides comfort alighting and delighting of passengers and saves a little amount of train timing.</p>		

Design Of Safety System Using Eye-Blink Sensor In Vehicles		
SL.NO	USN NO.	NAME
1	1MS14ME006	ABHISHEK KUMAR
2	1MS14ME033	ANOJ KUMAR YADAV
3	1MS14ME047	DEBJYOTI KARMAKAR
4	1MS15ME403	K MADUSH
Mentor Name	Arun Kumara P. C.	
ABSTRACT		
<p>Accidents have become a serious concern in today's scenario. The rate of accidents are high currently. Thus, there are different kinds of safety systems available for vehicles like ABS, EBD etc. All these systems consist of different sensors that constantly monitors the different parameters associated with the safe braking and warning system of the vehicle. In this system we proposes the use of eye blink sensors to control the vehicle's speed. This project is designed to develop a new system that can solve this problem where drivers may not brake manually but the vehicles can stop automatically by controlling the brakes.The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and eye blink sensor automatic braking.</p>		

Characterization And Improvisation Of Unique Future Energy Device-Super Capacitor		
SL.NO	USN NO.	NAME
1	1MS14ME082	M AKSHAY SHENOY
2	1MS14ME090	MANOJ KUMAR D
3	1MS14ME092	MANVIR SINGH
4	1MS14ME178	SINGA THARUN KUMAR REDDY
Mentor Name	Dr. RAJI GEORGE	
ABSTRACT		
<p>Recently, accompanied with the development of electronics and Hybrid vehicles, great interest has been aroused in development of unique energy devices. Therefore, the trend in the next generation of energy-storage device is to develop light, excellent mechanical and electrical properties. Needless to say, safety and cost expectations of the device also have to be satisfied. In the pursuit of light weight, higher energy densities, lower costs, and longer life, nanotechnology is employed to create new materials and processes in order to achieve these goals. By Nano-structuring new charge storage mechanisms are created. Nanotechnology is expected to play an increasingly important role in enabling these new chemistries. This project deals with unique energy device which provides better energy and power applications, light weight properties with the help of nano-materials. Striking the right balance between these parameters is challenging task. However balance can be achieved by manipulating nano materials and usage of unique electrolyte which can blend with nano materials to give better results. Devices like Electro chemical analyzer are used to evaluate the performance of these energy devices.</p>		

Design And Setting Up Of Split-Hopkinson Pressure Bar Experiment For High Strain Rate Testing Of Soft Materials		
SL.NO	USN NO.	NAME
1	1MS14ME045	C. M PRANAV
2	1MS14ME215	JOSHUA SEBASTIAN
3	1MS14ME072	KAUSTUBH DESAI
4	1MS14ME079	LINTON BASIL D SOUZA
Mentor Name	External Mentor: Dr. Alope Kumar Internal Mentor: Dr. P.L Srinivas Murthy	
ABSTRACT		
<p>A Split-Hopkinson Pressure bar (SHPB) is a characterization tool for mechanical response of materials deforming at high strain rates ($10^2 - 10^4 \text{ s}^{-1}$). These high strain rate material responses are required for developing predictive capability, safety and structural integrity assessment of structures subjected to dynamic loading. As this data is not easily available in literature, there is a need to set up high strain rate testing machines. The SHPB comprises of a short cylinder-like specimen sandwiched between two long slender bars. A compressive stress wave is generated by hitting the end of a bar and the wave immediately begins to traverse towards the specimen. By tracking the strains in the two bars using different instruments, stress-strain properties of the specimen can be determined. Several conceptual designs were considered, and an optimum design was implemented. A 3D finite element analysis of various types of materials has been done in ABAQUS/Explicit to explore the dynamic behavior and understand wave propagation. Also, one dimensional wave propagation was modelled in SIMULINK, a tool in MATLAB to obtain incident, reflected and transmitted stress waves. These plots can be compared with the experimental results which are obtained from the Data Acquisition System.</p>		

Intermittent Transport Mechanism		
SL.NO	USN NO.	NAME
1	1MS14ME013	ADITYA KUMAR
2	1MS14ME038	ASHISH RAJ
3	1MS14ME048	DEEPANSHU BISHT
4	1MS14ME073	KRISHNA BALLABH
Mentor Name	DR. NIRANJAN MURTHY	
ABSTRACT		
<p>Intermittent Transport Mechanism aims for the utilization of eight-bar linkage to fabricate a working physical model of a transport mechanism. It performs the function of transporting boxes/articles which are being fed onto two rails and are moved ahead one by one. The eight-bar mechanism allows moving more than one article as compared to its four-bar counterpart. The advantage of our conveyer is that it has a time delay between moving packages and this delay can be utilized to introduce some alterations or quality assurance and any other process likewise. Replacement of conventional conveyor systems by fully mechanical, highly efficient, having low initial and maintenance cost conveyor systems. Beneficial for small-scale industries, where shop floor is unorganized due to space constraints. In this project, we used Solidworks 3D to design the linkage and run simulations for maximum safe loads each link can be subjected to. We are using MS for construction of our setup and DC battery lead acid 12v & 7.5amps will be used as power source. In addition to this, we are adding a numerically controlled material rejection system which will operate using the weight sensor to test for the under or over weight products.</p>		

Energy Regeneration System		
SL.NO	USN NO.	NAME
1	1MS14ME198	VIBHUVARMA
2	1MS14ME174	SHUBHAM AGARWAL
3	1MS14ME099	MOHIBAIG
4	1MS14ME221	SUDEEPDEY
Mentor Name	GURURAJLALAGI	
ABSTRACT		
<p>This project attempts to show how energy can be tapped and utilised at a commonly used system, the road speed breakers and rumblers. Here in this project we are trying to utilize the kinetic energy of a moving vehicle and convert it into electrical energy. Electricity is generated by replacing the traditional speed breakers with a mechanism as explained. The traditional speed breakers are replaced with rollers. As vehicles pass over the speed breakers, they spin the rollers which are connected to a generator which in turn generate electricity. Rollers are fixed on a ramp on which the vehicles pass. As vehicles pass over it, it starts moving. A chain drive mechanism is provided which is coupled with a flywheel inturn which transfers the motion to a DC generator for electricity generation. This method is an effective way to produce electricity as the numbers of vehicles on the road are ever increasing. Also the cost of fabrication of the model is low. It can be effectively placed near toll gates, traffic lights, at the entrance of parking lots and any other place where the traffic density is high.</p>		

Design And Fabrication Of Loose Sand Self-Concealing UGV		
SL.NO	USN NO.	NAME
1	1MS14ME010	ADARSH S
2	1MS14ME017	AKILESH G
3	1MS14ME039	ASHWIN H
4	1MS14ME041	AVINASH M D
Mentor Name	NAVEEN KUMAR B K	
ABSTRACT		
<p>Self-concealing UGV is a remotely operated robot or vehicle which can travel through the desert regions for missions like surveillance or reconnaissance where soldiers have to travel through disputed areas or hostile environment. The stand out feature or function of this robot is that it can conceal itself within the sand up to its body level by digging through the loose sand. This digging action is achieved by equipping the wheels of the robot with helical screw. Whenever the robot needs to move, the wheels will be horizontal on ground and whenever it needs to conceal itself then the wheels are swiveled till they become perpendicular to the ground and when they rotate, the digging action happens. When the wheel rotation direction is reversed then the body will be pushed up against the ground and will be back on the surface. The wheels are swiveled back to normal (horizontal) position so that robot can traverse as usual to any other required location. The body of the robot can be camouflaged with the paint similar to the surroundings which helps the robot to blend itself with the surroundings and remain stealth throughout the mission.</p>		

Optimization Process To Improve The Nesting Efficiency Through Design		
SL.NO	USN NO.	NAME
1	1MS14ME213	SANTHOSH L
2	1MS14ME122	PAVAN KUMAR A
3	1MS14ME110	NARESH I
4	1MS13ME156	SANJAY ANANTHA
Mentor Name	External Mentor :JagadishMogaveera B Internal Mentor : Dr. P.L.Srinivasa Murthy	
ABSTRACT		
<p>The project assigned was an optimization process conducted at L&T Construction Equipment Ltd. The project duration was 2 months wherein the primary work revolved around the improvement of the different profiles of the 10 and 11 Tonne Compactor manufactured at the company. The project began with a thorough understanding of the different manufacturing processes that were being undertaken at the industry to produce various construction equipment. The project focuses on the nesting of different profiles wherein the problem targeted is the wastage of raw material resulting in monetary loss due to poor efficiencies. Having a detailed comprehension of the various parts and its assemblies and further analyzing the same at the shop floor we were able to make certain design proposals to reduce wastage and improve efficiency. Utilizing CAD software (ZW CAD), we redesigned a few parts to obtain a better nesting efficiency ensuring it wouldn't affect its functioning. This new Nest was verified by Nesting software (OMNI CAD) which confirmed the benefits. This was taken forward to the Design Department at L&T and is currently being implemented. The total annual savings through our project is Rs.8.77 Lakh. All the activities are documented for further reference.</p>		

Studies On Machining Of Hybrid Lamimated Composites

SL.NO	USN NO.	NAME
1	1MS14ME158	SANTOSH GHIMIRE
2	1MS14ME029	ANIL KUMAR MAHATO
3	1MS14ME084	MADAN ADHIKARI
4	1MS14ME044	BISHAL MISHRA
Mentor Name	Dr. SUNITHBABU L	
ABSTRACT		

Composites are combination of two materials in which one is called reinforcing phase, in the form of fibers, sheets or plastics and the other is matrix phase. A composite laminate is an assembly of layers of fibrous composite materials. Composite laminates like CFRP, GFRP, fiber metal composite laminates and hybrid laminates are attractive for many applications such as automobile, aerospace and aircraft structural components. Mechanical drilling and milling operation is an important final machining process for components made of composite laminates. But machining is a complex task owing to fibre matrix failure due to its heterogeneity, surface delamination, fibre pullout, burning, surface roughness which results in damage of work piece and wear of cutting tool. Whereas machining process such as turning, drilling or milling can be applied by providing proper tool design and operating conditions. We study the influence of drilling parameters like speed, feed, thrust force and torque on the hybrid laminated composite materials fabricated by vacuum bagging technique upon the specimens of varying thickness so that our experiment will be desirable to improve the cost-effectiveness of currently-available machining processes applicable in aerospace industries

Fabrication Of Gearless Drive With Hacksaw

SL.NO	USN NO.	NAME
1	1MS14ME145	ROHIT R
2	1MS14ME129	PRAJWAL RATTAL
3	1MS14ME014	ADITYA DESHPANDE
4	1MS14ME139	RAKSHIT R
Mentor Name	Dr.P B NAGARAJ	
ABSTRACT		

Mechanical power may be transmitted directly using a solid structure such as a driveshaft; transmission gears can adjust the amount of torque or force vs. speed in much the same way an electrical transformer adjusts voltage vs current.

- Hydraulic systems use liquid under pressure to transmit power; canals and hydroelectric power generation facilities harness natural water power to lift ships or generate electricity. Pneumatic systems use gasses under pressure to transmit power; compressed air is commonly used to operate pneumatic tools in factories and repair garages. A pneumatic wrench (for instance) is used to remove and install automotive tires far more quickly than could be done with standard manual hand tools.
- In this project , the rotary power is transmitted at perpendicular direction through four rods without using gear drive transmission.
- It is made up of mild steel material. The whole construction of machine is placed on the base plate. The grinding tool is screwed to the main spindle which is driven through the gearless drive transmission from the motor. This motor with the gearless drive mechanism are mounted in base plate. The stone is fixed in the spindle and rotated by motor.

Design and Fabrication of Convertible Stretcher		
SL.NO	USN NO.	NAME
1	1MS14ME209	ASHUTOSH SINGH
2	1MS14ME163	SHAMANTH PRABHU
3	1MS14ME172	SHIVSHARAN PATIL
4	1MS14ME209	ASHUTOSH SINGH
Mentor Name	Dr. SRIDHAR B S	
ABSTRACT		
<p>Transferring the patients from wheelchair to stretcher or to the medical bed or vice versa is always an issue for the attendant or nurse. There is a revolution of wheelchairs available today driven by needs and desire of man. Hence we propose a design of Automated Wheelchair Convertible Stretcher which is a boon to the medical field and fire control department. It is so made that it could be maintained and operated easily either by the patient or by the attendant according to the comfort of the patient. Our study shows that it is possible to save 50% space by the Automated Wheelchair Convertible Stretcher design, which can even be used on stairs single handedly. The product will thus likely be an efficient mobility aid in hospitals and fire control department. The Electric powered wheel chair is controlled through simple button mechanism, also other various modes can be implemented. The wheel chairs are usually difficult to transport, so to make it easy for transportation it has been assembled in convertible manner and can be carried to desired location easily, so that it can be used anywhere.</p>		

Modelling of Lock-in Thermography Process Through FEM for Estimating Defects.		
SL.NO	USN NO.	NAME
1	1MS14ME066	NIKHIL NAGEHSWAR INTURI
2	1MS12ME219	ABDULLA ZAIN KHAN
3	1MS13ME119	PAVAN JOSHI
Mentor Name	Internal Mentor : ASHOK KUMAR External Mentor : KAUSHIK	
ABSTRACT		
<p>Defects are a major problem in the world of manufacturing and almost in every sector. Non-destructive testing is increasingly reliable for detecting the sub surface defects. NDT is a non invasive process of inspecting, testing and evaluating a component without damaging it. Non-destructive thermal evaluation is one such method to detect near surface defects. Non-destructive thermal evaluation is one such method of inspection technique that can be used to detect near surface defects. Everybody in the universe emits ER radiation above 0K, and at room temperature it is predominantly Infrared radiation. So we capture thermal image using an infrared camera which detects the thermal waves and then produces a thermal image. Lock-in thermography is based on principle of application of a periodic input energy wave to the surface of the object being examined and analyzing the local temperature profiles of the object. The input wave reflects back from irregularities and interferes with the incoming input waves causing an interference pattern, this will have the information about frequency and phase angle of the reflected thermal wave. Example :: Squats in a railway track in one among the major problems, casting defects like sand inclusions, etc.</p>		

Automobile Chassis Lifter		
SL.NO	USN NO.	NAME
1	1MS14ME210	V RAGHU SHYAM
2	1MS14ME137	RAJDEEP SINGH
3	1MS14ME131	PRAMOD KUMAR
Mentor Name	BIJAYALAKSHMI DAS	
ABSTRACT		
<p>Automobile Chassis lifter is used to lift the entire automobile body . It consists of a dc motor and a pneumatic cylinder which are attached to the automobile chassis . This setup is used to when there is a need to lift the body for servicing and other purpose. This particular mechanism will replace screw jack mechanism . DC motor is used to move the system to front and rear axelside . Controlling this system is made manually by pressing a button , by pressing the button we can lift the body when ever we want . Either front or rare axel or both side's can be made to lift .</p>		

Design And Fabrication Of Automatically Operating Dynamic Self-Inflating Tyre System		
SL.NO	USN NO.	NAME
1	1MS14ME191	TANMAY CHETAN GAONKAR
2	1MS14ME190	TAFWEEZ HASAN KHAN
3	1MS14ME196	VARUN VITTAL MAHALE
Mentor Name	Dr.JYOTHILAKSHMI R	
ABSTRACT		
<p>Content of the Abstract: Our goal is to automatically fill pressurized air in tyres while you are driving your vehicle in leisure mode or in combat. This can be achieved by using a compressor whose output air is taken by hosepipes to flow through tee valve which further connects with a solenoid valve to fill air. We wish to automate the entire process completely. Over inflation causes tyres to wear more in the center of the tread. The tyre pressure should never exceed the maximum that is listed on the side of the tyre. Car manufacturers often suggest a lower pressure than the maximum because the tyres will give a smoother ride. But running the tyres at a higher pressure will improve the mileage.Under inflation can cause tyres to wear more on the outside than the inside. It also causes reduced fuel efficiency and increased heat build-up in the tyres. It is important to check the tyre pressure with a gauge at least once a month. Thus, using a reciprocating air compressor and hosepipes along with the solenoid valve the tyre pressure can be maintained at the desired value. The tee valve will help us by maintaining a constant connection with the tyres even while driving the vehicle.</p>		

Smart Connected Electric Bicycle		
SL.NO	USN NO.	NAME
1	1MS14ME007	ABHISHEK PRATAP
Mentor Name	Dr. RAJI GEORGE	
ABSTRACT		
<p>An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. There are number of e-bikes available worldwide. The simplest e- bike with a small motor to the one which have more complex functionality. E-bikes use rechargeable batteries and the lighter varieties can travel up to 25 to 32 km/h (16 to 20 mph), depending on the laws of the country in which they are sold. And some of the major benefits of using E-bicycle are Health benefits, Environment Effects, Road safety and traffic. SMART:As it recognizes you, CONNECTED: It is equipped with internet access ,ELECTRIC: We believe no hills, head wind or extra mile should stop you go twice as fast with minimal effort. The main components of e-bike are: Motors and drive trains: There two types of electric motors are available varying in cost and complexity. First is BLDC geared hub motor and another one is MID DRIVE unit. Controllers: An electronic controller provides assistance as a function of the sensor inputs, the vehicle speed and the required force .Batteries: Battery systems in use include sealed lead-acid (SLA), nickel-cadmium (NiCad), nickel-metal hydride or lithium-ion polymer (Li-ion). Batteries vary according to the voltage, total charge capacity (amp hours), weight, the number of charging cycles before performance degrades, and ability to handle over-voltage charging conditions. Product like this also help in putting foundation for Electric vehicle in India , as it was very important in order to achieve VISION XEV 2030.By using Electric vehicle one can save Rs1,18,000 in 5years in comparison to petrol two wheeler. And also one will reduce the CO2 emission Of 1.9 metric ton in 5 years (by one person).</p>		

Design and Fabrication of Compressed Air Four Wheeler		
SL.NO	USN NO.	NAME
1	1MS12ME025	AMIT KASHYAP
2	1MS13ME027	ANAND SHESHADRI
3	1MS11ME241	NAGARJUN YADAV
Mentor Name	D VENKATESH	
ABSTRACT		
<p>Natural fuels such as petroleum and its biproducts are depleting day by day. As a result, compressed air vehicle has attracted many scientists and engineers for centuries. Efforts are being made by developers and manufacturers to master the compressed air vehicle technology in all aspects for its early use by mankind. The compressed air four-wheeler is an eco-friendly vehicle which works or operates on compressed air .The compressed air four wheeler uses air as main fuel source. It uses compressed air to drive the piston of an engine. It is a pneumatic actuator that converts one form of energy into another and creates useful work by expanding compressed air. The technology is very simple, if we compress normal air into the cylinder, the air would hold some energy. When this compressed air expands, the energy is released to do work and this energy can be utilized to displace a piston. This can also be called as electro pneumatic propulsion. The following are a few aspects that have to be taken into consideration while developing a compressed air vehicle, control of compressed air, parameter like temperature, energy density, requirement of input power, energy release and emission control have to be mastered for the development of a safe, light and cost effective compressed air four wheeler.</p>		

**Electrical Conductivity and Nano-indentation Studies on the Silver Coated
Multi-Walled Carbon Nanotubes Reinforced Copper Nanocomposite**

SL.NO	USN NO.	NAME
1	1MS14ME020	AKSHAYA M
2	1MS14ME062	HARSH VARDHAN SINHA
3	1MS14ME203	VIQAR AHMED
4	1MS14ME211	AMRITA M
Mentor Name	D VENKATESH	
ABSTRACT		

Content of the Abstract: Recent developments in nanoscience and nanotechnology have shown great potential in the areas of materials science and technology, biotechnology, health care and nanoelectronics. Nanotechnology includes the design, synthesis, fabrication and application of materials or structures with at least one characteristic dimension measured in nanometers. Pure Copper has high electrical conductivity but low strength. MWCNTs are endowed with exceptional mechanical material properties. By reinforcing MWCNTs in Copper matrix the strength of nanocomposite would increase. Nanocomposite of Copper and MWCNTs as reinforcement has applications in supercapacitors, enzyme free glucose sensor and electrochemical biosensor. MWCNTs are cuprophobic in nature hence MWCNTs do not blend well with Copper. Silver impregnated MWCNTs would eliminate the problem of blending. Moreover, Silver's electrical conductivity is higher than Copper. This project aims at combining Silver coated MWCNTs reinforcement in Copper matrix with an expectation of increasing the electrical conductivity of the nanocomposite and better blending of the reinforcement with the matrix. This study might prove this nanocomposite to be a better replacement of Copper and uncoated MWCNTs as reinforcement in supercapacitors, enzyme free glucose sensor and electrochemical biosensor.

DEPARTMENT OF **MEDICAL ELECTRONICS**



Project Abstracts

2017 - 2018

DETECTION OF EXUDATES FROM COLOR FUNDUS IMAGES IN DIABETIC RETINOPATHY

SL.NO	USN NO.	NAME
1	1MS14ML024	LAVANYA N
2	1MS14ML047	SAYEMA FIZZA
3	1MS14ML060	VIDHYA S
Mentor Name	Internal Mentors : Dr. BASAVARAJ V.HIREMATH Dr. C K NARAYANAPPA	

ABSTRACT

Diabetic Retinopathy is an eye disease that involves damage to the tiny blood vessels that supply the retina. Diabetic retinopathy (DR) is a leading cause of vision loss, caused by damage to the retina from complications of diabetes. The most primary sign of DR is the presence of exudates, and detecting these in early screening is crucial in preventing vision loss. Exudates are Yellow flecks made up of lipid residues of serous leakage from damaged capillaries. This project deals with detection of Exudates from colour fundus (Interior surface of the eye opposite the lens) images using image processing techniques. The process of detection involves Pre Processing, Optic Mask, Blood vessel Elimination, Feature Extraction and Classification. DIARET online database is used in this project.

DEVELOPMENT OF FRAMEWORK FOR BREAST THERMOGRAM INDEX FOR SCREENING OF BREAST CANCER

SL.NO	USN NO.	NAME
1	1MS14ML003	ANJALI MURALIDHARAN
2	1MS14ML013	GOWTHAMI K
3	1MS14ML032	NAVYA NAYAK U
4	1MS14ML033	NEHA UPADHYA
Mentor Name	Internal Mentors : Dr. N SRIRAAM, Dr. SHARATH D, Mrs. PRABHA RAVI External Mentors : Dr. B VENKATARAMAN, Mrs. M MENAKA	

ABSTRACT

Breast cancer is a diverse disease and timely estimation of this disease is a major medical problem. The existing imaging modalities are ultrasound, mammography and thermography. The usage of thermography is based on the principle that vascular circulation and metabolic activity in both the area near a developing breast cancer and pre-cancerous tissue is nearly always greater than in normal case. The consequence of this process is a local breast surface temperature increase. These temperature differences may be an early sign of breast cancer. In our project, we have used 125 thermograms from the Visual Lab database and IGCAR database. First we used preprocessing on the image to enhance contrast. The techniques we used were contrast limited adaptive histogram equalization and Otsu's global thresholding. The preprocessed image was then segmented using an automated technique to separate into left and right breast. 10 statistical and textural features were extracted and compared between the left and right breast. This data comparison is used as input for the classifier. The classifier used was Multi-Layer Perceptron Neural Network. For Visual Lab database we obtained an accuracy of 86.96%. For IGCAR database we obtained an accuracy of 83.33%.

REAL TIME MONITORING AND ANALYSIS OF MATERNAL AND FETAL HEALTH		
SL.NO	USN NO.	NAME
1	1MS14ML011	FAIZA BANU
2	1MS14ML020	KARAN SINGH
3	1MS14ML058	VARDHITA M L
Mentor Name	External Mentor : Dr. P S PANDIAN Internal Mentor : Dr. N SRIRAAM	
ABSTRACT		
<p>For continuous monitoring of the fetus and mother in her trimester of pregnancy, it is required to design a wearable monitoring system. ECG of the mother and fetus being the basic parameter that has to be continuously monitored, it is required to design a dry electrode setup (without the use of gel) to acquire the respective ECG ,that is comfortable and can be used for long duration monitoring. The dry electrode proposed is a conductive textile electrode. The electrodes are integrated into a comfortable wearable belt with wearable data acquisition hardware to acquire and transmit the data to the doctor for analysis. The acquired signals are corrupted with noises such as power line interference, baseline wander and motion artifact. The fetal ECG signal embedded in the mother ECG signal is of very low amplitude. There is a need to develop an advanced signal processing technique to process and extract the fetal ECG signal and carry out the fetal heart rate variability analysis. Details on the ST segment of the fetal ECG can be obtained and inference on fetal hypoxia can be drawn. Additionally, the mother's body temperature, Photoplethysmogram (PPG) and Galvanic Skin Response(GSR) are monitored via a glove to assess the overall health status of the mother.</p>		

DESIGN AND DEVELOPMENT OF CONTINUOUS POSITIVE AIRWAY PRESSURE FOR CLINICAL APPLICATIONS		
SL.NO	USN NO.	NAME
1	1MS14ML037	NISHA N
2	1MS14ML050	SHUMAILA MARIAM
3	1MS14ML052	SREE RAMYA Y
Mentor Name	External Mentor : Mr. N S NAGENDRA PRASAD Internal Mentor : Dr. N SRIRAAM	
ABSTRACT		
<p>Obstructive sleep apnea (OSA) is the most common type of sleep apnea and is caused by complete or partial obstructions of the upper airway. It is characterized by repetitive episodes of shallow or paused breathing during sleep, despite the effort to breathe, and is usually associated with a reduction in blood oxygen saturation. According to a survey conducted about 13% Indians are under the threat of obstructive sleep apnea which is primarily caused due to obesity as an underlying factor which was reported by TOI Aug 2, 2013. Adding further only 4% visit the doctor for treatment. The treatment that has been offered to people suffering from OSA is CPAP therapy. Continuous positive airway pressure (CPAP) is a form of positive airway pressure ventilator, which applies mild air pressure on a continuous basis to keep the airways continuously open in people who are able to breathe spontaneously on their own. Although many CPAP machines exist at present, but their cost and associated disadvantages make them undesirable for use. The aim of this project is to develop a cost effective CPAP which is portable, battery powered and has wireless connectivity which are absent in the current model simultaneously improving patient compliance.</p>		

DESIGN OF FUNCTIONAL ELECTRICAL STIMULATOR

SL.NO	USN NO.	NAME
1	1MS14ML001	ABHILASH G DUTT
2	1MS14ML002	ABHISHEK C MOULI
3	1MS14ML030	MUKUND BALAJI
4	1MS14EI045	SUJITH N GOWDA
Mentor Name	Internal Mentor : Mr. S.J MAHENDRA	

ABSTRACT

Functional Electrical stimulators are therapeutic rehab devices. They are also used in algology as a pain reduction technique for neuromuscular discomforts. The basic idea of this device is to fire the motor cells in our body in order to help the weak locomotors to cross its firing threshold. Various electrical signals are used in order to achieve this. The primary demarcations are constant current signals or voltage signals and its dropdown specifications which are monophasic or biphasic. This project has used the current signal platform with biphasic signals to stimulate the motor units. We have designed a multi-mode platform which incorporates a burst stimulation mode, pulse width modulation stimulation mode, a pulse train oscillator mode and a trial frequency modulated stimulator mode. Therefore these various modes of operation are incorporated to bring about locomotion in individuals in need of assistance.

SMART BABY MONITOR- INFANT CRY ANALYSIS AND PAIN SCALE ASSESMENT

SL.NO	USN NO.	NAME
1	1MS14ML014	GULIPILLI MANMITHA PATYA
2	1MS14ML054	SUJALA SWAMINATHAN
Mentor Name	Internal Mentor : Dr. N. SRIRAAM Co- Supervisor : Mrs. TEJASWINI.S	

ABSTRACT

Cry in neonates is considered the dominant biological marker establishing closer connectivity between the newborn and their surroundings. Analysis of cry signal tells us about physiological and pathological conditions of the neonates. The reasons for cry in neonates can be innumerable, like for example, it can be due to hunger, discomfort, various level of pain, etc. This project proposes the development of a cry detection algorithm for pre-term and full-term neonates in the Neonate Intensive Care Unit (NICU). The data for baby cry analysis was collected from the NICU of Ramaiah Teaching Hospital after due Ethical Clearance. Both, audio and video recordings of baby cry were collected. During video processing, the video was broken down into frames, necessary frames were filtered and upon choosing two necessary frames, one of which is the base frame of no-cry condition and another one being the condition of cry, the image subtraction is done and superimposition is done to check the variation in both the conditions. Necessary features that then extracted and then classified. In the processing of the audio recordings, the audio recordings are filtered, frequency and pitch are extracted and PSD is obtained and then classification is done. From here, a confusion matrix is derived to define a probability matrix and pain scale is estimated for the neonate.

VOTING MACHINE BASED ON BIOMETRIC AUTHENTICATION

SL.NO	USN NO.	NAME
1	1MS14ML057	TEJAKIRAN B
2	1MS15ML401	BINDUSHREE HV
3	1MS15ML405	SADHANA YADAV
4	1MS15ML411	SWETHA MR
Mentor Name	Internal Mentor : Dr.C.K NARAYANAPPA	

ABSTRACT

Indian democracy is very important for the growth of the country, which mainly depends on the leaders elected in country. So it is very important to conduct free and fair elections. In order to make this we have designed a Bio-metric voting machine which includes an NFC technology, a unique Bio-metric authentication and the java application for the automatic results. Here NFC is the technology which can also be used in hospitals for the patient details and also for the real time monitoring of the physiological parameters. We used three tier of authentication a).NFC, b)Fingerprint Authentication c). Java application for automatic results. The process includes once the candidate enters the voting Booth he is authenticated with the NFC card (like the voter card) and then the next step is Bio-metric authentication, if this is matched with the data based stored and particular NFC card of the candidate he will be allowed to vote and the results are displayed automatically on the PC of the higher authority. It is used to cast the votes for multiple elections taking place simultaneously. The proposed design provides additional security due to reinforcement of RFID(Radio Frequency IDentification) tags. It is economically viable and cheap. This design completely diminishes the chance of illegal voting.

MONITORING OF HEART RATE VARIABILITY USING SMARTPHONE

SL.NO	USN NO.	NAME
1	1MS15ML408	SHWETHA.C
2	1MS15ML409	SOWMYA.A
3	1MS12ML003	ACHALA NIVEDITHA
Mentor Name	External Mentor :Mr. VITTAL Internal Mentor : Mrs.PRABHA RAVI	

ABSTRACT

Wearable physiological monitoring system has occupied a dominant place in healthcare domain recently. This is due to the fact of connecting patient with clinician through home centric physiological monitoring facilities. This project proposed to acquire, analyze and store ECG data overlong hours. This data is acquired and stored in removable micro SD memory card for later downloading and analysis. The system is compact and battery operated and hence portable. The data transferred between the ECG module and android mobile /tablet is through Bluetooth link. The ECG data acquisition is possible at high sampling rate .Using ECG data it is possible to analyze and monitor HEART RATE VARIABILITY.

REAL TIME DIABETIC FOOT PRESSURE MEASUREMENT

SL.NO	USN NO.	NAME
1	1MS14ML026	MANJU S
2	1MS14ML063	VISHWANATH SC
3	1MS15ML400	AKSHAY R
Mentor Name	External Mentor : DR V B NARAYANA MURTHY Internal Mentor : DR N SRIRAAM	
ABSTRACT		

Early detection and appropriate treatment of foot ulcers may prevent 85 percent of amputations. To address and find a solution to this problem, we have developed a smart footwear that basically comprises of pressure sensors, sole, an Arduino and an android application with a wireless connection to a Bluetooth module. The foot pressure is measured using Force Sensitive Resistors, which are embedded in the sole. The data processed by the Arduino is transmitted to a mobile application using a Bluetooth module. For our initial study, a prototype was designed and it was tested on a few healthy young volunteers so that we can establish a relationship of the values obtained with respect to diabetic foot ulcer. The difference between each of the three sets of values is proposed to be established using statistical Analysis. Once the relationship between foot pressures and the above mentioned three conditions is established, the graphs and data can be visualized in the android mobile application which is developed by us. We inferred from the above that the readings depend heavily on the Body Mass Index(BMI) of the patient and each patient will have a significantly different threshold.

VISUALIZATION OF ANATOMICAL STRUCTURE USING VOLUME RENDERING TECHNIQUE

SL.NO	USN NO.	NAME
1	1MS14ML012	GIRISH G BIRADAR
2	1MS14ML017	IRAGANTI
Mentor Name	External Mentor : Mr. SYED FAISAL ALI Internal Mentor : Dr. BASAVARAJ V HIREMATH	
ABSTRACT		

Presently doctors find it very difficult to know the complete details of the body parts using number of slices of medical image. 3d conversion can be very useful especially when people with tumours and fracture in the parts of the body. 3D conversion will help radiologist not only to locate the tumors and fracture but also gives an insight knowledge of the body parts, clinical staff often finds it difficult to locate the tumor and fracture in the patient, More than one procedure at one instance sometimes horrifies the patient. As now, 3D image conversion is among the latest technique being researched today to resolve this issue the technology being developed involves the use of visualizing tool kit and insight segmentation and registration tool kit by using the volume ray casting algorithm, the results achieved were quite encouraging beside indicating the huge market potential for the technology . The results obtained showed that the technology was quite helpful in conversion of medical image into 3D module for the different parts of the human body.

IMAGE ANALYSIS BETWEEN NORMAL THYROID FOLLICULAR CELLS AND CELLS OF PAPILLARY CARCINOMA

SL.NO	USN NO.	NAME
1	1MS14ML018	K SHREYA SHETTY
2	1MS14ML023	LAVANYA K BANGARAPPA
3	1MS14ML405	DARSHAN BEKAL
4	1MS15ML402	DHEERAJ L
Mentor Name	Internal Mentor : Mrs. PRABHA RAVI	

ABSTRACT

Follicular lesions of the thyroid are traditionally difficult and tedious challenges in diagnostic surgical pathology in part due to lack of obvious discriminatory cytological and microarchitectural features. We describe a computerized method to detect and classify normal follicular thyroid cells and cells of papillary carcinoma, based on the nuclear chromatin distribution from digital images of tissue obtained by routine histological methods. This method is based on determining whether a set of nuclei, obtained from histological images using automated image segmentation, is most similar to sets of nuclei obtained from normal or diseased tissues. This comparison is performed utilizing numerical features and a support vector machine. The final outcome concludes that nuclear structure alone contains enough information to automatically classify the normal thyroid cells and cells of papillary carcinoma, as long as groups of nuclei are used. And further that the distribution of nuclear size and chromatin concentration (how tightly packed it is) seem to be discriminating features between nuclei of follicular carcinoma and normal thyroid

ASSESSMENT OF STROKE USING MRI

SL.NO	USN NO.	NAME
1	1MS14ML019	KAILASH SHASTRY
2	1MS14ML027	MANOJ P SRIVATHSA
3	1MS14ML038	NUTHAN JEEVRAJ P
4	1MS15ML404	JAYAKANTH B
Mentor Name	Internal Mentor : Mrs. PRABHA RAVI	

ABSTRACT

Stroke is one of the leading causes of death. Traditional imaging modalities such as CT were being used in screening in which the possibility of accurate detection was not available. These days Magnetic resonance imaging is used for the imaging of the nervous system. It uses Magnetic fields and radio waves to produce high quality 2D and 3D images of the part imaged without the use of ionizing radiations. This project aims to isolate the region of stroke and determine the degree of stroke to help assist the clinician/radiologist in his decision making regarding the stroke imaged. The image processing techniques used are edge detection- using prewitt, sobel filters, finding mean and standard deviation of both filtered and raw images, image segmentation, feature extraction, stroke identification and determination of the degree of stroke. This way the patient and the clinician have a tool to determine degree of stroke and also have a quantitative result. Whereas in previous cases consultation of a neurologist was required to analyse the severeness of stroke.

INJURY RECOVERY PROGRESS ASSESSMENT IN SPORTSPERSONS USING WEARABLE SENSORS

SL.NO	USN NO.	NAME
1	1MS13ML056	T SAKTHI MAHALINGAM
2	1MS14ML040	PRASHANTH KUMAR N
3	1MS14ML046	SAURAV CHOPRA
4	1MS14ML055	SUSHANTH B
Mentor Name	External Mentor : Dr. VINAY KUMARSWAMY , Dr. PREETHAM Internal Mentor : Mr. MAHENDRA S J	
ABSTRACT		

The most common injury that occurs in professional sports is that of the Anterior Cruciate Ligament(ACL). Currently there exists no effective protocol to study the recovery of the subject during rehabilitation period. The purpose of this project is to develop a cost efficient and effective rehabilitation device so as to design an effective protocol/generalized system to study the recuperation of the subject during the rehabilitation period and to distinguish subjects at different levels of recuperation after ACL reconstruction. The device designed consists of a 3-axis Inertial Measurement Unit(IMU) to study the spatiotemporal parameters of gait cycle and Force Sensitive Resistors(FSRs) to design an under-foot pressure sensing unit.

VEIN IMAGING

VERY IMPORTANT		
SL.NO	USN NO.	NAME
1	1MS14ML004	ANJALI CADAMBI
2	1MS14ML008	ASHUTHOSH MP
3	1MS14ML031	NAMRATHA BHAT
4	1MS14ML035	NIKHIL B C
Mentor Name	External Mentor : Mr. SYED FAISAL ALI Internal Mentor : Dr. SANJAY H.S	
ABSTRACT		

Presently doctors find it very difficult to inject patient veins with medicine for any intravenous procedure. This procedure can be cumbersome, especially on people with thin veins or who are obese or patients with damaged skin. Pediatric patients also belong to this class of people because their veins are extremely thin due to their infancy. In case of extreme emergencies involving the aforementioned patients, it becomes difficult to feed/detect specific veins for carrying out the IV procedure, and the delay in treatment may become life threatening. Clinical staff often finds it difficult to locate the desired vein in pediatric patients. As of now, vein detection is among the latest techniques being researched today to resolve this issue. The technology being developed involves the use of infrared rays to illuminate a region which is then observed using an infrared camera. By using this device, the results achieved were quite encouraging besides indicating the huge market potential for the technology. The results obtained showed that the technology was quite helpful in detecting the veins.

IRIS DIAGNOSIS – A QUANTITATIVE TOOL NON-INVASIVE TOOL FOR DIABETIC DETECTION		
SL.NO	USN NO.	NAME
1	1MS14ML034	NIHARIKA V
2	1MS14ML045	S.P KAVYASHREE PRASAD
3	1MS14ML064	YESHWANTH.N
4	1MS15ML405	JAYANTHA.B.S
Mentor Name	Dr. .BASAVARAJ V HIREMATH	
ABSTRACT		
<p>Iris diagnosis is one of the most efficient and quick non-invasive methods to diagnose various diseases. It's an alternative medicine technique by which several diseases are detected through the Iris patterns, colors, and other characteristics. More than 62 million individuals in India are currently diagnosed with Diabetes. Small alterations made in lifestyle can prevent or prolong the onset of diabetes in an individual. This project aims to develop a quantitative non-invasive tool for detection of diabetes. Additionally it can be detected few years before the person gets the disease. This Pre-diagnosis can help many take suitable measures. Database of diabetic and non-diabetic patients has been collected from an iris scope as well as an online database. Segmentation of Iris from eye images through segmentation, extraction of spatial and temporal features followed by training and classification is performed to classify diabetic patients from non-diabetic patients.</p>		

PSYCHOPHYSICAL ANALYSIS		
SL.NO	USN NO.	NAME
1	1MS14ML025	MADHURI SURESH
2	1MS14ML036	NISHA J SHETTY A
3	1MS13ML060	VINAYAKA S RAO
Mentor Name	External Mentor : Mr. SUHAS V CHEBBI Internal Mentor : Dr. SANJAY H.S	
ABSTRACT		
<p>Psychophysics is one of the most important aspects to assess the auditory behavior in human beings. The present study helps in exploring the temporal analysis with respect to auditory stimulus thereby helping in the analysis of the auditory disorders in humans. This project is concentrated on subjects with no known auditory pathological history, both males and females of different age groups. The test performed was a software based audiometry test after creating a MATLAB/ Python based GUI. The test was performed in a soundproof room. Audiograms are plotted and variations were observed. The results are compared with the existing Pamtronics audiometer. These software based test help us develop an easier tool for the auditory analysis compared to the old and bulkier audiometers.</p>		

INSULIN ADMINISTRATION KIT		
SL.NO	USN NO.	NAME
1	1MS14ML009	CYRIL THOMAS
2	1MS14ML044	RUPUNENI SAI CHARITA
3	1MS14ML048	SHIVANI JHA
4	1MS14ML049	SHRUTI ARJARIA
Mentor Name	External Mentor : Mr. A. BALACHANDRA Internal Mentor : Prof. KUMARAVELU P.G	
ABSTRACT		
<p>Diabetes mellitus ,commonly referred to as diabetes ,is a group of metabolic disorder in which there are high blood sugar /glucose level over a prolonged period. Monitoring blood glucose using invasive techniques is commonly used and is painful. With these invasive techniques the glucose measurement cannot be measured continuously. Also, the device used is costly as there is need to replace the strips once it is used. Insulin Administration Kit is a non-invasive technique that is used to monitor the glucose concentration and gives the output in terms of voltage and is assumed to be less costly as compared to the existing one.</p>		

DEPARTMENT OF TELECOMMUNICATION ENGINEERING



Project
Abstracts

2017 - 2018

PRECISION AGRICULTURAL SYSTEM USING WSN & IOT

SL.NO	USN NO.	NAME
1	1MS14TE028	NIMISHA BANERJEE
2	1MS14TE053	SUNIDHI GOEL
3	1MS12TE020	CHIRANJIVI SHRIVASTAVA
4	1MS12TE058	HARDIK PARMAR
Mentor Name	Nisha SL	
ABSTRACT		

In this project, we will be applying the concept of Wireless sensor networks (WSN) to precision agriculture wherein we measure soil parameters like temperature, soil moisture and humidity and light level in remote locations and make it available to the farmers via the internet. This allows the farmers to analyze the parameters and determine the condition of the soil and initiate steps if necessary. In this project our main focus is to maintain, control or monitor the agricultural trends or system making it easier for the user, to get data at regular intervals about the field in many areas where one person is not enough to monitor the field status and control the same. To improve on this we have to focus on such an agriculture monitoring system that can collect more area information and transfer the same to a web server for use by persons that work on that field like scientist, farmers, and government officers as well as many more that need to survey the agriculture field. Here we have used various sensors to create a well established agricultural monitoring system. To collect data from different nodes we have to create WSN that will collect all the node information and give to the user.

LIVE STOCK MONITORING

SL.NO	USN NO.	NAME
1	1MS14TE010	DIVYASHREE B.S
2	1MS14TE025	MONISHASHEKAR
3	1MS15TE400	ABHISHEK SINGH KARAD
4	1MS15TE401	AMRUTHA SAWANTH
Mentor Name	Dr. K R Shobha	
ABSTRACT		

Until now, farmers could only identify a sick animal through visual observation. But because animals do not openly display symptoms, a sick animal is often not identified on time until they are very ill. Animal tracking solutions consist of a connected health tracker that attaches to the animal and provides constant monitoring of livestock temperature, movement, and other vital signs. The collected parameters can be made globally available using wireless technologies and can be analyzed by experts remotely. Current clinical techniques for monitoring live stock health are insufficient, as they provide sporadic information and require too much investment of time and veterinary expertise. With the rising demand of the cattle industry, new techniques are being employed to aid in the tracking and monitoring of cattle herds so that the animal health can be monitored from remote location. In this project we explore the use of sensors to monitor the parameters like temperature, water consumption, breathing rate and give early indication of the BRD disease which is common in cattle's.

CLASSIFICATION OF ECG USING MACHINE LEARNING		
SL.NO	USN NO.	NAME
1	1MS14TE021	M. NIYATHA
2	1MS14TE035	RUBIA FATIMA
3	1MS14TE054	SWARNIMA GUPTA
4	1MS14TE058	VAISHNAVI RAMSALI
Mentor Name	Dr. K R Shobha	
ABSTRACT		
<p>With India currently witnessing nearly 2 million cardiac arrest per annum, it is soon to become the world capital of heart diseases (Source: ToI). According to a survey, approximately 5%-10% of the heart patients die due to delayed medical aid in each hospital. Also, the immediate cause of cardiac arrest is abnormality in the heart rhythm which is usually not detected at an early stage, increasing the risk of a cardiac arrest. Hence it is of utmost importance to find abnormalities in the ECG signal as early as possible and classify data for further analysis. In this project, we propose a prototype which can be used to classify ECG signals, transfer the data and inform the doctor for immediate medical aid. In this system, the person will be carrying a portable device which has the ability to sense the regular working of the human heart and also keeps a check on any abnormalities in the ECG signal. This system can also be employed in the ambulances, wherein the details about the patient's condition on the way to the hospital can be wirelessly communicated to the respective doctor/hospital.</p>		

IMPLICATIONS OF NETWORK MEASURES IN THE CONTEXT OF REAL-ESTATE COMPLEX NETWORKS		
SL.NO	USN NO.	NAME
1	1MS14TE002	ADITYA BHAT
2	1MS14TE042	SANTOSH KUMAR THOTA
3	1MS14TE057	UDITH MANOHAR KALBURGI
Mentor Name	External Mentor : Sandeep Kumar E Internal Mentor : Kusuma S M	
ABSTRACT		
<p>Real estate investment has gained a lot of interest from past several years due to its ability to provide good long term profit returns. It is considered to be safer than the other investment options like bonds and stocks where we see lot of fluctuations in the price market. However, when it comes to purchasing, selling and renting processes of real estate, there are many factors that play a vital role in an individual's decision making. In this project, we consider the social factors that affect the real estate investment and find the top significant attributes that have a major influence on investment market. We use Artificial Neural Networks (ANNs), Linear Regression(LR) and Weighted Sum Model (WSM) for this purpose, also providing hypothesis testing on the probability distributions of the obtained attributes. The designed algorithm provides an automated means for the study of behavioral economics towards real estate investment. We have implemented our method on the official real estate MLS database called TerraFly of Miami Beach as our case study.We construct a complex network and derive useful network measures and justify its implications w.r.t real estate of Miami Beach city. We provide a GUI for network visualization and allow user customization.</p>		

SMART CLASSROOM TECHNOLOG USING BIOMETRIC SENSOR		
SL.NO	USN NO.	NAME
1	1MS14TE039	SAI CHARU LALITHA S.S
2	1MS14TE044	SHAGUN SEZWAR
3	1MS14TE046	SHREYAS KRISHNAMOORTHY
4	1MS14TE062	ADITYA SHEKAR C.D
Mentor Name	Prof. Venu K N	
ABSTRACT		
Smart Classrooms are technology enhanced classrooms that foster opportunities for teaching and learning by integrating learning technology, such as computers, specialized software, audience response technology, assistive listening devices, networking, and audio/visual capabilities. Smart classrooms involve the use of biometrics systems to take care of attendance as well as performance statistics of the students rather than conventional methods of having a handwritten register. Also includes smart notice board to keep the staff and students well informed and updated with the currents scenarios around the campus.		

JOINT ANGLE COMPUTATION FOR BASKETBALL JUMP SHOT		
SL.NO	USN NO.	NAME
1	1MS14TE034	RAHUL GOPAL
Mentor Name	Mr. S.J Krishna Prasad	
ABSTRACT		
<p>The dynamics of a sportsperson will define his abilities, strengths and his focus during his sports sessions. In real time based scenarios like practice sessions sports persons are not fully aware of the data regarding their body movements because of the technological gap. This factor is to be considered in particular which will give him scope to improve himself in achieving in his respective sport. This project aims to bridge this technological gap by developing a camera based system calibrated to capture and analyse the movements of a basketball player during training sessions and enables him to gather data which creates a knowledge base for his improvement. Its uses a set of image processing algorithms developed and tested in MATLAB environment thereby helping to create this knowledge base. This algorithm is based on color segmentation and motion based object tracking which helps to segment the markers placed on a basketball player's arm and computes the angle between them. Thus, determining the joint angle and velocity (in terms of pixels per second) at which the shot was made which are important factors to be considered in basketball shot analytics.</p>		

MUSCLE FATIGUE MEASUREMENT USING EMG		
SL.NO	USN NO.	NAME
1	1MS15TE406	PRASHANTH N
2	1MS15TE410	SUBRAHMANYA GOUDA
3	1MS15TE411	VEERESH HIREMATH
Mentor Name	Dr. Vishwanath Talasila	
ABSTRACT		
<p>In this project, we propose to design and develop a low cost portable wireless EMG system which is used to measure muscle activity. With the help of the developed EMG system we will show the effect of muscle fatigue, which we will compare using an industry grade “Hand Dynamometer” by Vernier technologies. The aim to study the relation of the muscle activity with respect to the applied force on the Hand Dynamometer. Two broad experiments- 1) Hand grip test and 2) Pinch test will be conducted across various group of people will be done to determine the rate of muscle fatigue among the various test subjects.</p>		

IN-PIPE INSPECTION ROBOT		
SL.NO	USN NO.	NAME
1	1MS14TE015	KAVYASHREE M.S
2	1MS14TE026	NIHARIKA S.N
3	1MS15TE402	CHANDRASHEKAR G N
4	1MS15TE403	POOJASHREE G M
Mentor Name	External Mentor : Rajesh sir, Manjunath sir Internal Mentor : Parimala P	
ABSTRACT		
<p>The complex internal geometry and hazard content constraints of pipes demand robots for inspection of such pipes in order to check corrosion level of pipe, recovery of usable parts from pipe interior, sampling of sludge and scale formation on pipe internal surface etc. Several designs of In-pipe inspection robots (IPIR) have been proposed in the literature to solve the problems related with inspection of these complicated internal geometries. Designing of an in-pipe inspection robot (IPIR) is a difficult task and hence we must take care of the design issues like Mobility, Turning radius, Size and shape adaptability, Flexibility, Stability, safe operation and obstacle avoidance, Material selection, Type of task to be performed inside the pipe, Operation in active pipe line, Quantitative analysis of defects inside the pipe. Based on above, this project is pertained for development of new model In-pipe inspection robot to overcome some critical design issues. This proposed model is a screw drive type wall press adaptable wheeled In-pipe inspection robot. It is able to move through horizontal pipes and it can pass through the pipe line. This model comprises of three modules- rotor and control unit. The Rotor module has three wheels mounted on the outer periphery. Wheels of rotor follow the helical path on the internal surface of pipe line and move in the longitudinal direction inside the pipe.</p>		

PC HEALTH MONITORING		
SL.NO	USN NO.	NAME
1	1MS14TE007	BHUMIKA SHREE B
2	1MS14TE025	NANDITA PRASAD
Mentor Name	External Mentor : Dr. D. Roy Mahapatra Internal Mentor : Dr. B K Sujatha	
ABSTRACT		
<p>In large data centers, laboratories and research institutes, the working of computer systems is critical. Even small errors can cause considerable damage. Most, if not all, of the data is stored in Hard Disk Drives. A hard disk drive (HDD) is one of the core components of most computer systems. A HDD failure may cause serious data loss and catastrophic consequences. HDD failure in normal computer systems can be a nuisance, especially since most users neglect to backup data regularly and may lack the know-how of scanning disks and interpreting performance data acquired from their disks. Thus, health monitoring and anomaly prediction for HDD are critical to prevent data loss and make strategies for data backup. In this project, a linear SVM prediction model for HDD failure is developed using S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology), which provides a way to measure drives' performance characteristics without intrusion. The Head Disk Interface (HDI), spindle motor and head stack assembly related failure and their relevant performance parameters are identified as the dominant failure mode and health monitoring parameters respectively. Furthermore, a Graphical User interface (GUI) is developed for notifying the user about the HDD health status and performance.</p>		

IOT ENABLED PLANTATION MANAGEMENT SYSTEM

SL.NO	USN NO.	NAME
1	1MS14TE049	SOMNATH
2	1MS14TE006	ARUNKUMAR
3	1MS15TE404	MANOJ CHOWDHARY
4	1MS14TE055	TIMMAREDDY
Mentor Name	Arvind kumar	

ABSTRACT

The internet-enabled plant sensing systems, will be able to watch your garden grow from the couch. For some of us, caring for a single potted plant is quite enough responsibility, hence our prototype promises to take this responsibility. Apart from monitoring it also actuates water flow keeping the soil parameters and eco-space of plant optimal. Due to lack of power availability in remote villages such as maintenance of agricultural devices like Electronics devices, Electrical motors etc. will be difficult. The development of plant disease in spite of pest control become common and in the rise nowadays .The disease in plants is identified based on the symptoms such as colour spots on leaves streaks on leaves, stem and seeds.

SMART ARM SYSTEM

SL.NO	USN NO.	NAME
1	1MS14TE037	PRADEEP KUMAR
2	1MS14TE059	VINAY KUMAR J
3	1MS14TE061	YOGESH SURESH
4	1MS14TE065	RAKESH N R
Mentor Name	Ramya H R	

ABSTRACT

Smart arm was sewn in such a way to be aesthetically indistinguishable from an everyday glove. The final product felt very comfortable to wear, looked good, and was functional; however, it was still transmitting its gestures in raw text. Thus, an Android Smartphone application had to be created. our app connects wirelessly to the glove, and displays and "speaks" the English translations to the sign language gestures being signed. This device can be used to learn sign language and helps bridge the communication barrier with which a mute or deaf person is faced, when communicating with someone unfamiliar with the language.

SOLDIER TRACKING SYSTEM USING LORA TECHNOLOGY

SL.NO	USN NO.	NAME
1	1MS14TE041	SANKARSHAN JOSHI
2	1MS14TE047	SHRIPAD RAO
3	1MS14TE063	MANJUNATH SHERKHANE
4	1MS13TE025	MANOJ BAGRE U
Mentor Name	Umesharaddy	

ABSTRACT

LoRa Technology helps in tracking the soldier in the battlefield where no Wi-Fi facilities are available becomes an important factor in any nation's security. So, by using biomedical sensors and GPS system we are trying to implement the life guarding system for soldiers in high reliability and low cost. Temperature sensor detects the body temperature of the soldier, pulse rate sensor detects the pulse rate of the soldier and finger print sensors are used to distinguish between the soldiers. GPS is used to track the soldier.

AUTONOMOUS AGRICULTURAL ROBOT		
SL.NO	USN NO.	NAME
1	1MS14TE008	BIBI SANA A SHAIKH
2	1MS14TE038	SAHANA BHASKAR
3	1MS15TE407	RANJITHA T N
4	1MS15TE408	SOWMYA
Mentor Name	Dr S.G. Shivaprasad Yadav	
ABSTRACT		

The present methods of seeding, plowing and plant cutting are problematic. In olden days technology was not developed that much. So they were seeding by hand. But nowadays technology is developed. So now it's not necessary to do seeding in sunlight. By using robot technology one can sit in a cool place and can do seeding by monitoring the robot motion. Purpose of this work is to increase the production, Efficiency in agricultural field by developing a mobile autonomous robot which has the capability of like seeding, plowing, moisture detection, fire detection using temperature, etc. The Design of General Purpose Autonomous Agricultural Mobile-Robot "AGROBOT" system has two main sections like seeding, plowing which are inter-communicated using communication technologies. The control station as well as robotic station possesses the amenities viz., temperature sensor, moisture sensor, and seed dispenser, and seed storage, robotic system with motors, microcontroller, and battery energy. Complete agriculture land will be divided into columns and number of steps. User selects any of the 3 options i.e. seeding, plowing Here the robot keep moving in a one direction, the 2 ultrasonic sensors will detect the plants on both left and right side and plant cut automatically. The gross cutting is done by DC Motor. The complete project process will be displayed on LCD screen and the power to robot unit produced through battery energy. And the all operations are performed using AGROBOT.

INFINITY MIRROR		
SL.NO	USN NO.	NAME
1	1MS14TE001	ABDUL HAKEEM S
2	1MS14TE004	AKSHAY J
3	1MS14TE020	KUMAR SUYASH
4	1MS14TE022	MAYUR RAMESH RAO MANE
Mentor Name	Internal Mentor: Venu K.N.	
ABSTRACT		

This project has been developed within the context of a time where every day we see more and more connected devices. The Internet transformed our lives by connecting us more easily to information and other people in the virtual world. The genesis of the idea lies in creating a commercially viable device (viz. in this case, a mirror) to render basic information to the customer. In an age of information, the user requires necessary data to be delivered as an integral part of daily activities. A mirror being an excessively common appliance used in most middle-class homes, we choose it as a starting point for a broader implementation in the future for the delivery of customizable information. In mirrors, we see our reflections, but what happens when you combine the idea of a mirror with technology? What possibilities are there and how smart could a mirror be? These are some of the questions that inspired our choice for final year project, a project which aimed to develop a smart mirror. The device was to go beyond an ordinary mirror, to have a screen inside that you would be able to interact with by using voice commands.

GAIT ANALYSIS FOR GYM APPLICATIONS		
SL.NO	USN NO.	NAME
1	1MS14TE023	MEGHARJUN V N
2	1MS14TE027	KOTA NIKHIL
3	1MS14TE009	B. SAI NITHIN
4	1MS14TE005	ANIRUDHA PARTHASARTHY
Mentor Name	Dr. Viswanath Talasila	
ABSTRACT		
<p>We aim to develop portable wearable motion capture technology with additional heart rate and Electromyography sensors which track an individual's progress during each training session and to understand sports injuries and prevention .We feel this concept will enhance the capability of the current Electronic Performance Tracking Systems employed in the sports industry .In addition to providing real time gait analysis our sensors also provide information on the development of muscle strength,muscle growth, effective training sessions, calorie count, posture adjustment, BMI, energy expenditure models, Heart rate variability , heart rate during a workout .We are also developing machine learning algorithms to analyse the data to construct a platform to judge each performance session of an athlete and provide classification of proper and improper movements.</p>		

DEVELOPMENT OF INTELLIGENT ACCIDENT DETECTION/NAVIGATION ALERT SYSTEM FOR HIGHWAYS USING		
SL.NO	USN NO.	NAME
1	1MS14TE060	YAZAT SHARMA
2	1MS14TE043	SAURAV SHA
3	1MS14TE033	PRIYA PAUL
4	1MS12TE022	GAURAV MATTA
5	1MS11TE047	SAKET KUMAR
Mentor Name	Internal Mentor: S.J. Krishna Prasad	
ABSTRACT		
<p>Nowadays popular news in media is about road accidents. In real time after the onset of accidents there is a fear among the masses to extend help to victims of accidents because of the law proceedings which they have to undergo. Technological gap is present to help victims on the accident spot. This project primary objective is to give solutions for these types of problems. The aim of project is to design & develop intelligent accident detection, navigation & alert system that could capture not only the occurrence of an accident but also the intensity and timing, of the same in the highways. Presently technologies have not been developed in these directions. Eventually, the system developed find it's utility also in metropolitan cities.The system is portioned into three major segments, the first part, Gyroscope sensor associated with programming to give indications to the nearest hospital and police server. The second part, Data capturing part which includes the hospital server and as well as the police server using raspberry pi processor .The third part, which assists ambulance to reach the accident location in minimum time taking traffic into consideration.</p>		

SMART PARKING SYSTEM		
SL.NO	USN NO.	NAME
1	1MS14TE045	SHREYANKA .N
2	1MS14TE048	SHUBHANGI .T
3	1MS14TE050	SOUNDHARYA .A
4	1MS14TE064	LAKSHMI PRIYA .R
Mentor Name	Internal Mentor: Parimala P	
ABSTRACT		
<p>Finding a parking space in most metropolitan areas, especially during the rush hours, is difficult for drivers. The difficulty arises from not knowing where the available spaces may be at that time; even if known, many vehicles may pursue very limited parking spaces to cause serious traffic congestion. In this project, we propose a Smart Parking System that helps the user to automatically find a free parking space. Interfaced using MSP430 microcontroller. The technology used is RFID based system along with an LCD display. The main motive of this project is to provide user-convenience and reduce human-effort by automating the entire process of vehicle parking. A driver who enters the entrance of the parking arena is given a unique RFID. Upon receiving this ID, he does not have to worry about manually parking his car, as it is taken care of by this smart parking facility. A lift mechanism is provided supported by 3 motors (dc, stepper and servo), which parks the car in the pre-allocated ID slot number. Further, even retrieval of the parked car is made possible by this system by using the same RFID.</p>		

SATELLITE MISSION FOR THE STUDY OF EPOCH REIONIZATION		
SL.NO	USN NO.	NAME
1	1MS14TE040	SAMSKRUTHI GANJAM
Mentor Name	External Mentor: Ravi Subrahmanyam, Udayashankar N, Raman Internal Mentor: Swetha Amit	
ABSTRACT		
<p>The redshifted 21 cm signal resulting from the spin flip transition of neutral hydrogen is a powerful probe for the study of Cosmic Dawn and Reionization, when the first stars formed out of the primordial gas and first light pervaded the Universe. The sky-averaged or global radio sky spectrum is predicted to exhibit spectral distortions at low frequencies ranging from 40 to 200 MHz, which arise due to interactions of the primordial hydrogen at those epochs with the relic Cosmic Microwave Background (CMB). A detection of these features will aid in determining the nature and formation of the first stars, galaxies and black holes and the state of the universe at times 100 million to 1 billion years after the Big Bang. Additionally, the measurements are useful in probing the thermal evolution of gas between the first galaxies, as they it is heated and ionized by the first light. These radio spectral features are orders of magnitude weaker than the Galactic foreground, thereby requiring high precision instruments with minimum systematics for the detection. Low frequency observations from Earth are corrupted by man-made terrestrial radio frequency interference, effects of ionosphere, auroral radio emissions, solar radio emissions and ground absorption/emission/reflections. Hence, the science requires design of a satellite payload in lunar orbit for the detection of the weak cosmological signal through observations from the lunar farside, which provides a radio-quiet environment. Here, we present a science instrument consisting of a frequency independent antenna which is an arrangement of two back-to-back discones, whose simulations exhibit a good frequency independent performance. We implement the SARAS 2 receiver which follows the back-to-back discones, consisting of the antenna front-end and digital spectrometer.</p>		

CONNECTED SMART MARKET		
SL.NO	USN NO.	NAME
1	1MS14TE011	HEMALATHA R V
2	1MS14TE030	PEARL NISHITHA PAIS
3	1MS14TE032	PRAKRUTI P KUMAR
Mentor Name	Dr. S G Shivaprasad Yadav	
ABSTRACT		
<p>According to the Time Use Institute, the average shopping trip takes 41 minutes. If you multiply that by the 1.5-trips per week average, that's over 53 hours per year you're spending in the grocery store. Searching for products in a retail store is not as easy as typing in the keywords on an online portal. Very rarely do we find things that we are particularly looking for within the first five to ten minutes. How convenient would it be if we could get access to information regarding the products and its placement inside a store. Well, this is not a thing of the future anymore. We propose to make an IoT based 'Connected Smart Market'. With the help of bluetooth beacons the consumer can navigate to a product of his choice. Added to this the beacons also advertise to the mobile devices that come within the range of each of them. These advertised messages contain promotional offers which can be availed during checkout. Once the desired product is bought, the person can scan the bar code and add it into a virtual cart. This avoids the long queues at the supermarket. Also an automated bill for the products bought will be generated. Added to this, the entire supermarket will be made smart by interfacing various sensors in different places inside the supermarket. The sensor data will be made available to the owner or the manager who can closely monitor the environment of the market and hence manage it efficiently.</p>		

REAL TIME ANIMATION AND VISUALIZATION OF GAIT		
SL.NO	USN NO.	NAME
1	1MS11TE060	UTKARSH SINGH
2	1MS12TE048	SAUMYA KUMARI
Mentor Name	Dr.VishwanathTalasila	
ABSTRACT		
<p>Real time visualization has recently attracted quite an interest from the graphics community and as interactive applications become even more complex. There is a natural demand for new and unexplored application scenarios. Recent developments in computer animation have made available more advanced method to visualize human moments. these find application in entertainment, education, scientific visualization, ergonomic evaluation and as a medium for artistic expression. two of the principal objectives which need to be addressed if human figure animation is to become more practical are the convenient, high level specification of moment sequences and the product of truly realistic movement. in order to provide convenience means of specifying moments there has been tendency away from cell animation, where the user defines key positions in time ,towards higher level of control, where moments are specified as tasks like, walk to the door, run till the gate. Computer knows about these tasks, decomposes them and calculates the proper joint angles over time. This paper introduces human locomotion based on these principles. A generic locomotion, forces and torque which controls the model, mechanical or robot like appearances of the simulated motion, these are the basic principle uses in animation.</p>		

