

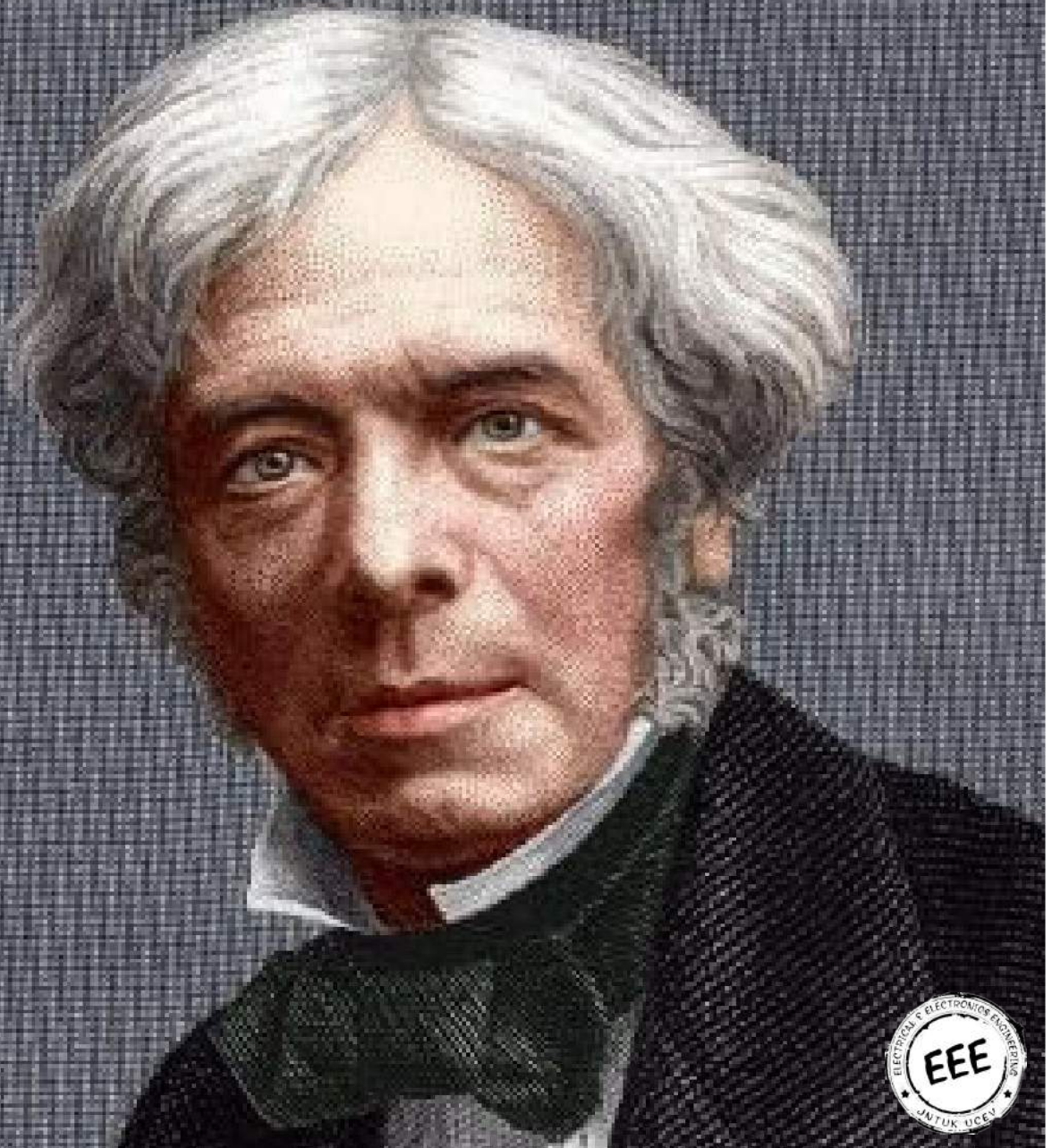


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
UNIVERSITY COLLEGE OF ENGINEERING VIZIANAGARAM

THE MEMOIR

- CHRONICLES OF EEE

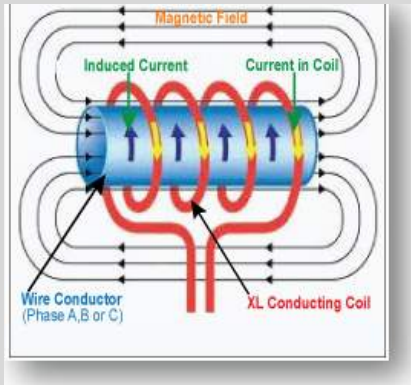
A SPECIAL EDITION ON THE EVE OF BIRTH
ANNIVERSARY OF MICHAEL FARADAY



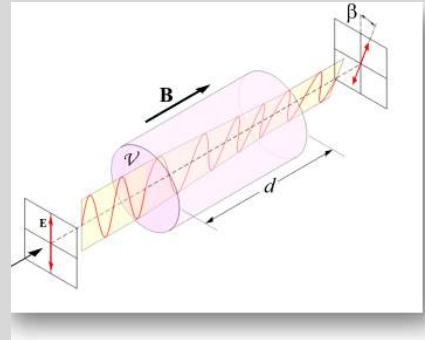
VOLUME-9

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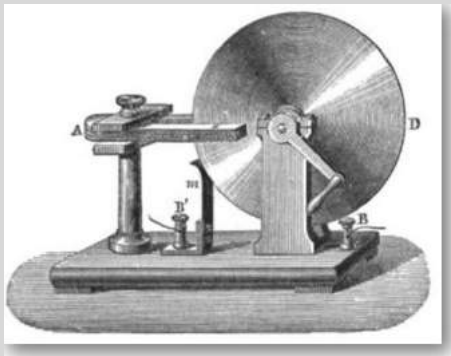
FARADAY INVENTIONS



*Faraday's law
of induction*



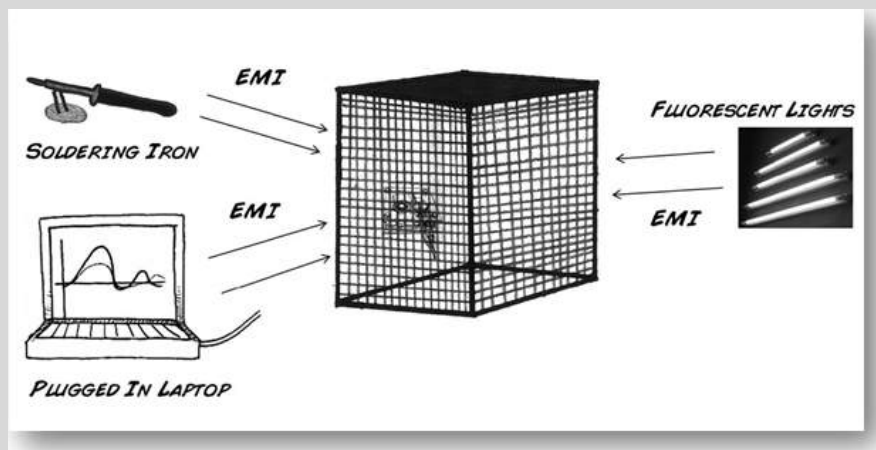
Faraday effect



Faraday wheel



Faraday cup



Faraday cage

EDITORIAL COLUMN

Dear Readers,

We, the department of Electrical and Electronics Engineering of JNTUK-UCEV, are proud to present you the 9th edition of our magazine “**THE MEMOIR-CHRONICLES OF EEE**” as a tribute to **MICHAEL FARADAY**.

We would like to show our gratitude to the principal, **Prof. G. Swami Naidu**, for his abundant support and making sure that the students are provided with authentic learning experience, Head of the department, **Smt. A. Padmaja**, who has continuously been motivating each and everyone around and making the surrounding stipulating and purposeful, all the faculty, department of Electrical and Electronics Engineering and fellow students for their continuous support in getting this magazine as a good output.

We are a way grateful to **Prof. G. Saraswathi** for her steadfast support always. We would like to extend our special thanks to **Dr. V. S. Vakula** for her constant support and approachability. We would also like to thank Smt. S. Rajitha, and all teaching faculty for sharing their knowledge and guiding us in this ever-changing 21st century.

A college Magazine aims at inculcating creativity in the students and serves as a platform to showcase their amazing artistic skills. This, we have kept in mind and have tried to include maximum number of creative entries by the students and this resulted in an edition consisting information about a scientist, graphene supercapacitors, smart solar energy monitoring system, electricity theft minimization using IOT, wireless charging, energy efficient technologies, blue eye technologies. General topics like current affairs and inspiring minds were also included.

We would like to express our considerable appreciation to all the authors of articles for showing their enthusiasm and creativity in carving the magazine, which is praiseworthy and will be visible to you as you flip through the pages. Enjoy the experience and do not forget to give us your feedback. We would always cherish your valuable comments and suggestions.

WE WOULD ALWAYS CHERISH YOUR VALUABLE COMMENTS
AND SUGGESTIONS.

THANK YOU
TEAM MAGAZINE

PRINCIPAL'S MESSAGE:



As the principal of JNTUK-UCEV, my primary focus is all about student learning. All the students must be prepared to be successful in 21st century careers-many of which do not even exist yet. Students must know to think, to solve, to innovate and to collaborate. If innovation and novel ideas are key to a bright future, then we can surely remain assured of our place under the pedagogic sun. Through this attempt of encouraging students towards the magazine, they get exposed to the modern innovations and this able them to develop their personality through learning about some of the great human beings.

I congratulate the editorial board on its tireless efforts in bringing out this publication of magazine “**THE MEMOIR**” of Electrical and Electronics Engineering department. I also extend my most sincere thanks to the ones who have contributed to this issue and enhanced its perfection through their articles.

HOD'S MESSAGE:



Today we live in a world where change is riding an accelerated pace and we need to pause and reflect on the entire education system.

I firmly believe that students must be taught how to think, not what to think. The magazine is a mirror reflecting the creativity of young minds. Everyday digital media becomes more important as a means of receiving, producing, sharing and broadcasting information. It's immense pleasure to note that the students of Electrical and Electronics Engineering department are bringing up their digital magazine "**THE MEMOIR**"-The Chronicles of EEE, for the year 2021 that go forth and do yourself proud...

I congratulate all the contributors and editorial group for the sincere effort in bringing out the magazine. This is a platform for you to reflect your vibrant talents in a creative way.

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MOTTO OF THE MAGAZINE

The issue that's now in your hands aims for the advancements in technology for the utilization of energy to a better extent.

Energy is the primary input for almost all the activities and is therefore vital for improvement in the quality of life. It's use in sectors like industries, commerce, transport, telecommunications, wide range of agricultural and household services has compelled us to focus our attention to ensure its continuous supply to meet the vigorously growing demands.

So, we need to conserve the energy. As we are having conservation in one hand and the better utilization of energy on the other hand, with the advancement of technology we can opt for the utilization of energy to the maximum extent. We have discussed about the alternatives to the existing conventional sources. Involvement of technology like IOT and many other to monitor and run have the technology playing a vital role in utilization, transmission, distribution sectors of energy.

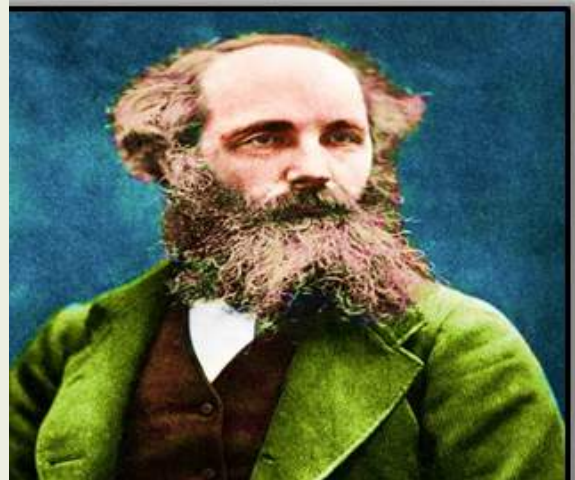
It's a quite long break to our regular mode of learning due to this pandemic. Also, the time to go back to our normal mode has come following all the precautionary measures and through this issue we tried to involved all the zeal and enthusiasm to provoke the hidden creativity in the minds. We made our earnest efforts to give a massive kick start to our regular mode of learning.

ABOUT A SCIENTIST

James Clerk Maxwell

James C. Maxwell studied at the University of Cambridge before holding a variety of professorship posts. Already known for his innovations in optics and gas velocity research, his ground breaking theories around electromagnetism, articulated in the famed Maxwell's Equations, greatly influenced modern physics as we know it.

Maxwell expressed Electromagnetism in the algebra of quaternions and made the electro-magnetic potential the centerpiece of his theory. In 1881 Heaviside replaced the electromagnetic potential field by force fields as the centerpiece of electro-magnetic theory. According to the Heavy side, the electromagnetic potential field was arbitrary and needed to be "assassinated".



JAMES CLERK MAXWELL

(sic) A few years later there was a debate between Heaviside and [Peter Guthrie] Tate (sic) about the relative merits of vector analysis and quaternions. The result was the realization that there was no need for the greater physical insights provided by quaternions if the theory was purely local, and vector analysis became commonplace.

Pioneer in Electromagnetism

Maxwell had continued his research on colour and made ground breaking discoveries around gas velocity. It was during Maxwell's time at King's College that he began to share revolutionary ideas around electromagnetism and light. Fellow physicist Michael Faraday had already championed the notion that electricity and magnetics were connected; Maxwell, via experimentation with vortexes, expanded on Faraday's work and came up with the theory of electromagnetic movement being conceptualized in the form of waves, with said energy traveling at light speed.

Maxwell also introduced the concept of the electromagnetic field in comparison to force lines that Faraday described. By understanding the propagation of electromagnetism as a field emitted by active particles, Maxwell could advance his work on light. At that time, Maxwell believed that the propagation of light required a medium for the waves, dubbed the luminiferous ether. Over time, the existence of such a medium, permeating all space and yet apparently undetectable by mechanical means, proved impossible to reconcile with experiments such as the Michelson-Morley experiment. Moreover, it seemed to require an absolute frame of reference in which the equations were valid, with the distasteful result that the equations changed form for a moving observer. These difficulties inspired Albert Einstein to formulate the theory of special relativity; in the process Einstein dispensed with the requirement of a stationary luminiferous ether.

MAXWELL'S EQUATIONS:

Maxwell's other scientific contributions included producing the first colour photograph, taken in 1861, and creating structural engineering calculations for bridge maintenance. He earned an array of awards over the course of his career, including the Rumford Medal, Keith Prize and Hopkins Prize, in addition to receiving membership in groups like the Royal Academy of Sciences of Amsterdam. Other publications included Theory of Heat (1871) and Matter and Motion (1877).

COURTESY:

<https://www.biography.com/scientist/james-c-maxwell>

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III B. Tech EEE

GRAPHENE CONDUCTORS

INTRODUCTION:

Modern society is increasingly hungry for power. The storage of energy from natural energy sources like sun, wind and wave is more problematic in particular, for short term accumulation and immediate rapid reuse. Hence the role of supercapacitors is developing in meeting this challenge. Before we discuss about graphene

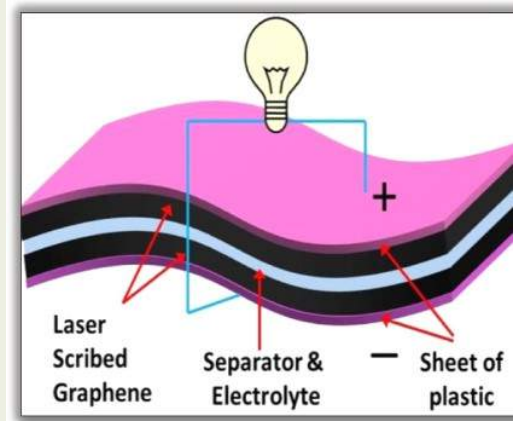
supercapacitors let's see what a supercapacitor is. A Supercapacitor is an energy storage device similar to batteries. While batteries release electrical energy from chemical reactions, Supercapacitors, also known as EDLC (electric double layer capacitors) generally store energy from static electricity and have higher capacitance values and lower voltage limits than traditional capacitors and can function somewhat like rechargeable batteries. Graphene supercapacitors use graphene instead of activated carbon in their electrodes.



DESCRIPTION:

Supercapacitors allow for the power density of capacitors not only they can deliver a lot of energy in quick bursts but also provide high energy storage capabilities and charging incredibly rapidly. Graphene helps to enhance supercapacitors because it is exceptionally conductive, so graphene supercapacitors are ideal for high-frequency applications, whereas traditional supercapacitors are not. The graphene-based materials are promising for applications in supercapacitors and other energy storage devices due to the intriguing properties, i.e., highly tuneable surface area, outstanding electrical conductivity, good chemical stability and excellent mechanical behaviour. Thus, as a supercapacitor material, it will be better at storing electrostatic

charge. But these have one major disadvantage i.e., having much lower energy density and that is why batteries have wider applications. And this takes us to Pseudo capacitors. Think of Pseudo capacitors as a bridge between batteries and supercapacitors as they maintain same advantages as super caps but have higher energy densities. By improving energy densities in them Lawrence Livermore National Laboratory developed an electrode out of 3d printed graphene aero gel that has the highest ratio of energy stored per unit surface area ever recorded for a supercapacitor.



APPLICATIONS:

- China is experimenting with a new form of electric bus that runs without power lines using power storage in large onboard supercapacitors, which are quickly recharged whenever the electric bus stops at any bus stop, and get fully charged in the terminus. A few prototypes were tested in Shanghai and 2 commercial bus routes also began to use supercapacitor buses. Germany also tested a bus which used a diesel electric drive system with supercapacitors.
- Back-up and UPS systems, consumer electronics.
- Systems of energy recuperation, Maintenance free applications.

CONCLUSION:

It appears that scientists are getting closer and closer to fill the gaps between batteries and supercapacitors. This is an exciting breakthrough in portable energy storage technology. Hopefully, in next 10 years we can see either battery replacing supercaps or solid-state batteries. Until then, we can dream of an incredible future.

COURTESY:

<https://www.graphene-info.com>

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III B. Tech EEE

SMART SOLAR ENERGY MONITORING SYSTEM

In today's rapidly advancing world of technology, development in one field boosts another. Exactly in the same way, advancement in the Information Technology field has enormously eased the monitoring challenges in the field of Solar Energy.

Renewable energy has started playing an increasingly important role for augmentation of grid

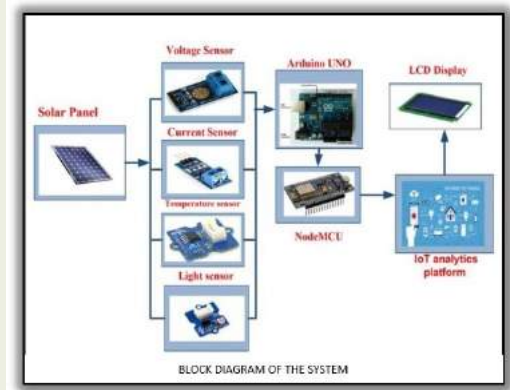


power, providing energy access, reducing consumption of fossil fuels and helping India pursue its low carbon development path. Launched in January 2010, the National Solar Mission (NSM) was the first mission to be operationalized under the National Action Plan on Climate Change (NAPCC). Using a three-phase approach, the mission's objective is to establish India as a global leader in solar energy, by creating the policy conditions for solar technology diffusion across the country as quickly as possible. The initial target of the mission of installing 20 GW grid-connected solar power plants by the year 2022 was enhanced to 100 GW to be achieved by the same target year.

Renewable energy sources play a vital role in the energy sector due to depletion of fossil fuel in the world, to fulfil ever increased demand of consumers and need for more reliable and low-cost energy supply. There is a need for PV storage as part of the modern grid-connected system. On the other hand, the potential benefits of including renewable energy sources in a grid are often difficult to realize due to their intermittent and highly unpredictable nature, the challenge in demand side energy management lays focus on the efficient utilization of renewable sources without limiting the power consumption. To deal with the above issue, it seeks for design and development of an intelligent system with day-ahead planning and accurate forecasting of energy availability.

WORKING OF PV MONITORING SYSTEM USING IOT:

The system described in this article is capable of measuring the values of voltage, current and temperature of the solar PV panel and also the intensity of the sunlight received by the panel. All the data were recorded by a microcontroller Arduino ATmega2560 and uploaded to the Internet by a wireless transceiver NodeMCU ESP8266. An open source of IoT cloud platform namely Think



speak is used to store all the data from the sensor and visualize it in the graphical representation, so the user can monitor the data remotely as long as the Internet connection is available. The monitoring can be done via Think speak website and also via Smartphone application that were designed using MIT App Inventor. The block diagram of the system is shown in figure here.

Conclusion:

An implementation of Internet of Things (IoT) in the monitoring of solar PV system consists of data acquisition, data gateway. The data acquisition was successfully collecting the data with accuracy. The data gateway was able to send the graphical representation of the data to the Smartphone application with a mean transmission time of a few seconds. The results demonstrate that the proposed monitoring system can be a promising solution for intelligent remote and real-time monitoring of a solar PV system.

COURTESY:

www.electricalindia.in

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III B. TECH EEE

ELECTRICITY THEFT MINIMIZATION BY IOT

INTRODUCTION:

Generation, transmission and distribution of electrical energy involve operational losses, in which the losses implicated in generation can be technically defined, but transmission and distribution losses cannot be precisely quantified with the sending end information. This illustrates the involvement of non-technical parameter in transmission and distribution of electricity. Overall technical losses occur



naturally and are caused because of power dissipation in transmission lines, transformers, and other power system components. Technical losses in transmission & distribution are computed with the information about total load and the total energy bill. While technology in the raising slopes, we should also note the increasing immoral activities. With a technical view, Power Theft is a non-ignorable crime and at the same time it directly affected the economy of a nation. Electricity theft is a social evil, so it has to be completely eliminated. Power consumption and losses have to be closely monitored so that the generated power is utilized in a most efficient manner. The system prevents the illegal usage of electricity. At this point of technological development, the problem of illegal usage of electricity can be solved without any human control using GSM and IOT. The implementation of this system will save large amount of electricity, and there by electricity will be available for a greater number of consumer than earlier, in highly populated country such as India, China.

Power theft can be defined as the usage of the electrical power without any legal contract with the supplier. With the increasing of internet connectivity in home environment electronic gadget used to create home network services. IOT use things to things connection to access the internet of things allow data to store and access services, such as remote home sensor. Services over internet of things development according to need of person to person and thing to

person, machine to machine interaction without human interaction. Technology used in this system is radio frequency identification. Transmission and delivery of electricity is the smartness in the utilization of renewable energies and advanced measurement and latest communication technologies as well utilities grow need to be smart. So, with smart utility of latest measurement and energy sources and load efficiently manage the key element of such a measurement and control network which could be a smart meter. A smart energy meter is used to minimize the electricity larceny.

WORKING PRINCIPLE:

At the beginning we need to install recommended operating system in SD card. So, we download the OS from web and then open win 32diskimager software and select the extracted select derive where extract file has to written.

I. Configure WIFI Module: Make sure our Wi-Fi adapter is plugged into the Raspberry Pi. Before the Wi-Fi adapter can be configured it need to be checked whether correct drivers are installed. With the help of SSH connection establish Wi-Fi USB dongle provided to raspberry pi remote desktop application. This provides a major role because with this remote desktop application we are able to connect raspberry pi over everywhere.

II. Coding section: Coding section is divided into two parts.

1) Write code: In this we write the code in python language according to the application and save it with extension .py.

2) Run Code: To run the code firstly open the LX terminal which is

3) placed on the raspberry pi desktop. Now enter the command to run the program.

III. Show result on website: Now login your website page by user id and password. After login meter status is show.

IMPLEMENTATION:

To implement our objective, get hardware raspberry pi and install the operating system. Energy meter communicate with Raspberry pi through GPIO pins. GPIO pins fetch the effective Data from energy meter and it send effective

data to the Raspberry pi, then connect Wi-Fi module with raspberry pi. After this, connect raspberry pi with the internet. At the Backend, where government person sees the status of energy Meter after successfully login with username and password and the status of energy meter are shown in the form of graphs. The entire implementation is being taken place in PYTHON surroundings. From the results it has been concluded that if there is any dishonest user then government person can find that dishonest user.

APPLICATIONS:

- The project is used to secure and avoid the power Theft.
- Used in distribution system.
- Can be used in AMR.
- Power Grid

ADVANTAGES:

- Security is automated
- Economy of country is saved.
- Alert can be generated through GSM even in the case of failure of internet.
- Does not affect the power transfer capability of line.

CONCLUSION AND FUTURE SCOPE:

This planned system has implementation of IOT. It is concluded that by using IOT technology, the government person can find the dishonest user and it can make sure of assigning agents for those who are impracticable to steal the electricity. With the use of this system, we can analyse dishonest user in the sector and can take necessary actions to eradicate the theft of electricity, which constitutes for the decrease in national economy.

COURTESY:

<https://www.researchgate.net>

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III B. Tech EEE

WIRELESS CHARGING

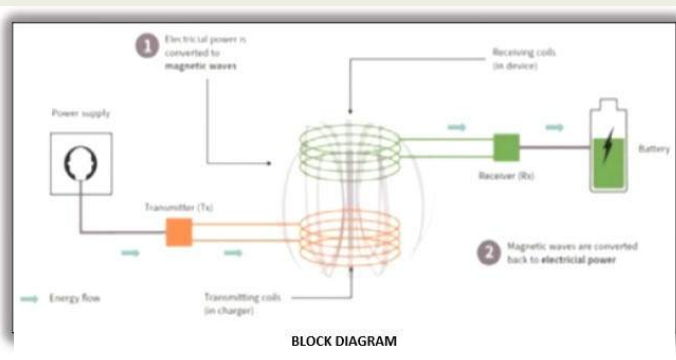
The current trend of smartening our devices is not dying down; we can find even more areas for automation and connectivity. Smart solutions are everywhere, invading our everyday life, even our homes. In our households more and more devices are being connected to the Internet, providing real-time data about the condition of our property, enabling us to set up a well-optimized system . We have devices in a continuously growing



number that have constant connection to the Internet, consuming more energy due to the persistent hard work of the processor in the background. For those that are battery-powered, so battery charging is essential. However, the more machines, gadgets we have, the more cables we need to connect them to the grid. With wireless charging you can easily get rid of tangled charging cables that have become a real issue in our life in the past couple of years. In this article we will provide an overview of wireless charging solutions. We give a special attention to the two wireless charging technologies, their most common design criteria and the benefits they offer compared to wired technology. Energy efficiency, shorter charging time and higher power density have been on the agenda for engineers for a while and significant improvement has been occurred.

Wireless charging pays off in comfort. Smart home denotes the use of technical systems, automated processes and connected, remote-controlled devices in apartments and houses. The main objective of the functions is to improve the quality of life and convenience in the home. Other goals are greater security and more efficient use of energy tanks to connected remote-controllable devices. Therefore, wireless charging is not just about charging phones. As people mostly charge at home, there is a plenty of devices that can utilize wireless power transfer technology, so we can easily eliminate the cable jungle in our living space. Of course, it is about more than making our home beautiful It for our comfort and flexibility to charge anywhere and everywhere.

We can charge our service robot (e.g., vacuum cleaner or lawn mower), laptops, desk phones, drones, security cameras, portable Bluetooth speakers, kitchen appliances, wearables, headphones, gaming



controllers, chargers integrated into lamps or furniture, power tools - the list is almost endless. Wireless charging removes the need for grid connection, thus eliminating plug compatibility issues, damaged cables with a risk of electric shock.

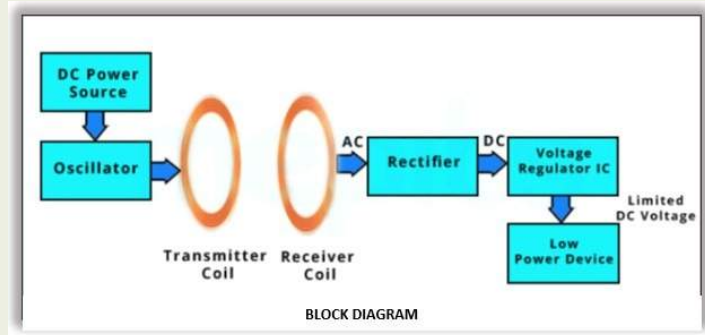
Two main technologies: Inductive and resonant Wireless charging solutions typically have three key elements; the transmitter, the receiver and the power supply. The adapter connects to the main supply and powers the transmitter, usually with a regulated DC voltage between 5 V and 20 V. The transmitter contains a MOSFET-based inverter to convert the DC power into an AC waveform and create the alternating magnetic field. In order to provide the flexibility and functionality required, the inverter is controlled by a microcontroller and associated MOSFET driver components. There are differences in the types of magnetic induction technology - inductive and resonant.

Inductive is currently the mainstream technology in the market, which is based on 110-205 kHz and communicates via in-band communication. Besides standard-conform Qi solutions, also known to be proprietary inductive designs, especially for watt classes above 15 Watts, are also available. The Wireless Power Consortium (WPC) supports the Qi and inductive standard for wireless charging and is continuously developing new specifications. From a technical perspective, Qi is an inductive standard that supports tightly coupled charging. This technology uses the standard single-coil inductive charge transmitter. This approach is the simplest and most prevalent solution, and consists of a single transmitter coil. It requires careful positioning of the device to be charged in relation to the transmitter coil and is only able to charge a single receiver device at a time. Extending this approach to multi-coil brings a number of benefits.

The positioning of the device needs to be much less precise, and smart systems can detect which coil is closest to the device being charged, and direct the power accordingly.

Innovative and cost-effective wireless charging designs:

Achieving high efficiency, superior user experience, and safety all at the same time requires a deep level of system knowledge and expertise as well as the use of excellent components.



The designer must understand antennas and interaction with surrounding structures, and how to implement precise control of power delivery. In the inductive, the main challenges are FOD (foreign object detection), stable in-band communication and authentication to protect the Qi ecosystem from non-certified and potentially dangerous solutions. FOD needs reliable components and enhanced methods to provide a good and safe user experience. Resonant is all about capacitances and advanced FET technology (silicon MOSFET and Ga N e Mode HEMTs). To master the efficiency challenge, high performance driver ICs play an important role.

Summary:

The market for wireless charging will grow quite strong in the next years. Modern engineering designs stress how important it is to have efficient and easy-to-use transmitter solutions. Engineers also have their arrow-eye on smart heat management that keeps the surface and transmitter at a comfortable temperature, and avoids heating the battery of the device that is being charged. A small footprint is highly valued, especially for devices that are small in size like wearables. Fitting designs with a high-power rating result in faster charging speed for end users' convenience.

COURTESY:

<https://www.infineon.com>

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III B. TECH EEE

ENERGY EFFICIENT TECHNOLOGIES

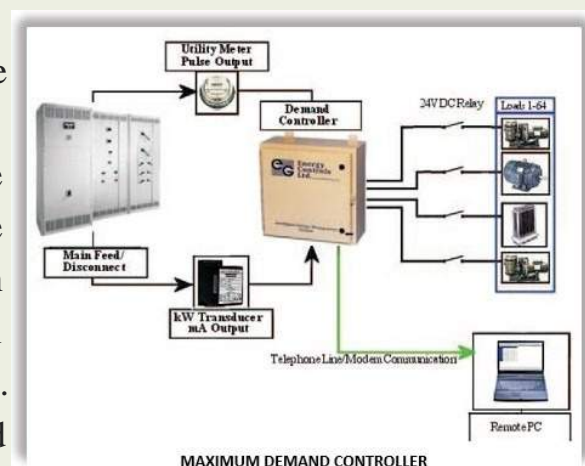
Our daily routine starts with the electricity and even ends with it. So, it is our responsibility to conserve it by making it more efficient. There are several ways to make electrical system efficient by energy saving potential of each technology. They are

- Maximum demand controllers
- Automatic power factor controllers
- Energy efficient motors
- Energy efficient transformers
- Energy efficient lighting controls

Maximum demand controllers:

High tension (HT) consumers have to pay a maximum demand charge in addition to the usual charge for the number of units consumed. The maximum demand charge often represents a large proportion of total bill and is based for a fixed period. Considerable savings can be realized by monitoring power use and turning off

or reducing non-essential loads. Maximum demand controller is a device designed to meet the need of industries conscious of the value of load management. Alarm is sounded when demand approaches a pre-set value. If the correct action is not taken, the controller switches off non-essential loads in a logic sequence. This sequence is predetermined by the user and is programmed jointly the user and supplier of the device. The plant equipment selected for the load management are stopped and restarted as per the desired load profile. Demand control scheme is implemented by using suitable control contractors. Audio and visual annunciations could also be used.



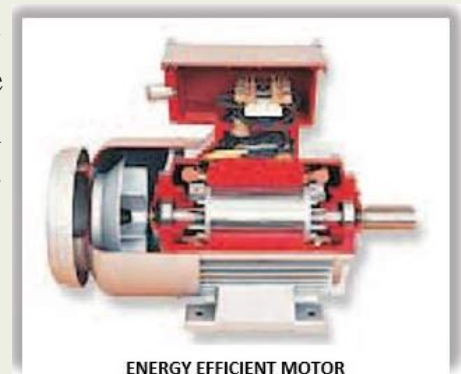
Automatic power factor controllers:

With these we can control the power factor of the system by voltage control and KiloVAR control methods. Voltage control method is used when

maintaining a particular voltage is of prime importance and it is the most common type if intelligence used in substation application where switched capacitors are applied in which the circuit voltage decreases as load increases. In Kilo VAR control method, Kilo VAR sensitive controls are used at locations where the voltage level is closely regulated and not available as a control variable in which the capacitors are switched to respond to a decreasing power factor as a result of change in loading. This type of control can be used to avoid penalty on low power factor by adding capacitors in steps as the system power factor begins to lag behind the desired value. Kilo VAR control requires two inputs -current and voltage from the incoming feeder, which are fed to the pf correction mechanism either the microprocessor (Intelligent power factor controller) or the relay (automatic power factor control relay).

Energy efficient motors:

Improvements in motor efficiency can be achieved without compromising motor performance at higher cost, within limits of existing design and manufacturing technology. We know that the motor has iron losses, stator losses, rotor losses, frictional and windage losses and stray losses. Energy efficient electric motors reduce energy losses through improved manufacturing techniques.



Replacing a motor may be justifiable solely on the electricity costs savings derived from an energy-efficient replacement. This is true if the motor runs continuously, power rates are high, the motor is oversized for the application, or it's nominal efficiency by damage or previous rewinds.

Soft starters:

While starting, ac induction motor develops more torque than required at full speed. This stress is transferred to the mechanical transmission system resulting in excessive wear and premature failure of chains, gears, belts, mechanical seals etc. Additionally, rapid acceleration draws 600% of the normal run current. Even though with the use of star Delta starter provides a partial solution, we can opt for soft starter. Soft starter provides a reliable and economical solution to the problems by delivering a control release of power to the motor, thereby providing smooth, step less acceleration and deceleration. Motor life will be extended as damage to windings and bearings is reduced.

Energy efficient transformers:

Most of the energy loss in dry type transformers occur through heat or vibration from the core. The conventional transformer is made up of silicon alloyed iron core. The iron loss of any transformer depends on the type of core. The latest technology uses amorphous material-a metallic glass alloy for the core. It is expected that this core reduces about 70% of iron losses compared to conventional transformer, which is quite significant. And this contributes the increase in efficiency to 98.5% even at 35% load. These transformers with amorphous metal

cores provide excellent opportunity to conserve energy right from the installation. Though they are costlier, the overall benefit towards energy savings can compensate higher initial investment.

Energy efficient lighting controls:

With the help of occupancy sensors, timed based control for lights, daylight linked control and localized switching we can reduce the wastage in power thereby increasing the efficiency, which further increases the energy efficiency. Thus conserves the energy.



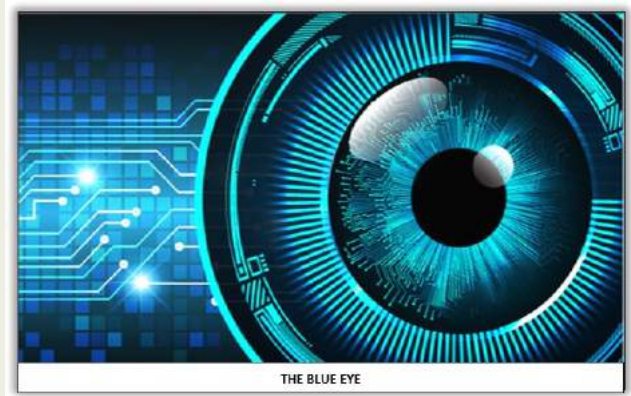
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IV B. TECH EEE**

BLUE EYE TECHNOLOGY

Can you guys just imagine the world where computer tells you to calm down when you are angry, motivate you when you are frustrated and provide all the help and pleasure. This is actually possible by a technology called blue eye technology.



It aims at creating computational machines that have sensory abilities like those of human beings.

The word blue in the **BLUE EYE** technology stands for Bluetooth which facilitates wireless communication and eye stands for the eye movement which allows us to obtain a lot of interesting and necessary information. The basic thought behind this technology is to give computer the human potential. We all have some perspective skills that as we can understand each other's feelings for example we can understand one's emotional state by analyzing his facial expression basically computer gains human power and intelligence.

HOW CAN WE MAKE THE COMPUTER SEE AND FEEL...?

Blue eyes use sensing technology to identify a user's action and it extracts key information. Once the information is extracted, analyzed to determine the user's physical emotional or informational state. So, there are some technologies used in this blue eye technology.

HARDWARE:

The hardware part comprises of the data acquisition unit and central system unit.

DATA ACQUISITION:

The data acquisition unit is a mobile part of the blue eye system its responsibility is to fetch the physiological data from the sensor and to send it to the central system. To accomplish this task the device must manage wireless blue connections, personal ID cards and pin codes provide the operators authorization. Communication with the operator is carried on using a simple five key keyboard a small LCD and a beeper. Data acquisition unit is a commonly a light weight which runs on batteries with the low power consumption and it is very easy to use.

CENTRAL SYSTEM UNIT:

The box contains a Bluetooth module and a PCM codec for voice data transmission. The module is transferred to a PC using a parallel serial and USB cable the audio data is obtained through standard mini jack sockets. To program the operators ID cards, we develop a simple programming device.

SOFTWARE:

The software system comprises of connection manager data analysis module visualization module.

CONNECTION MANAGER:

The connection manager manages communication with the CSU Hardware searching for new devices in the covered range establishing Bluetooth connection, authentication, incoming data buffering and sending alerts.

DATA ANALYSIS MODULE:

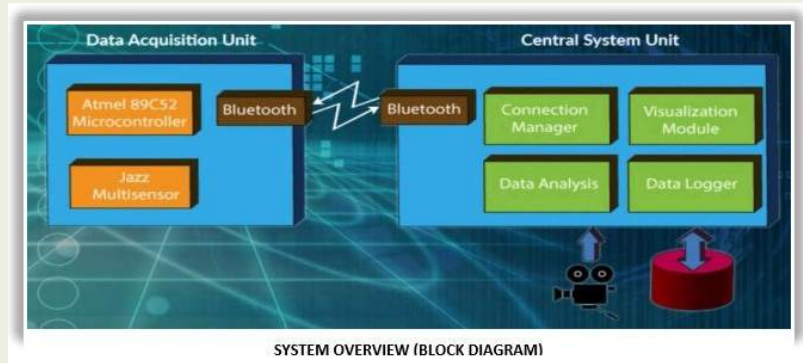
The data analysis module performs the analysis of the raw sensor data to obtain information about the operator's physiological condition. The module consists of many smaller analysers obtaining different types of information. The most important analysis are motion eye movements to determine the level of operator's visual attention, pulse rate analyser, uses body oxygenation signal to calculate operators pulse rate, custom analyser to recognize the behaviour then those which are built in the system.

VISUALIZATION MODULE:

Visualization module enables them to watch each of the working operator's geological condition along with preview of the second video source. All the incoming alarm messages are instantly signalled to the supervisor. The visualization module can be set in an offline mode where all the data is fetched from the database watching all the recorded physiological parameters.

SYSTEM OVERVIEW:

The supervisor is able to reconstruct the course of the selected operator's duty the hardware system overview there are some sensors used in this technology to measure the emotion of a person.



TECHNOLOGIES USED IN BLUE EYE TECHNOLOGY:

- Emotion mouse
- Manual and gas input cascaded which is commonly known as magic
- Artificial intelligence speech recognition (ASIR)
- Simple user interest tracker (SUITOR)
- The eye movement sensor

FUTURE OF THE BLUE EYE TECHNOLOGY:

The future a blue eye technology is that it can be used in ordinary household devices also like in televisions refrigerators and ovens and may be able to do their jobs when we look at them and speak to them. It also provides some more delicate and user-friendly facilities in computing devices. it provides gap between the electronic and the physical world will be reduced. The computers can be run using implicit and the explicit commands.

COURTESY:

<https://www.electronicclinic.com>

J B ASHOK KUMAR-19VV1A0212

HIMA SRI-20VV5A0273

III B. TECH EEE

DEVELOPMENT OF ENERGY EFFICIENT AUTOMATIC LIGHT CONTROL SYSTEM

INTRODUCTION:

Power saving is greatly encouraged in our day-to-day life for the Reduction in electricity bill ,Reduction in electricity generation, Reduction in pollution due to low carbon emission ,Reduction in T & D losses. Domestic Buildings are responsible for up to 40% of total generated energy usage. Most part of this energy is used mainly for maintaining good lighting. Because of advancement in Sensor and embedded technologies a very cheap and portable controller can be made to take care the energy consumption for lights. To reduce the energy consumption in terms of saving electricity bill, an intelligent and an effective method is discussed in this project.

EXISTING SYSTEM:

In manual method of operation, a user has to switch ON and OFF the lights. But there is always a chance of keeping the lights in the on state even though it is not required at that time. This may occur because of ignorance of user which leads to large amount of power being wasted. Unplanned installation of lights the ambient lights generally not taken under consideration. The lighting system with occupant detection uses passive infrared sensor (PIR) to automatically switch ON and OFF the lights. The drawback about this type of system is, it will switch ON the lights with full glow when an occupant is present in that area. This system does not consider the presence of the surrounding lights. This causes an additional wastage of energy.

OBJECTIVES:

To design an electrical energy efficient system that senses light intensity in a room to control the luminance of light by:
Developing an ambient light sensor system to detect light intensity in a room, Comparing the available ambient light with the user set point,The intensity of light can be controlled accordingly in order to save energy when there is enough ambient light is available, the remote set point facility can also be incorporated using Bluetooth module and user mobile.

DESCRIPTION:

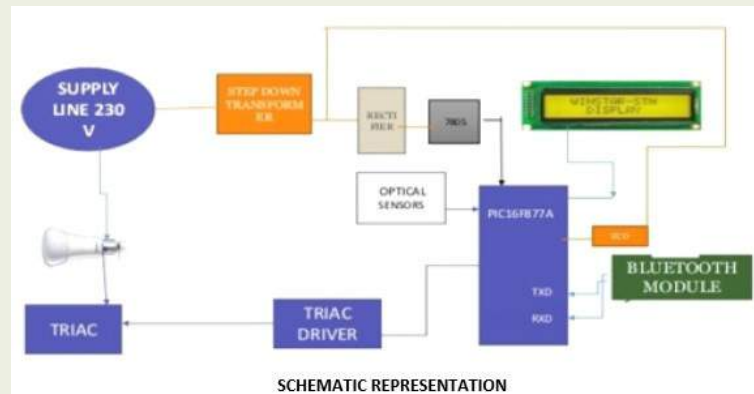
The proposed system overcomes most of the drawbacks of existing system. This system takes two things into account before taking any action, namely: User light requirement; Present ambient Light intensity.

The system consists of an ambient light sensor. The sensor is used to detect the intensity of ambient light in that room and an algorithm can be implemented to control the intensity of the light so that the total light in the room remains constant.

In this project we have considered one small room where just one LDR sensor is enough for determination of LUX inside the room. Actually, we have developed this project in two defined parts. One part works as the transmitting end (for set value controlling using Bluetooth) and another part as the receiving end(controlling the glow of the bulb comparing with the sensor value). Firstly, this demo project can be implemented for the small room and then it can be implemented for the large room as per the user requirement.

CONCLUSION:

This project is a good example of household automation. Life of lamps are extended due to reduced run-time which reduces time spent on maintenance and lowers overall maintenance expense. Energy consumption which makes one system very reliable in the domestic household and less capital Investment in the Industrialization. This advancement will make user satisfaction both directly and indirectly. This same mechanism can be easily implemented in the ac, fans with the help of temperature sensors.



COURTESY:

<https://www.edgex.in>

K SYAMALA RAO-20VV5A0268

III B. TECH EEE

INSPIRING MINDS

AYYALASOMAYAJULA LALITHA RAO

In a time when widows were to shave their heads and were banished from society or burned at the pyre of their husband, one of them decided to study further. This is the story of how a young single mother joined a college for men and made history by becoming one of the first female engineers of India.



AYYALASOMAYAJULA LALITHA RAO

Born in a Telugu-speaking family in Madras, Lalitha set an exemplary example of how women can battle the world singlehandedly. She was widowed at the age of 18 and a single mother who made her own space in the world dominated by men. At the time when no woman had stepped foot in the field of engineering, Lalitha's father supported her wish to complete her secondary education and study engineering at the otherwise all-male College of Engineering, Guindy. Lalitha graduated in 1943 with a degree in electrical engineering and completed her practical training with a 1-year apprenticeship in Jamalpur Railway Workshop, a major repair, and overhaul facility. Throughout her career, she stressed providing women with equal footing in the otherwise male dominated field of engineering.

FIRST FEMALE ENGINEERING STUDENT IN COLLEGE

She completed her exam from the First Division from 'Queen Mary College', Chennai. A. Lalitha was the only woman in her course although 2 other girls in the college were from the civil branch. The girls were interested in the medical profession at that time. However, Lalitha did not want to study such that she had to leave her daughter at night, so she chose engineering as her profession. During college days, she used to leave her daughter with her uncle and used to visit him once a week. But after studying, he wanted a 9 to 5 job because he also had to take care of his daughter.

In a time when widows were to shave their heads and were banished from society or burned at the pyre of their husband, one of them decided to study further. This is the story of how a young single mother joined a college for men and made history by becoming one of the first female engineers of India.

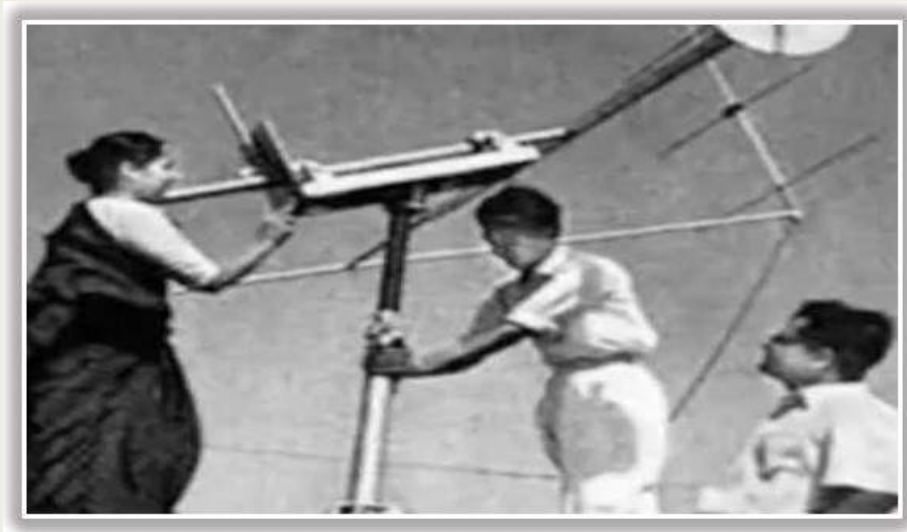
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FIRST FEMALE ENGINEERING STUDENT IN COLLEGE

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DEFYING THE NORMS :

After defying the odds and earning her electrical engineering degree in 1943, Lalitha completed her practical training with a one-year apprenticeship in Jamalpur Railway Workshop, a major repair and overhaul facility. Her first official postgraduate job was as an Assistant Engineer at the Central Standards Organization of India. In 1948, five years after earning her degree, Lalitha made the jump to the company she would spend the rest of her career working for: Associated Electrical Industries (AEI).



AWARDS AND ACCOLADES :

Lalitha's achievements quickly brought her to global prominence. In 1964, she was the only female engineer from India to attend the First International Conference of Women Engineers and Scientists (ICWES) in New York. The following year, she was elected a member of the British Women's Engineering Society. Completing the triad of professional accomplishments, in 1966 her membership to IEE was promoted from associate member to full-fledged member. Succumbing to a brain aneurysm at the young age of 55, Lalitha left a legacy affecting both her immediate family, many of whom went on to become engineers, as well as the engineering industry and India as a whole.

COURTESY:

<https://en.m.wikipedia.org>

S VEERABRAHMAM-19VV1A0259

III B. TECH EEE

CURRENT AFFAIRS

1. Which state government decided to start world's largest floating solar project by 2023?
 - A. Andhra Pradesh
 - B. Madhya Pradesh
 - C. Kerala
 - D. Telangana
2. Which one of the countries becomes the 1st country to receive the INDIA covid 19 vaccines?
 - A. Maldives
 - B. Sweden
 - C. Russia
 - D. India
3. Which India armed force signed a contract with a private company to procure high altitude SWITCH Drones, for USD 20mm?
 - A. Indian air force
 - B. Indian army
 - C. Indian navy
 - D. Indian coast guard
4. Which bank has launched its digital banking platform named 'bob World'?
 - A. Indian Bank
 - B. Bandhan Bank
 - C. Paschim Bengal Gramin Bank
 - D. Bank of Baroda
5. How many rockets has been launched by SpaceX agency on a single rocket?
 - A. 144
 - B. 299
 - C. 113
 - D. 143
6. Which country has recently developed a prototype miniature helicopter for surveillance work on future mars missions?
 - A. Russia
 - B. China

- C. UAE
 - D. India
7. Dulanga coal mines, which became commercially operational recently, is located in which state?
- A. West Bengal
 - B. Jharkhand
 - C. Odisha
 - D. Telangana
8. Which country generated over half of its power from wind due to the storm “bella”?
- A. United states
 - B. United Kingdom
 - C. Italy
 - D. Germany
9. What is the expansion of IUC, which was recently seen in the news recently?
- A. Internet usage charges
 - B. Intermediate usage charges
 - C. Interconnected usage charges
 - D. Interconnect utility charges
10. The employees of which MNC has recently formed a union in the United States?
- A. Microsoft
 - B. Tesla
 - C. Google
 - D. Apple
11. International Asteroid Day is observed on
- A. 24th June
 - B. 26th June
 - C. 28th June
 - D. 30th June
12. India's first geothermal power project will be established in
- A. Ladakh
 - B. Sikkim
 - C. Arunachal Pradesh
 - D. West Bengal

13. What is the name of the NASA's fifth rover that landed successfully on Mars in 2021?

- A. Sojourner
- B. Opportunity
- C. Curiosity
- D. Perseverance

14. What is the rank of Global hunger index rank in India 2020?

- A. 97
- B. 98
- C. 94
- D. 96

15. Neeraj Chopra won the gold medal in the men's javelin throw event with a throw of _____

- A. 84.58m
- B. 86.58m
- C. 87.58m
- D. 88.58m

KEY:

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. B | 2. A | 3. B | 4. D | 5. D |
| 6. B | 7. C | 8. B | 9. C | 10. C |
| 11. D | 12. A | 13. D | 14. C | 15. C |

COURTESY:

<https://www.gktoday.in>

B SESHANJALI-19VV1A0210
III B. TECH EEE

CREATIVE MINDS

ఓ సూత్రధారి!

చదువును ఎరువుగ చేసి
బ్రతుకు సేద్యం నేర్పి
కళల చమురు నింపి
వెలుగు దివ్వెలగ మలచి
విజ్ఞాన వీచికలు వీచి
అజ్ఞాన తిమిరాన్ని దొలచి
పాల బుగ్గల వాన్ని పరిపూర్ణున్ని చేసిన
మీ నిస్వార్థపు వైనంకాదా మాకు ఆదర్శం!
మాస్టార్లు మీరే మా "స్టార్లు".

బడిపంతులు

బ్రతుకు నేర్పు బడిపంతులు
భవిత గొల్పు బడిపంతులు
భాధ్యత చేర్చు బడిపంతులు
భాగ్యము కూర్చుబడిపంతులు
భయము తీర్చు బడిపంతులు
బ్రతుకు మార్చు బడిపంతులు

ఇంజనీర్

భవ్య భవన నీర్మాత
వెలుగులు నింపిన ఘనత
యంతరముల్ నడిపే దక్షత
కంప్యూటర్ సామరాజ్యపు విజేత
దేశ పురోగతే భాధ్యత
భావి భారతపు అధినేత

యేడిద. ఎస్. డి. వి. వి. ఆనండ్-19VV1A0264

III B. TECH EEE

SCIENCE AND ART

Science makes you think.

Whereas Arts makes you feel.

Art is an expression; Science is the explanation behind that expression.

Art expresses what it feels, Science explains what lies behind that Art.

You can sense an Art without Science.

But you cannot dive into the science of an art without feeling it.

ART is when Human creativity is directed towards the wellness of Beauty that is seen, heard, spelt and felt.

When Human intelligence is directed towards an ART, SCIENCE behind that art can be found.

Let's say for instance MUSIC ...

Music is nothing but the sounds of nature. If these frequencies are held together in an instrument, that results in a serene Music which is an ART.

Now coming to the point,

Music makes Mind peaceful. But how ...?

The Answer is When we listen to our favorite frequency, A part of the brain called Striatum gets triggered and release a chemical named Dopamine. This chemical makes the body feel pleased.

This is the SCIENCE BEHIND that ART called MUSIC.

Not only this, behind every ART, there lies a reasonable SCIENCE.

Let us see one more thing,

Basically, we do see a lot of visuals every day, right from sunrise till sunset.

We do feel those. That's an ART.

When I wish to share that Visual to my vicinity, I do make use of SCIENCE.

From Mr.MO-TI `S camera to present drone camera,

This Capturing Technology is always standing with Art in encapsulating that enduring visual experience.

This is SCIENCE WITH ART called VISUAL BEAUTY.

SCIENCE do stand with each and every ART to make it much better

ARTS alone can never entertain an individual.

SCIENCE alone too can never re-innovate itself.

When both travel in same pace, for sure it results in sensation.

Some of such sensations are

MORSE CODE by Mr. MORSE.

FLYING MACHINE by DAVINCI

ARTS WITH HEARBEAT AND FINGERPRINT by RAFFEL HAMMER...

and many more.

B KUMAR RAJA-19VV1A0206
III B. TECH EEE

STUDENT ACHIEVEMENTS

CAMPUS PLACEMENTS “2020-2021”

1. ANUSURI NAGENDRA SAI-17VV1A0201- **INFOSYS**
2. BINDU MADHAVI CHINTADA-17VV1A0207-**TCS**
3. DUNNA DIVIJA-17VV1A0216-**TCS**
4. BATTULA LAKSHMI PRASANNA-17VV1A0204-**TCS**
5. CHALLA SAI PRASANNA-17VV1A021-**MEDHA
SERVO DRIVES PVT LTD**
6. MUKKAVILLI NIHARIKA-17VV1A0235-
**COGNIZANT TECHNOLOGY SOLUTIONS,
ACCENTURE**
7. Y HARSHA VARDHAN SRI SAI-17VV1A0255-**TCS,
COGNIZANT TECHNOLOGY SOLUTIONS**
8. BUDDANA BHARGAVA SRI SAI KRISHNA-
18VV5A0265-**INFOSYS**

GATE RANKS "2021"



KANCHUMADHAVI
2181 (A.I.R)



Sai Prasanna Challa
4332 (A.I.R)



Y HARSH AVRDHAN SRI SAI
4332 (A.I.R)



DEEPTHI MUDDA
5497 (A.I.R)



**NORI VENKATA SRI
NAGA ADITYA**
5639 (A.I.R)



**BANDI NAMRATHA
DEEPTHI**
11300 (A.I.R)



**NISTALA CHANDANA
MAHATHI**
11730 (A.I.R)



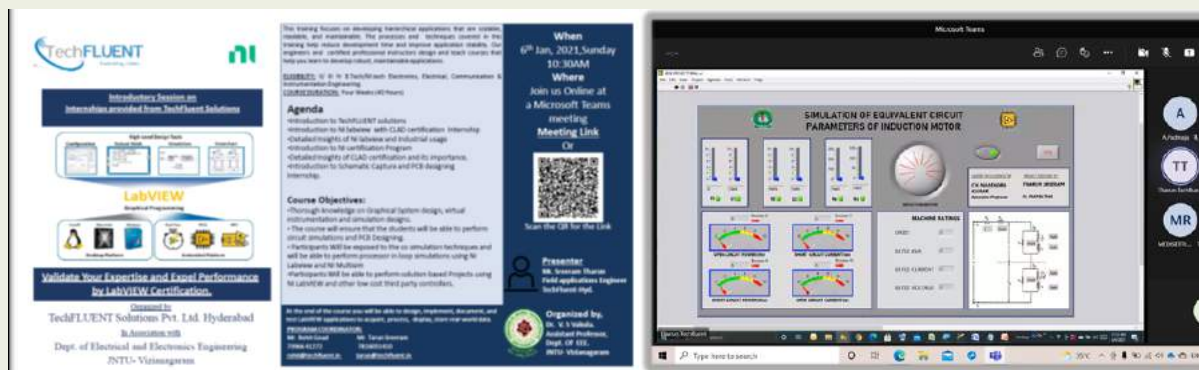
ANIL KUMAR MOYIDA
13493 (A.I.R)



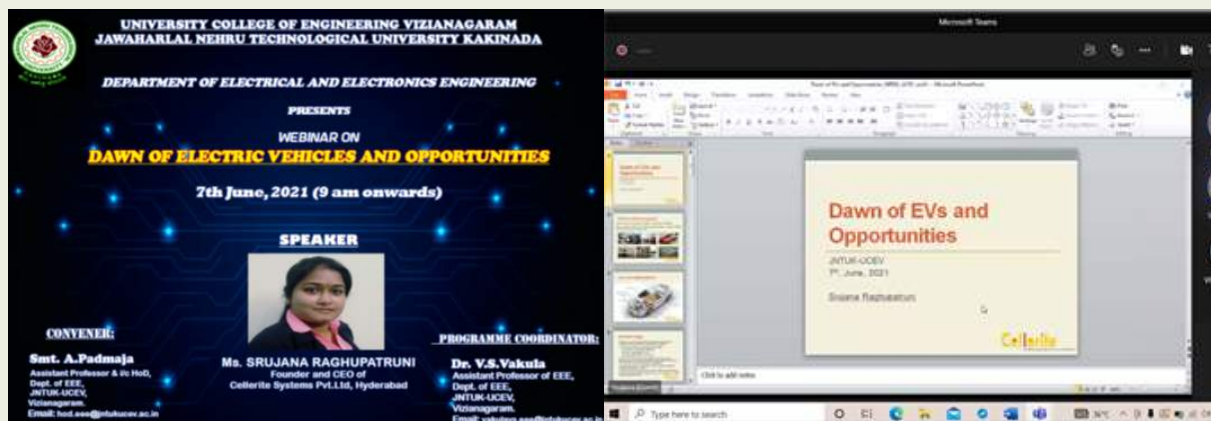
**JAYANTH KUMAR
KOLLI**
17770 (A.I.R)

DEPARTMENT ACTIVITIES

1. National level webinar was conducted on 6th of June 2021 by M/S Techfluent solutions Pvt.Ltd. organized by Dr. V. S. Vakula about **"THE LAB VIEW SOFTWARE"**



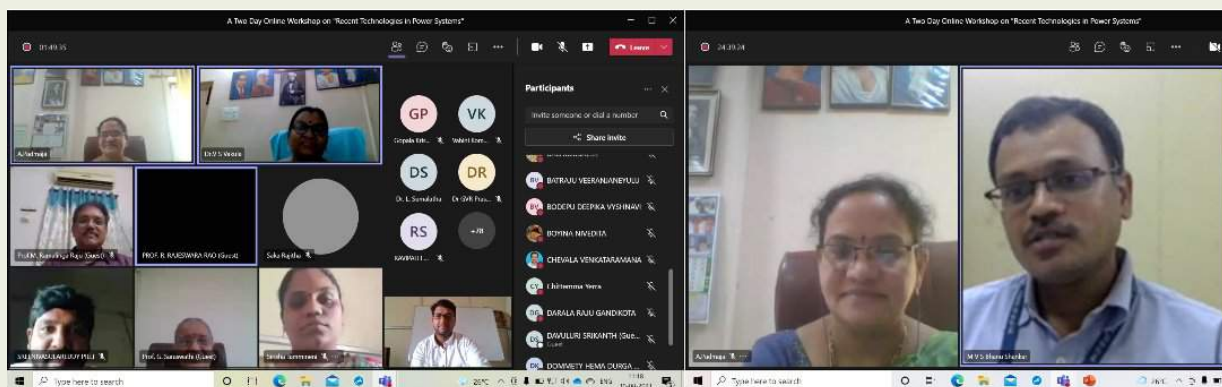
2. Online workshop was conducted on 7th of June 2021 conducted by Ms. Srujana Raghupatruni, Founder and CEO of Cellerite Systems Pvt.Ltd, Hyderabad, organized by EEE department about **"DAWN OF ELECTRICAL VEHICLES AND OPPORTUNITIES"**



3. Two day workshop was conducted on "**Recent Technologies in Power Systems**" with a total of SIX sessions on 30.8.2021 and 31.8.2021.

The topics covered are

- “Model order reduction techniques and application to power systems” by Prof. G. Saraswathi.
- “Substation Automation Basics and Development from Conventional to IT based Substation Automation” by Sri. P. Gopala Krishna.
- “Introduction and demonstration of transmission lines fault analyser ”by Sri. B. Bheemeswara Rao.
- “Emerging trends in Power Generation sector- Role of NTPC” by Sri. M. V. S Bhanu Sankar.
- “Power Electronic Converters and Control Techniques for Wind Energy Conversion Systems” by Dr. Y. S. Kishore Babu.



- The event is followed by superannuation of Prof. G . Saraswathi.



MESSAGE FROM Prof. G. SARASWATHI

My Dear Students,
Congratulations,

I know that you are waiting for this day to arrive for a long time in this pandemic situation. By now you might know that I am retired from the college services. I thank each and every one in making my journey in the college memorable and eventful. As someone correctly said "Retired is being twice tired, I have thought first tired of working, then tired of not."

Specially I thank my students in making me feel that I am their teacher. As a teacher, I would like to say that the world outside is quite different. Here in the college, we have always been attempted to give you a good exposure and congenial environment, provided a strong shield to safeguard you. We tried our best to prepare you all in such a manner that no matter, how forceful or critical the challenges are, always encounter those with full strength and vigour.



We are highly proud of your achievements and accomplishments that you have established over these years. We always supported the students and encouraged and appreciated the teachers for introducing innovation and novelty. Though we were strict sometimes while delivering our duties towards you, it was only because we wanted to prepare you for all types of situations in the future. Life may not always be smooth; hence you must also know how to overcome challenges and disputes.

My advice is that you must be determined in your life and never look back. Past must always be considered a lesson not a deterrent. Don't be afraid to make mistakes and don't lament your mistakes, instead, get up, learn from your mistakes and move ahead. Always look ahead and be optimistic while taking up new projects, assignments or challenges in your personal or professional life. You are certainly going to succeed in your life just remember the lessons learnt at this college.



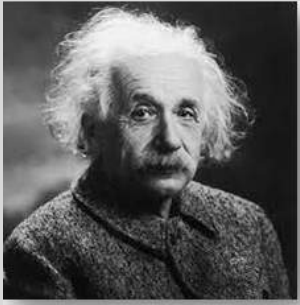
your mistakes, instead, get up, learn from your mistakes and move ahead. Always look ahead and be optimistic while taking up new projects, assignments or challenges in your personal or professional life. You are certainly going to succeed in your life just remember the lessons learnt at this college.

Be selfless and kind to others and always be focused on achieving your goal despite the hard tests that life throws on you. Use your knowledge and power for making others happy and successful.

Wish you all the very best for your future!

Thank you.





Albert Einstein



Alessandro Volta



*Andre Marie
Ampere*



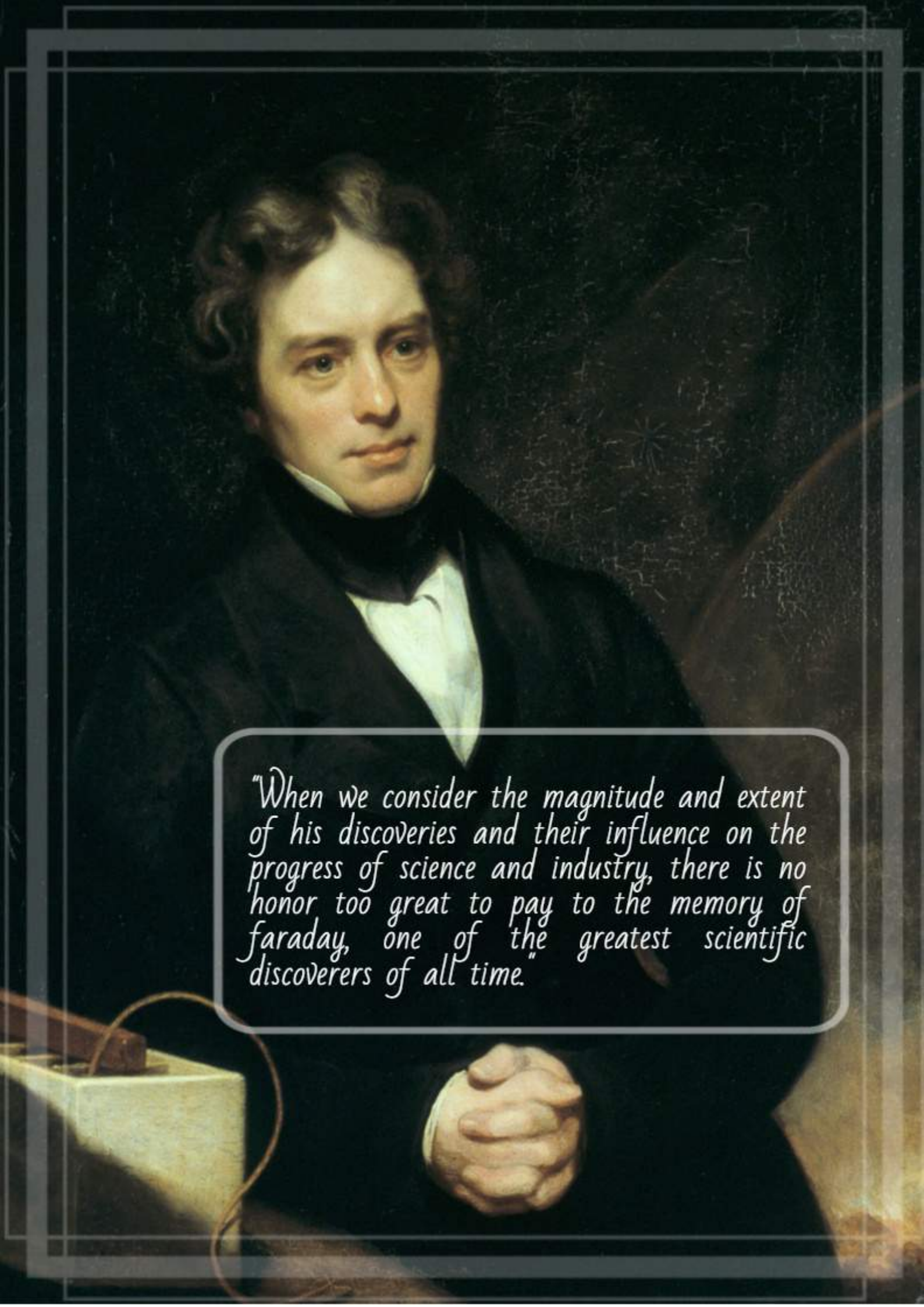
Georg Simon Ohm



Harry Nyquist



James Watt

A portrait of Michael Faraday, a young man with dark, wavy hair, wearing a dark coat and a white cravat. He is looking slightly to the right. In the bottom left corner, there is a small, partially visible scientific apparatus, possibly an early electric circuit or a component of an experiment. A text box with a white border and rounded corners is overlaid on the lower part of the portrait, containing a quote in a cursive font.

"When we consider the magnitude and extent of his discoveries and their influence on the progress of science and industry, there is no honor too great to pay to the memory of Faraday, one of the greatest scientific discoverers of all time."