MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Autonomous Institution – UGC, Govt. of India

Accredited by NBA & NAAC with 'A' Grade

NIRF Indian Ranking, Accepted by MHRD, Govt. of India | Rank band 6th to 25th , National Ranking by ARIIA

Maisammaguda, Dhulapally, Secunderabad – 500 010, Telangana

A.Y : 2020-21 **VOL.1**

Under

Student Chapter IEEE, IETE & Technical Association Electropheenix

ELEKTOR

HALF YEARLY TECHNICAL MAGAZINE

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

E E E

www.mallareddyecw.com

DEPARTMENT VISION

- To develop competitive industry ready electrical engineers by establishing traditions, which will foster creativity and growth of excellence to effectively meet the technological requirements..

Vision

DEPARTMENT MISION

- To develop proficiency by imparting application oriented knowledge and inculcate analytical thinking to solve the technological problems associated with analyzing, designing and testing electrical systems.

Mission

ABOUT THE DEPARTMENT

The Department of Electrical & Electronics Engineering is accredited by NBA, with an intake of 60 students. The Dept. has state of the art laboratories with latest softwares like MATLAB, ORCAD, SCI LAB, PSPICE and Multisim. We have well qualified faculty members. Several faculty members have received their best teacher awards from institutions of International repute and have been working on research and development projects and regularly publish their work in international journals and conferences. EEE department faculty teams attained patent rights for their technological innovations. The Dept. established IEEE, ISTE student chapters under which it organizes National Level Technical Symposium -FUTURE SASTRA & State Level Technical Symposium- MEDHA every academic year. The Dept. organized National conference on "Emerging Trends in Electrical Systems & Engineering" NCETESE, International Conference on "Emerging Trends in Electrical Systems & Engineering"(ICETESE) every year since 2014, The Dept. organizes Faculty Development Programmes, Refresher courses and workshops in different streams and Student Development Programmes like Workshops, intra college conferences, Industrial visits , Guest lectures and our students actively participate in hackathon programmes conduct at state and National level. Our students are actively participated and won prizes in curricular activities organized by other colleges. The Dept. also organizes regular student seminar sessions of two hours per week for I to IV B.Tech student to enhance their all round performance.

The Dept. also offers value added certification Courses on oxford, Microsoft, CISCO certification through Oxford University, Microsoft Innovation Centre and CISCO Networking Academy respectively. The College Offers Campus Recruitment Training Programmes in collaboration with TIME and FACE Institutions. The Department also publishes the Registered Journal "International Journal of Research in Signal Processing, Computing and Communication-System Design (IJRSCSD) with an ISSN: 2395-3187.

PO'S

PO1	Engineering knowledge	An ability to apply knowledge of mathematics (including probability, statistics and discrete mathematics), science, and engineering for solving Engineering problems and modeling
PO2	Problem analysis	An ability to design, simulate and conduct experiments, as well as to analyze and interpret data including hardware and software components
PO3	Design / development of solutions	An ability to design a complex electronic system or process to meet desired specifications and needs
PO4	Conduct investigations of complex problems	An ability to identify, formulate, comprehend, analyze, design synthesis of the information to solve complex engineering problems and provide valid conclusions.
PO5	Modern tool usage	An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
PO6	The engineer and society	An understanding of professional, health, safety, legal, cultural and social responsibilities
PO7	Environment and sustainability	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and demonstrate the knowledge need for sustainable development.
PO8	Ethics	Apply ethical principles, responsibility and norms of the engineering practice
PO9	Individual and team work	An ability to function on multi-disciplinary teams.
PO10	Communication	An ability to communicate and present effectively
PO11	Project management and finance	An ability to use the modern engineering tools, techniques, skills and management principles to do work as a member and leader in a team, to manage projects in multi-disciplinary environments
PO12	Life-long learning	A recognition of the need for, and an ability to engage in, to resolve contemporary issues and acquire lifelong learning

PSO'S

The graduates of the department will attain:

PSO1: Analyze, Design and Implement application specific electrical system for complex engineering problems, Electrical And Electronics Circuits, Power Electronics and Power Systems by applying the knowledge of basic science, Engineering mathematics and engineering fundamentals

PSO2: Apply modern software tools for design, simulation and analysis of electrical systems to engage in life- long learning and to successfully adapt in multi disciplinary environments

PSO3: Solve ethically and professionally various Electrical Engineering problems in societal and environmental context and communicate effectively

PEO'S

PEO1-PROFESSIONAL DEVELOPMENT

To develop in the students the ability to acquire knowledge of Mathematics, Science & Engineering and apply it professionally within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability with due ethical responsibility.

PEO2-CORE PROFICIENCY

To provide ability to identify, formulate and solve engineering problems with hands on experience in various technologies using modern tools necessary for engineering practice to satisfy the needs of society and the industry.

PEO3- TECHNICAL ACCOMPLISHMENTS

To equip the students with the ability to design, experiment, analyze and interpret in their core applications through multi disciplinary concepts and contemporary learning to build them into industry ready graduates.

PEO4- PROFESSIONALISM

To provide training, exposure and awareness on importance of soft skills for better career and holistic personality development as well as professional attitude towards ethical issues, team work, multidisciplinary approach and capability to relate engineering issues to broader social context.

PEO5- LEARNING ENVIRONMENT

To provide students with an academic environment and make them aware of excellence, leadership, written ethical codes and guidelines and the life-long learning to become a successful professional in Electrical and Electronics Engineering

MESSAGES

Founder Chairman's Message

Ch. Malla Reddy

Founder Chairman, MRGI
Hon'ble Minister, Govt. of Telangana State

MRECW has made tremendous progress in all areas and now crossing several milestones within a very short span of time and now I feel very happy to know that the students and faculty of the EEE department of MRECW are bringing out the volume-2 of the Technical magazine Elektor in A.Y 2020-21. As I understand this magazine is intended to bring out the inherent literary talents in the students and the teachers and also to inculcate leadership skills among them. I am confident that this issue will send a positive signal to the staff, students and the persons who are interested in the educational and literary activities

Principal's Message

I congratulate the department of EEE, MRECW for bringing out the first issue of the prestigious half yearly department technical Magazine Elektor under A.Y: 2020-21, I am sure that the magazine will provide a platform to the students and faculty members to expand their technical knowledge and sharpen their hidden literary talent and will also strengthen the all round development of the students. I am hopeful that this small piece of literary work shall not only develop the taste for reading among students but also develop a sense of belonging to the institution as well. My congratulations to the editorial board who took the responsibility for the arduous task most effectively. I extend best wishes for the success of this endeavor.

Dr. Y. Madhavee Latha

Principal

HOD'S MESSAGE

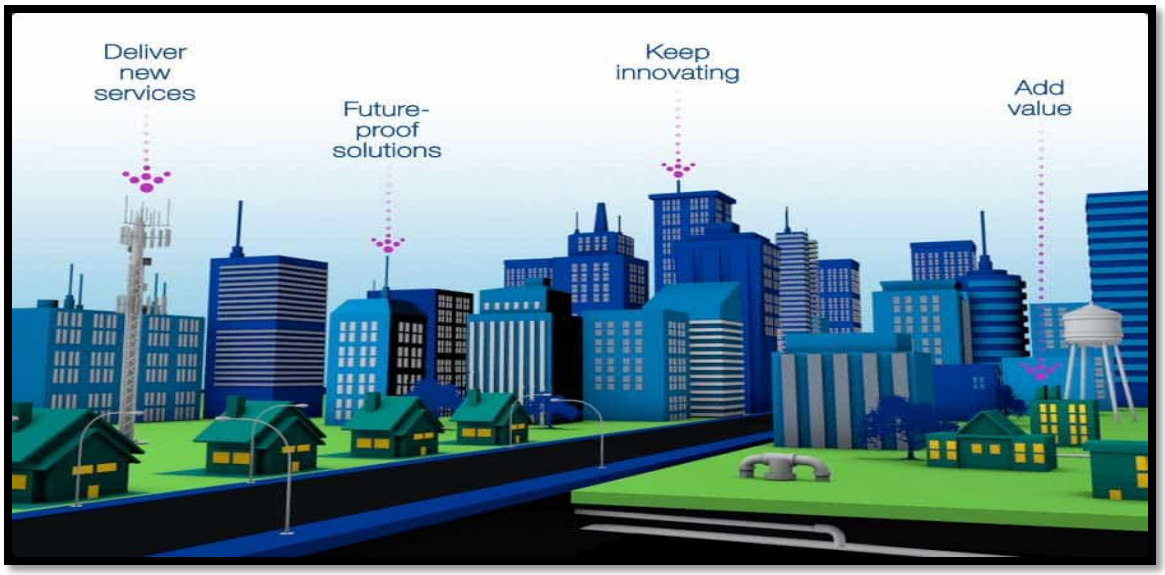
It is an occasion of great pride and satisfaction for the department of EEE, MRECW to bring out the first issue of the half yearly of the Technical magazine Elektor under A.Y:2020-21, it gives me immense pleasure to note that the response to the magazine has been over whelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them..

Prof. N. Raveendra

HOD

FACULTY ARTICLES

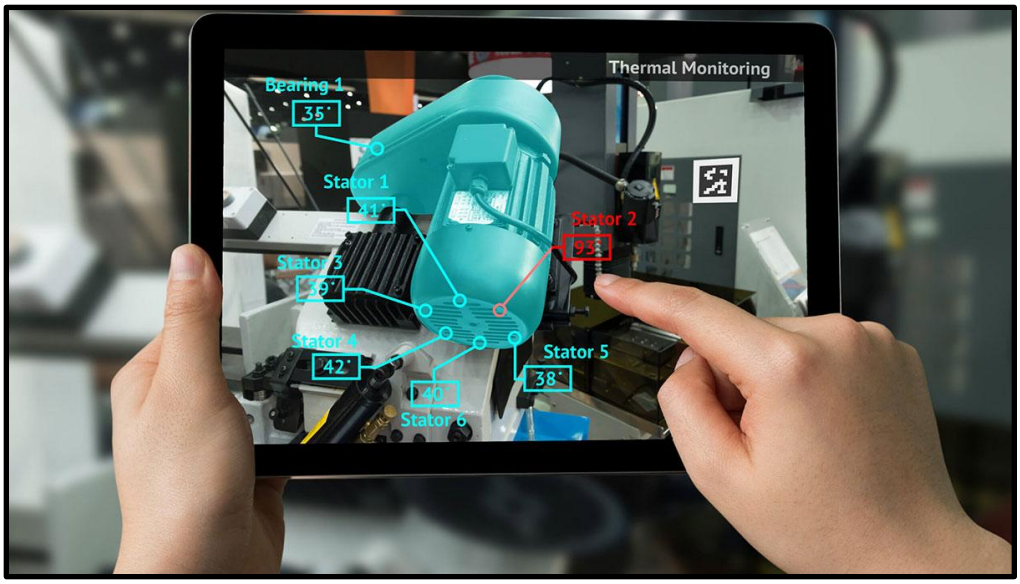
ROLE OF IOT IN SMART CITY



The massive deployment of Internet of Things (IOT) is allowing Smart City projects and initiatives all over the world. The IOT is a modular approach to merge various sensors with all the ICT solutions. With over 50 billion objects will be connected and deployed in smart cities in 2020. The heart of smart cities operations is the IOT communications. IOT is designed to support Smart City concept, which aims at utilizing the most advanced communication technologies to promote services for the administration of the city and the citizens. This presents a comprehensive review of the concepts of IOT and smart cities and their motivations and applications. Moreover, it describes the main challenges and weaknesses of applying the IOT technologies based on smart city paradigms. Cities are evolving and changing. And at Axis, we want to be a part of that journey, developing the urban areas of the future and creating cities that people love to live in. With our global expertise, experience, and partner network within public safety, urban mobility, and environmental monitoring, we want to share and inspire authorities about solutions that shape cities today and in the future.

A RAVI KUMAR
Assistant Professor

AUGMENTED REALITY

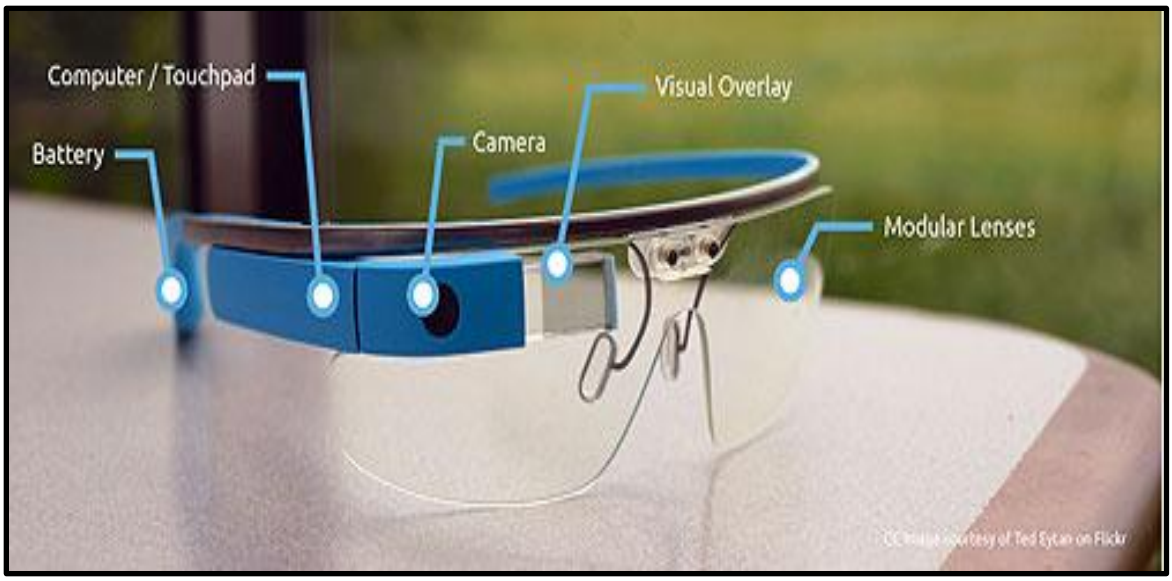


Augmented Reality is a combination of a real and a computer-generated or virtual world. It is achieved by augmenting computer-generated images on real world. It is of four types namely marker based, marker less, projection based and superimposition based augmented reality. It has many applications in the real world. AR is used in various fields such as medical, education, manufacturing, robotics and entertainment. Augmented reality comes under the field of mixed reality. It can be considered as an inverse reflection of Virtual Reality. They both have certain similarities and differences. This paper gives information about Augmented Reality and how it started. It analyses various types of augmented reality, its applications and its advantages and disadvantages. This paper also gives us knowledge regarding those major threats that augmented reality will face in the near future and about its current and future applications. It gives us a comparison between the two related topics, Augmented reality and Virtual reality. The following paper also helps us know about the effect of Augmented Reality on the human life.

P SREELATHA
Asst. Professor

STUDENT ARTICLES

GOOGLE GLASS



Google glass interacts with the world through android operating system. Google glass is a new and up to date technology which includes all options in smart phones and has internet facilities. Virtual reality and augmented reality are the two most commonly used features. Google has developed wearable computer named as optical head mounted display. It works with voice commands and useful for handicapped and disabled. It consists of 4G technology, android system, eye tap, smart clothing and wearable computer. Glass intuitively fits into your workflow and helps you remain engaged and focused on high value work by removing distractions. Using voice commands, you can activate the right application for you at any time. Access training videos, images annotated with instructions, or quality assurance checklists that help you get the job done, safely, quickly and to a higher standard. Glass can connect you with coworkers in an instant, bringing expertise to right where you are. Invite others to “see what you see” through a live video stream so you can collaborate and troubleshoot in real-time. With Google Meet on Glass, meeting participants can experience a first-person view of the Glass wearer’s perspective and collaborate with the video meeting in real time.

I ROHINI
17RH1A0216

EV BATTERY OF THE FUTURE

The release of the Gogoro Smartscooter in 2015 represented a turning point for electric mobility. With the challenge of energizing the vehicle and delivering an unparalleled riding experience solved, consumers finally had something to get excited about. Five years later, light electric vehicles powered by Gogoro Network™ Smart Batteries are the most popular electric two-wheelers in Taiwan and recognized internationally for their impeccable design.Gogoro has, from the beginning, envisioned the Gogoro Network and its Smart Batteries as a platform—not just products—which would one day enable vehicle makers to dream up any type of vehicle for all kinds of riders, all on top of one distributed, shared energy platform. Inspired by the possibilities of the Gogoro Network and Gogoro's innovations in battery technology, starting in 2019, major vehicle makers, like Yamaha and Aeonmotor, began developing their own models that seamlessly integrate into the Gogoro Network. A testament to Gogoro's vision of not just creating products people love but their ability to move a whole industry forward. And along the way, the smarts built into the Gogoro Network Smart Battery taught us more than we could have ever imagined. Data collected from Gogoro Network Smart Batteries now inform real-time pricing at GoStations, urban planning in cities.

K NANDINI
17RH1A0224

POWER QUALITY ANALYZER

A power quality anayzer is used to measure electric power signals to determine the load's ability to function properly with that electric power. Without the correct electric power, electrical equipment may fail prematurely or malfunction. There are many different different factors that contribute to poor quality power.Power quality analyzers, such as any Fluke Series meter, track several electrical parameters, which include AC voltage, AC current power, and frequency. Electrical data parameters include demand and peak demand. Electrical demand is the actual amount of power that the monitored system uses. Peak electrical demand is the maximum amount of electric power that can be used. Typically, power parameters are measured in watts (W), volt amperes (VA), and volt ampere reactives (VAR). Watts are units of electrical power that indicate the rate of energy produced or consumed by an electrical device. Volt amperes equal the current flowing in a circuit multiplied by the voltage of that circuit. Volt ampere reactives identify the reactive component of volt amperes. Fluke power quality analyzers and power meters detect mystery disturbances: those upsets to a process or sensitive equipment operation that don't seem to correspond to any identifiable source of power disturbance. Such things as ground loops, high speed transients, lightning, and common mode electrical noise come to mind.

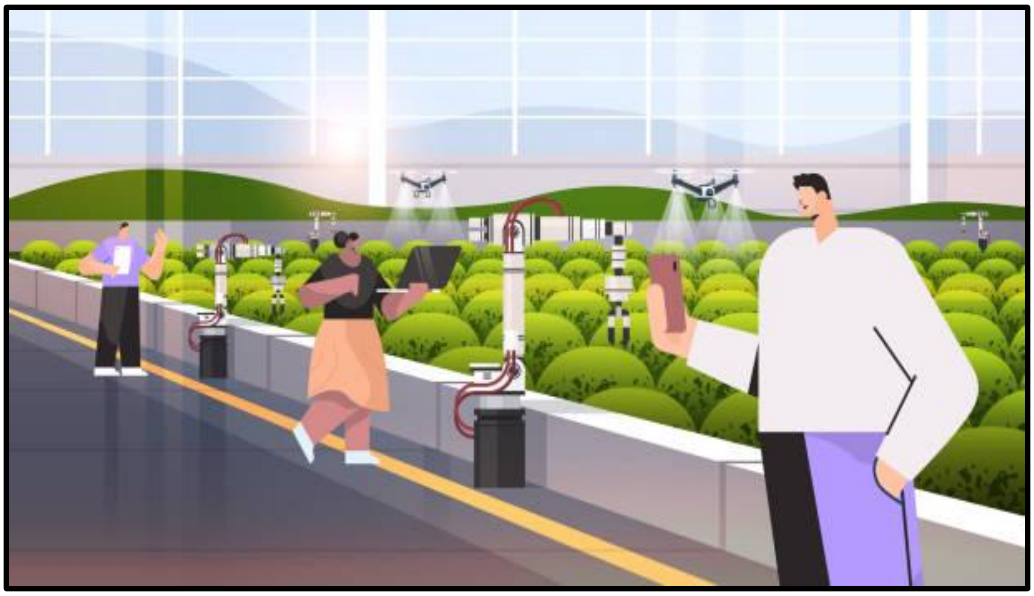
R VIJAYA LAKSHMI
17RH1A0228

HADOOP TECHNOLOGY

Hadoop is an open-source, java-based implementation of Google's Map Reduce framework. Hadoop is designed for any application which can take advantage of massively parallel distributed-processing, particularly with clusters composed of unreliable hardware. For example, suppose you have ten terabytes of data, and you want to process it somehow, (suppose you need to sort it). Using a single computer, this could take a very long time. Traditionally, a high end super computer with exotic hardware would be required to do this in a reasonable amount of time. his was how Tim tackled his problems; let's now have a look at how this story can be compared to big data and Hadoop. Data generation was once limited to a single format. It could be managed with one storage unit and one processor. Data generation gradually started increasing, and new varieties of data emerged. This started happening at high speed, making it more difficult for a single processor to handle.This is similar to how Tim found it difficult to manage alone when he expanded his business. Next in the Hadoop technology tutorial, we will learn all about Hadoop HDFS. HDFS is similar to the Google File System, as it stores data across multiple machines. The data is auto replicated to various machines to prevent the loss of data. In HDFS, data is split into multiple blocks; each of these blocks has a default size of 128 MB.

A MAHALAKSHMI
17RH1A0237

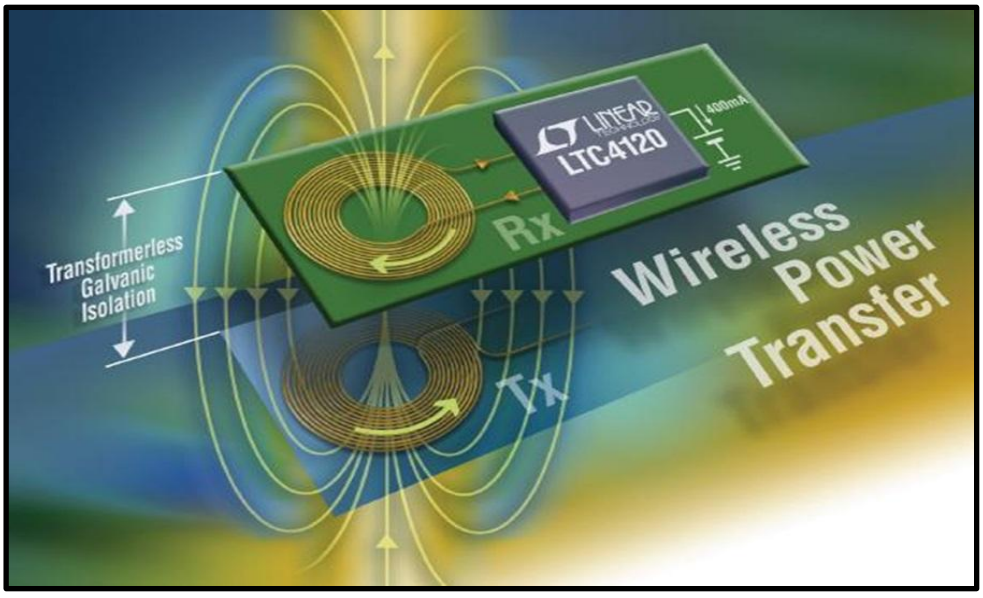
DRONES FOR SMART AGRICULTURE



One of main source of income in of India is Agriculture. The production rate of crops in agriculture is based on various parameters like temperature, humidity, rain, etc. Which are natural factors and not in farmers control. The field of agriculture is also depends on some of factors like pests, disease, fertilizers, etc which can be control by giving proper treatment to crops. Pesticides may increase the productivity of crops but it also affects on human health. So the main aim of this paper is to design agriculture drone for spraying pesticides. In this paper, we are going to discus different architecture based on unmanned aerial vehicles (UAVs). The use of pesticides in agriculture is very important to agriculture and it will be so easy if will use intelligent machines such as robots using new technologies. This paper gives the idea about various technologies used to reduce human efforts in various operations of agriculture like detection of presence of pests, spraying of UREA, spraying of fertilizers, etc. This paper describes the development of quad copter UAV and the spraying mechanism.

D VINEESHA REDDY
18RH5A0212

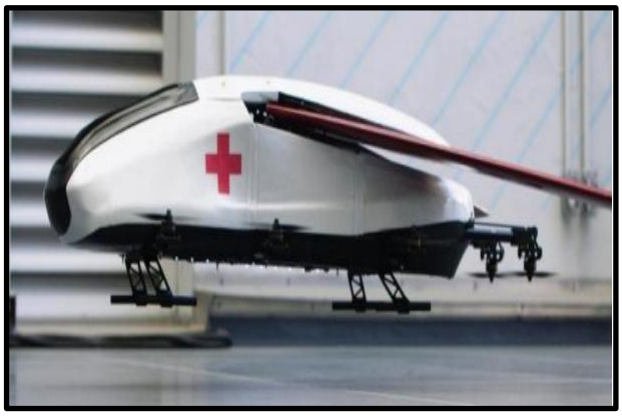
WIRELESS POWER TRANSMISSION

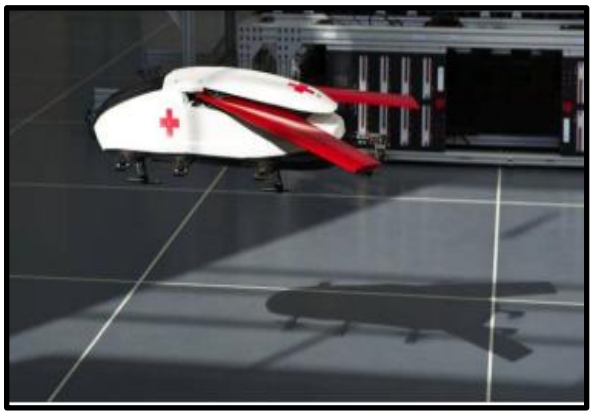


Wireless power transfer (WPT) is the transmission of electrical power without wires and is based on technologies using time-varying electric, magnetic, or electromagnetic fields. WPT is useful to power electrical devices where are inconvenient, or not possible, as is the case of body embedded sensors, actuators, and communication devices. Power can be transferred over short distances(near-field transfer) by alternating magnetic fields and inductive coupling between coils, or by alternating electric fields and capacitive coupling between metal electrodes. Inductive coupling is the most common method of WPT and is used in charging devices such as smart phones, electric shavers, visual prostheses, and implantable medical devices (cardiac pacemakers, cochlear implants) (Sun et al., 2013; Moorey et al., 2014) For 20 mm distance separation and size of the coil pair, loop diameter, and frequency play a major role in determining WPT performance (Celik and Aydin, 2017).

C SPANDANA
18RH5A0206

THE AMBULANCE DRONE





Putting a positive spin on drones, Netherlands' Delft University of Technology graduate Alec Momont designed an actual ambulance drone that helps people in distress. He states that it will decrease emergency response time from 10 minutes all the way down to 1 minute – and we definitely need the speed improvement. So the actual SUPER HERO Alec Moment even received a Frame Public Award last year for this fabulous invention. This life saving device travels up to 100km an hour. It arrives at each and every destination according to coordinates and even comes equipped with supplies. Despite a chronic shortage 6.5 lakh units of blood and its components are wasted because of not being transfused timely. Drones can overcome all these challenges and save countless lives by supplying blood and other essential supplies within minutes when and where the need arises. This reimagined ambulance concept comes down to a one-person drone modeled after a standard quadcopter, driven by a GPS, pilot, or combination of both, that could be dispatched to an emergency scene with a single EMT. Smaller than the conventional ambulance and helicopter (it is roughly the size of a small car), their drone is designed to be able to land almost anywhere. Once it reaches the scene of an accident, the EMT would deploy, stabilizes the patient, load them up, and send them back to the hospital for further treatment.

P SOUMYA
16RH1A0211

COMPUTER NETWORKING

Computer Networks have become an essential tool in many aspects: human communication, gathering, exchange and sharing of information, distributed work environments, access to remote resources (data and computing power) and many more. Starting from an historical overview, this paper will give an introduction to the underlying ideas and technologies. The second half will concentrate on the most commonly used network technology today (Ethernet and TCP/IP) and give an introduction to the communication mechanisms used. Computer networking refers to interconnected computing devices that can exchange data and share resources with each other. These networked devices use a system of rules, called communications protocols, to transmit information over physical or wireless technologies. Nodes and links are the basic building blocks in computer networking. A network node may be data communication equipment (DCE) such as a modem, hub or, switch, or data terminal equipment (DTE) such as two or more computers and printers. A link refers to the transmission media connecting two nodes. Links may be physical, like cable wires or optical fibers, or free space used by wireless networks.

R ANUSHA
17RH5A0210

SOLAR TREE

Solar Tree is used for placing so many panels in one place and can moving the panels in the sunlight directions. All the power in directed into one inverter.Place attention-getting solar structures on your property to tell the larger story of your efforts in sustainability, and to encourage others to do likewise. To make your Spotlight Solar “trees” more engaging, we offer a number of options. Integrated lighting, seating, and counters with places to plug in. Branding, signs leading to online content, full graphic wraps, and even augmented reality. Spotlight Solar structures incorporate beautiful solar panels in sculptural forms designed to inspire. Your customers will endorse you, employees will gain pride, and tenants will prefer your property. Place attention-getting solar structures on your property to tell the larger story of your efforts in sustainability, and to encourage others to do likewise. To make your Spotlight Solar “trees” more engaging, we offer a number of options. Get the Solar View app and you’ll be able to experience a Spotlight Solar structure on your property in about 30 seconds. Installed pricing is up to the integrator and is based on product selected, site conditions, and other factors. You can expect a fully installed Spotlight solar system to be in the range of $40,000 to $80,000 depending on the product chosen and quantity. Tax credits and recoveries can reduce this about 45%.

P SREELATHA
17RH1A0243

IOT BASED HOME AUTOMATION SYSTEM

The concept of Home Automation aims to bring the control of operating your everyday home electrical appliances to the tip of your finger, thus giving user affordable lighting solutions, better energy conservation with optimum use of energy. Apart from just lighting solutions, the concept also further extends to have a overall control over your home security as well as build a centralized home entertainment system and much more. The Internet of Things (or commonly referred to as IOT) based Home Automation system, as the name suggests aims to control all the devices of your smart home through internet protocols or cloud-based computing. IOT or internet of things is an upcoming technology that allows us to control hardware devices through the internet. Here we propose to use IOT in order to control home appliances, thus automating modern homes through the internet. This system uses three loads to demonstrate as house lighting and a fan. Our user friendly interface allows a user to easily control these home appliances through the internet. For this system we use an AVR family microcontroller. This microcontroller is interfaced with a wi-fi modem to get user commands over the internet. Also we have an LCD display to display system status. Relays are used to switch loads. The entire system is powered by a 12 V transformer. After receiving user commands over the internet, microcontroller processes these instructions to operate these loads accordingly and display the system status on an LCD display.

P SREELATHA
18RH5AO209

IMPORTANT WEBSITES

www.ieee.org/india

www.engineering.careers360

www.technologyreview.com

www.mathworks.in/products/matlab/

www.microwaves101.com/

www.eee.utoronto.ca/student-life-links

https://www.eee.org/

Science Commons.org

MathGV.com:

http://www.engineeringchallenges.org/

http://engineering.stanford.edu/announcement/stanford-announces-16-online-courses-fall-quart

http://www.tryengineering.org/

http://www.engineergirl.org/

http://www.discoverengineering.org/

http://www.eng-tips.com/

http://electricalbaba.com

http://efymagonline.com/

http://circuitglobe.com

www.techdoct.com

www.howstuffworks.com

http://nptel.iitm.ac.in

http://www.opencircuitdesign.com/

http://www.futuresinengineering.com/

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