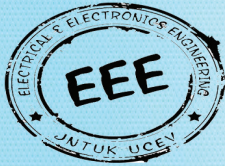


UNIVERSITY COLLEGE OF ENGINEERING VIZIANAGARAM
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

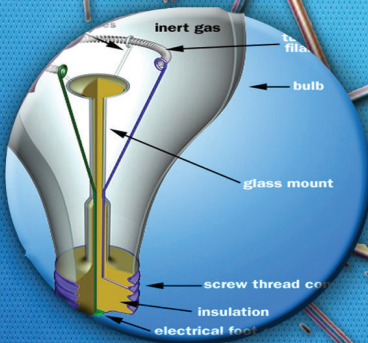
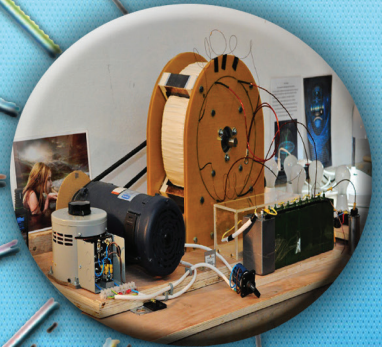
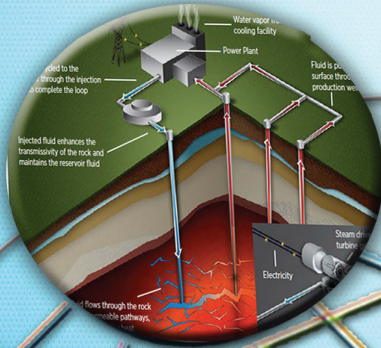


DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

Presents

THE MEMOIR

- Chronicles of EEE



MAHARATNA COMPANIES OF INDIA



OIL AND NATURAL GAS CORPORATION LIMITED



INDIAN OIL CORP. LTD.

INDIAN OIL CORPORATION LIMITED



COAL INDIA LIMITED



STEEL AUTHORITY OF INDIA LIMITED



BHARAT HEAVY ELECTRICAL LIMITED



NATIONAL THERMAL POWER CORPN. LTD.

NATIONAL THERMAL POWER CORPORATION LIMITED



GAIL (India) Limited

GAS AUTHORITY OF INDIA LIMITED

Editorial Column

We take immense pleasure to thank all the readers our magazine for your support to our effort. We, department of Electrical and Electronics Engineering proudly presents the second edition of our magazine “THE MEMOIR- chronicles of eee”.

We would like to take this opportunity to thank our principal, Dr. V. Sreenivasulu, all our faculty of Electrical and Electronics Engineering department and our fellow students for their support in developing our magazine.

Dr. V.S. Vakula, our head of department, who was continuously catalysing students of various years to collaborate among themselves to get the best output.

We would like to extend a special thanks to Dr. G. Saraswathi and Mrs. A. Padmaja for their approachability and constant support.

This edition is gathering of recent advancements in Geothermal energy, self electric driverless cars, turning nuclear wastes into long lived batteries, future era of smart grid. The general topics like brain teasing questions, facts, current affairs and inspiring minds were also included.

Once again, we would like to express our considerable appreciation to all authors of articles and their knowledge in carving “THE MEMOIR- chronicles of eee”.

we welcome your valuable suggestion to improve the standard of our magazine.

THANK YOU
-Magazine team

Principal's message

I am extremely happy to note that the Department of Electrical and Electronics Engineering student community is bringing out the second edition of its news letter "THE MEMOIR".

In this connection, I invite the attention of the students towards the articles read in the magazine which paves the way to the world of innovation and invention. It also leads the students to get exposure about new technologies and improve their personality by knowing the life of the inspiring personalities read in the magazine.

I whole heartedly congratulate the the members of editorial board for their act in keeping their spirit at high. I wish them all success.



HOD's MESSAGE



I am extremely delighted to note that the student community of Department of Electrical and Electronics Engineering, JNTUK UCEV in bringing out First edition of its bimonthly news letter "THE MEMOIR". I wish them all success.

In this connection, I invite the attention of students towards the successful and inspiring personalities read in the news paper. I would like to congratulate the effort put by them who contributed the technical and literary articles to the magazine.

I whole heartedly congratulate the members of editorial board for keeping and continuing the spirit at high for bringing the magazine to reality.

CONTENTS

s.no	TOPICS	page no	
01.	MESSAGE OF MAGAZINE	01	
02.	ABOUT A SCIENTIST	02	
03.	ANCIENT ELECTRICITY	03	
04.	STUDENT ARTICLES	04	
05.	WORLDS FIRST SOLAR CRICKET STADIUM	08	
06.	THE FUTURE ERA	09	
EDITORS:	07.	HOW IT IS MADE	11
Shaik Abdul Samad III B.Tech EEE	08.	TOP 5 COUNTRIES IN RENEWABLE ENERGIES	12
Ch.Ajay Ram III B.Tech EEE	09.	INSPIRING MINDS	13
DESIGNING:	10.	FIRST INVENTION MODELS	14
G.Luke Daniel II B.Tech EEE	11.	FACTS & CURRENT AFFAIRS	15
	12.	KNOW YOUR EXAM	16
	13.	INTERVIEW TIPS	17
	14.	THINK OUT OF BOX	18
	15.	ALUMNI ARTICLE	19
	16.	STUDENT ACHIEVEMENTS	20

ABOUT A SCIENTIST

NIKOLE TESLA

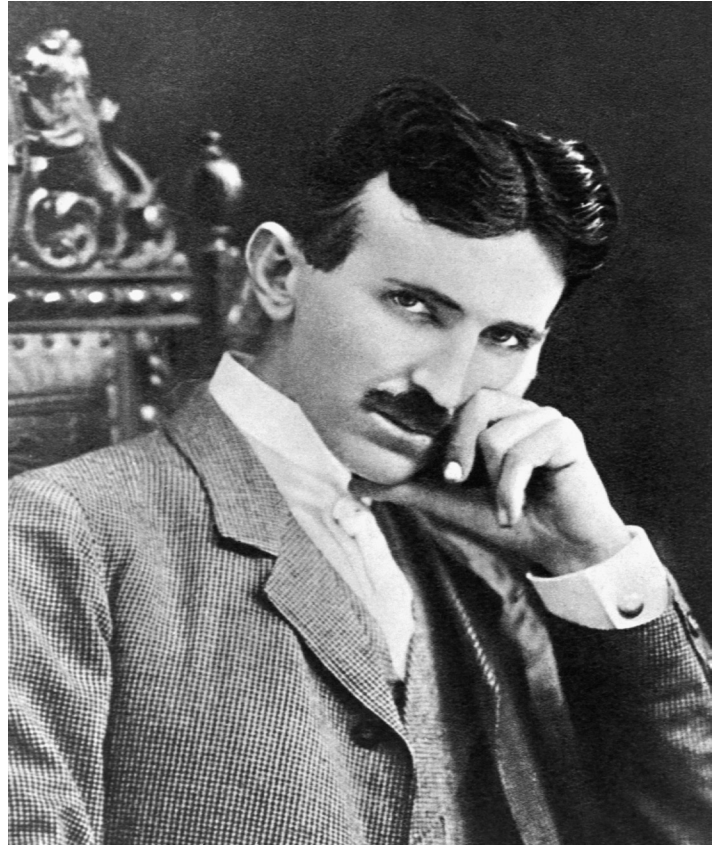
Inventor Nikola Tesla contributed to the development of the alternating-current electrical system that's widely used today and discovered the rotating magnetic field

Nikola Tesla was born on July 10, 1856, in what is now Smiljan, Croatia. He was one of five children which included siblings Dane, Angelina, Milka and Marica, in the family. Tesla's interest in electrical invention was spurred by his mother, Djuka Mandic, who invented small household appliances in her spare time while her son was growing up. Tesla's father, Milutin Tesla, was a Serbian orthodox priest and a writer, and he pushed for his son to join the priesthood. But Nikola's interests lay squarely in the sciences. After studying at the Realschule, Karlstadt (later renamed the Johann-Rudolph-Glauber Realschule Karlstadt); the Polytechnic Institute in Graz, Austria; and the University of Prague during the 1870s, Tesla moved to Budapest, where for a time he worked at the Central Telephone Exchange.

It was while in Budapest that the idea for the induction motor first came to Tesla, but after several years of trying to gain interest in his invention, at age 28 Tesla decided to leave Europe for America. Edison hired Tesla, and the two men were soon working tirelessly alongside each other, making improvements to Edison's inventions

After parting ways with Edison, in 1885 Tesla received funding for the Tesla Electric Light Company and was tasked by his investors to develop improved arc lighting. After successfully doing so, however, Tesla was forced out of the venture and for a time had to work as a manual laborer in order to survive. His luck changed in 1887, when he was able to find interest in his AC electrical system and funding for his new Tesla Electric Company. Setting straight to work, by the end of the year, Tesla had successfully filed several patents for AC-based inventions.

Having become obsessed with the wireless transmission of energy, around 1900 Nikola set to work on his boldest project yet: to build a global, wireless communication system—to be transmitted through a large electrical tower—for sharing information and providing free electricity throughout the world.



With funding from a group of investors that included financial giant J. P. Morgan, in 1901 Tesla began work on the project in earnest, designing and building a lab with a power plant and a massive transmission tower on a site on Long Island, New York, that became known as Wardencllyffe. However, when doubts arose among his investors about the plausibility of Tesla's system and his rival, Guglielmo Marconi—with the financial support of Andrew Carnegie and Thomas Edison—continued to make great advances with his own radio technologies, Tesla had no choice but to abandon the project. The Wardencllyffe staff was laid off in 1906 and by 1915 the site had fallen into foreclosure. Two years later Tesla declared bankruptcy and the tower was dismantled and sold for scrap to help pay the debts he had accrued.

After suffering a nervous breakdown, Tesla eventually returned to work, primarily as a consultant. Poor and reclusive, Nikola Tesla died on January 7, 1943, at the age of 86, in New York City, where he had lived for nearly 60 years. But the legacy of the work he left behind him lives on to this day

-P. Harish Ranojee
III B.Tech EEE

ANCIENT ELECTRICITY

The Dendera Lightbulb

Beneath the Temple of Hathor at Dendera there are inscriptions depicting a bulb-like object which some have suggested is reminiscent of a “Crookes tube” (an early lightbulb). Inside the “bulbs” a snake forms a wavy line from a lotus flower (the socket of the bulb). A “wire” leads to a small box on which the air god is kneeling. Beside the bulb stands a two-armed djed pillar, which is connected to the snake, and a baboon bearing two knives. In “The Eyes of the Sphinx”, Erich Von Daniken suggested that the snake represented the filament, the djed pillar was an insulator, and the tube was in fact an ancient electric light bulb. The baboon was apparently a warning that the device could be dangerous if not used correctly.

We do not know the exact origin of the Djed pillar, but its hieroglyphic meaning (“enduring” or “stability” and sometimes “column”) is not doubted. There is no apparent connection between the concept of “enduring” and the process of insulating, but even if there was, it is my understanding that the Djed wouldn’t work as an insulator. In a light bulb, the glass bulb itself insulates the filament, and no extra component is required.

The “cable” is described in the text beside the depiction as a symbolic sun barge moving across the sky (in a form which is by no means unique to these carvings). It seems to be a bit of a stretch to describe this as a cable, although I suppose you could argue that the movement of the sun mirrored the movement of electricity. However, the “cable” is attached to what proponents describe as a “socket”, but is in fact a lotus flower. This flower appears in this form all over Egypt, and is always a lotus flower. Furthermore, the text beside the depiction confirms that it is a lotus flower.

Sylvie Caulville worked extensively on the inscriptions in the temple. She suggested that in the carvings, Hor-sema-tawy (or Harsomptus “Horus the uniter of the two lands”) is depicted as a serpent, a falcon and as a child (Ihy the son of Hathor and Horus of Behedet). According to one myth, Ihy sprung into existence out of a lotus flower which blossomed in the watery abyss of Nun at dawn at the beginning of every year. It is therefore suggested by some that the “light-bulbs” are in fact lotus flower bulbs, mythologically giving birth to the god.



Another panel shows the bulb opening into a lotus blossom and the snake standing erect in the centre as a representation of the god Ihy. On the southern wall of the last room, a falcon, preceded by a snake emerges from a lotus blossom within a boat.

Francois Daumas suggested that the sacred procession which was held on the eve of the first day of the New Year, began in these rooms. Thus the inscriptions represented the myth which was being celebrated.

Some are still unwilling to entirely give up on the idea of the Dendera light bulb. Instead of claiming that the Egyptians used light bulbs under normal conditions, they suggest that the priests performed a ritual which created a small amount of light during the New Year celebrations. Proponents claim that the reliefs describe a three stage process; first the “bulb” is supported by a kneeling figure making three “waves” emanate from the serpent, then the “bulb” is supported by a Djed pillar making four “waves” emanate from the serpent, finally the “bulb” is placed against a vertical Djed pillar causing five “waves” to emanate from the serpent’s body. The waves are thought to be evidence of a vibratory process increasing in frequency as the scenes progress.

-G.Jitendra Prasad
III B.Tech EEE

STUDENT ARTICLES

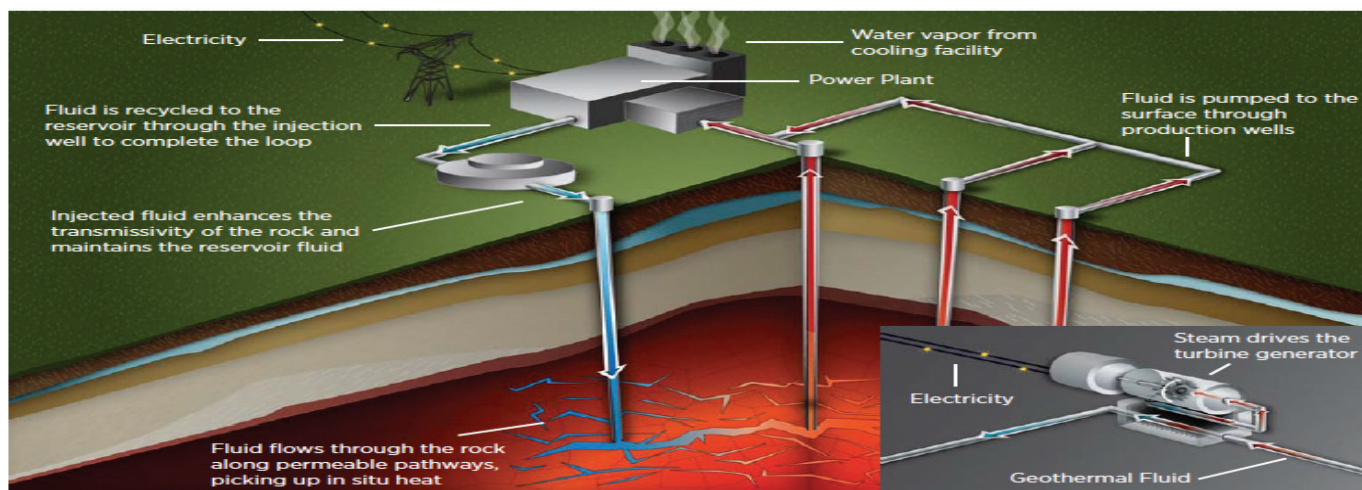
GEO THERMAL ENERGY

We are aware of the growing need of the power production in India. So the main motto is to work out a new initiative to meet the desired need for power production. One of such alternatives is the GEOTHERMAL ENERGY.

Geo Thermal Energy the name itself indicates that we are discussing about the heat energy present in the earth.

renewable energy source, No pollution .Job creation and economic benefits. As our reliance on fossil fuel started to increase, the geo thermal energy is seen as the new source of the power generation

At last we have reached a report of 18000 MW of power generation in 24 countries by 2013



**-D.Shanmukh
IV B.tech EEE**

The major contribution to this heat is due to the radioactive decay of particles. Depending on the thermal gradient different layers of earth are maintained at different temperature.

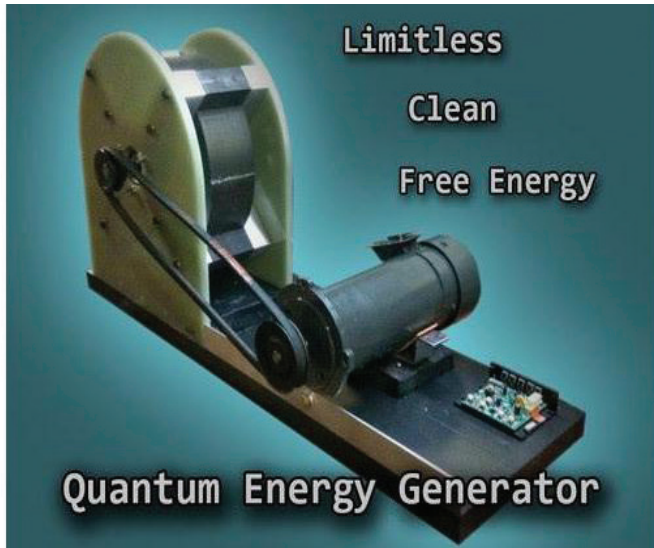
Earlier well known geo-thermal applications are hot springs which have been used for bathing at least since Palaeolithic times. Later lord Kelvin invented the heat pump in 1852 and Heinrich Zeolly had patented the id of using it to draw heat from the ground in 1912 but successfully implemented in late 1940's.Starting from Geysers we developed up to taking heat energy from very deep crests of earth and using for our daily needs like electricity generations.

Geothermal energy used in various applications such as Electricity Generation, District Heating, District cooling networks, Desalination of plants, Horticulture and industry manufacturing etc., and the advantages of it sustainable and the

QUANTUM ENERGY GENERATOR

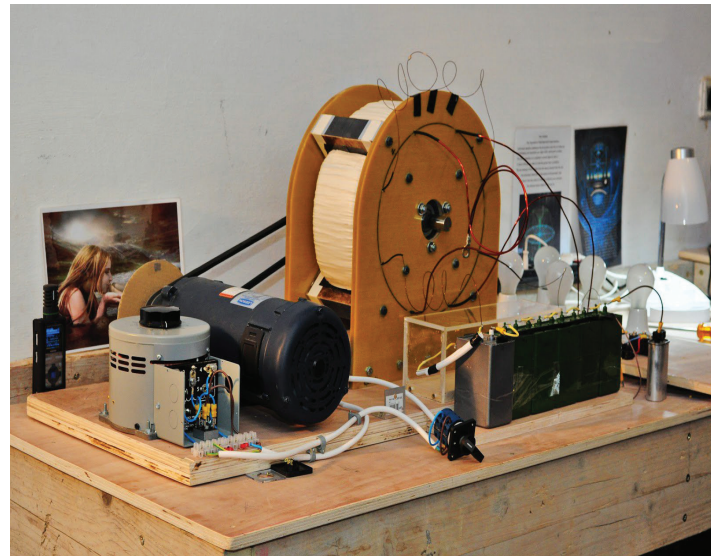
What's the use of this new type of generator as we have got many other types? Answer is simple human kind always want more output with less input and that is the thought gave birth to this generator. What makes it special from others is that it produces 10KW of power by taking only 1KW where the conventional generator requires 15KW for same power generation. This is a resonance machine invented by Nikola Tesla 130 years ago and in short also called as QEG.

Coming to is working it needs a starting power source which provides the 1KW input to power the 1HP motor which spins the rotor in generator core



There starts the unique process of QEG i.e., the resonance. The oscillator circuitry configuration in the generator core causes resonance to occur. This resonance achieved core now generates 10MW of energy. Now the external power source is disconnected from motor and we can use that 1KW of input power from this 10MW. Hence the self looping of this generator made it a unique creation till today. Research is going on it's development and FTW organisation announced the phase3 milestone in it's research in 2013.

-G.PHANI TEJA
IV B.Tech EEE



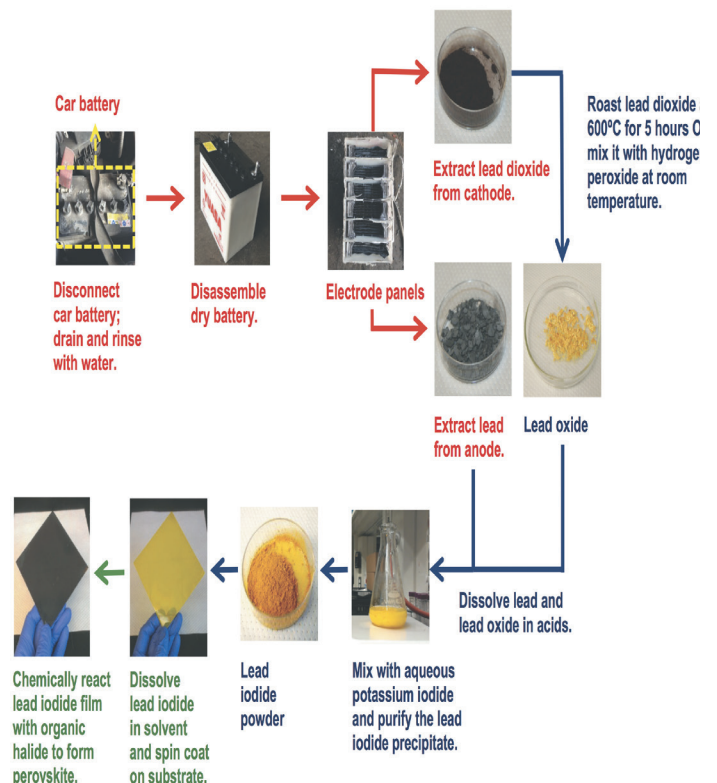
The perovskite photovoltaic material takes the form of a thin film just half a micrometre thick, the team's analysis shows that the lead from a single car battery could produce enough solar panels to provide power for 30 households.

Perovskite –Based PV cell makes use of lead. So that, to make the solar cell, lead has to be extracted from the land, which creates some toxic residues during extraction. It was its major disadvantage. In variety of tests, the films displayed the same Nano crystalline structure and identical light –absorption capability. Moreover, the films ability to absorb light at different wavelengths was the same.

RECYCLING OF LEAD ACID BATTERIES INTO SOLAR PANELS

All the components of the modern lead acid battery are recyclable and from an industry perspective lead-acid batteries are an environmental success story. Compared to the usual FLAGSHIP recycled products such as glass bottles at only 38%, aluminum cans at nearly 64% and lead acid batteries. Most of these lead acid batteries are the clear leaders in the field.

Solar cells using commercially available materials to compare against the performance of those made of recycled lead. They then evaluated the light-harvesting capability of the perovskite thin films made from the car battery against that of the films made from high-purity commercial lead iodide.



ADVANTAGES:

1. Efficiency >19%, which almost matches the efficiency of present day Si-based solar cell.
2. Comparatively simple manufacturing procedure.
3. Cheap for large scale manufacture.
4. Low temperature process.
5. It is pollution free.

**-R.S.KIRANMAYEE
-R.KUSUMA KUMARI
II B.Tech EEE**

**NUCLEAR WASTE INTO LONG LIVED
DIAMOND BATTERIES**

Scientists have figured out how to use nuclear waste as an energy source, converting radioactive gas into artificial diamond that could be used as batteries. Radioactive graphite blocks, a waste product from the nuclear reactor are turned into artificial diamond that generate electricity.

Nuclear reactors generate heat from highly radioactive uranium rods. The rods are placed in blocks of graphite to control the heat flow and nuclear reactions. After years of absorbing nuclear radiation, the graphite blocks become highly radioactive, generating an unstable carbon isotope, carbon-14. When nuclear power plants are decommissioned, they have to dispose of the graphite blocks.

The researchers realized they could heat the carbon blocks, which causes the radioactive carbon to turn into a gas. This gas is then collected and compressed to form a diamond. Carbon-14 has a property of emitting a short range radiation, which is quickly absorbed by any solid material and it has a half-life of 5730 years. That means the artificial diamond made from carbon still hold a 50 percent of its charge in 5730 years.

This diamond has some cool properties. Because of its radioactive nature, it can generate a small electric current. This requires no moving parts or maintenance, and can last for thousands of years without needing to be replaced.

The current is too small to power your smart phone, but it could be used for small applications where it is difficult or impossible to replace a battery. These long lived diamond batteries could also be used in spacecraft, implants such as pacemakers, and in other areas where long battery is crucial.

**-Ch.Pavani Geetha
II B.Tech EEE**



SELF ELECTRIC DRIVERLESS CARS

The 8 million project, part of a larger study of driverless cars funded by the UK government, is just one of many efforts that seek to revolutionize transportation.

Most of the driverless-car work so far has been carried out using standard passenger vehicles fitted with GLOBAL POSITIONING SYSTEM receivers and mapping technology.

Fully autonomous vehicles are developing faster than anyone would have thought a few years ago, with many experts predicting that they will become widely available in the next 5-10 years. Many questions remain, but it is already possible to imagine how this new world of driverless cars will work.



LOCATION:

Mapping software uses global positioning system data to tell the car where it is in relation to roads, traffic signals, and other landmarks.

ROUTE PLANNING:

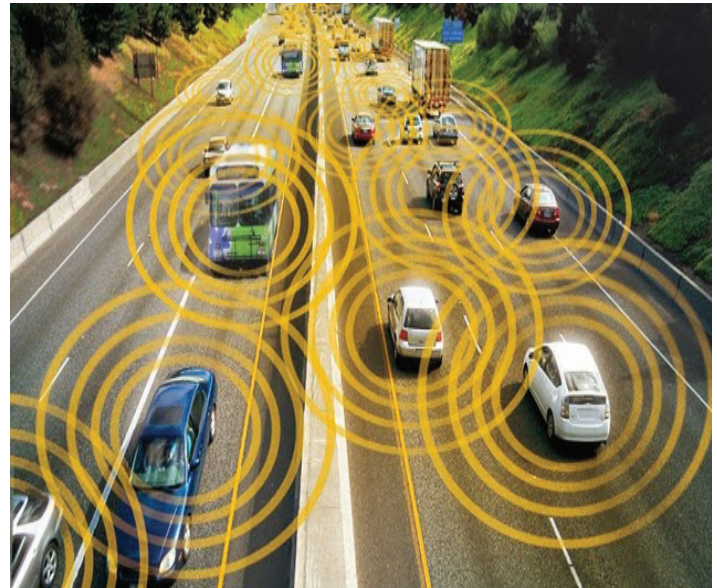
An on-board computer uses sensor data to plot a route that gets the car where it needs to go, while avoiding people, potholes and other vehicles.

PERCEPTION:

Vehicles use RADAR to detect obstacles, a LASER RANGING SYSTEM to map the surroundings in three dimensions, and video cameras to identify objects such as traffic lights, construction signs, pedestrians and other vehicles.

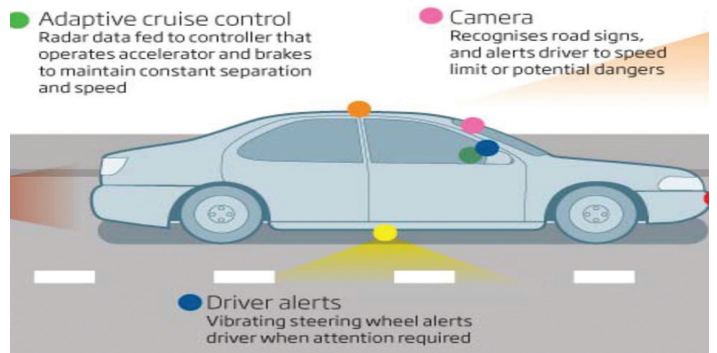
COMMUNICATION:

Vehicle-to-vehicle radios send signals between cars, trucks and infrastructure items such as traffic lights.



ROAD TRAINS:

Vehicles can take advantage of aerodynamics and save fuel by following one another almost bumper to bumper. They are protected from catastrophic pile-ups by their V2V radios, which allow all the cars in line to hit their brakes at the same time.



DECISION AND ACTION:

To make the appropriate responses to rare events-such as a ball bouncing in from a playground, or a plastic bag blowing down the roadway-the cars rely on algorithms refined through millions of kilometers of test drives.

ADAPTIVE TRAFFIC FLOW:

Smart infrastructure integrates V2V signals from the moving cars to optimize speed limits, traffic-light timing and the number of lanes in each direction on the bases of the actual traffic load. The result is a smoother flow, shorter travel time and less energy wasted at traffic lights or in traffic jams.

-M.Swathi
II B.Tech EEE

The World's First Solar Powered Cricket Stadium



Cricket is the most popular sport in India, and the M. Chinnaswamy Stadium in Bangalore one of the country's best-known cricket stadiums. On match days, up to 40,000 spectators come to the stadium, which was built in 1970. Now the M. Chinnaswamy Stadium has now been converted into a 'green' stadium. The project was completed in just 50 days. A 400kW Grid Interactive Solar Power Plant has been installed on the roof of the stadium. As per the design, this grid can easily power the entire stadium lighting except the huge high-intensity floodlights.

The stadium spends around Rs 1 to Rs. 1.2 crores on electricity bills for using about 18 lakh units of power annually. The new initiative will bring down this cost significantly and is expected to generate 6 lakh units of solar power annually, utilizing a portion of it and also selling the surplus.

A modern plant installed on the roof of one of the stands helps collect up to 35 million litres of rainwater every year, which can be used for the sanitary facilities or to water the playing field. An optimised waste disposal system ensures that the trash left behind by spectators is disposed of in an eco-friendly manner and recycled. A solar system on the roof of the eastern stand provides clean energy for the visitor areas and for the changing rooms. The M. Chinnaswamy Stadium is the first cricket stadium in the world to be powered by solar energy.

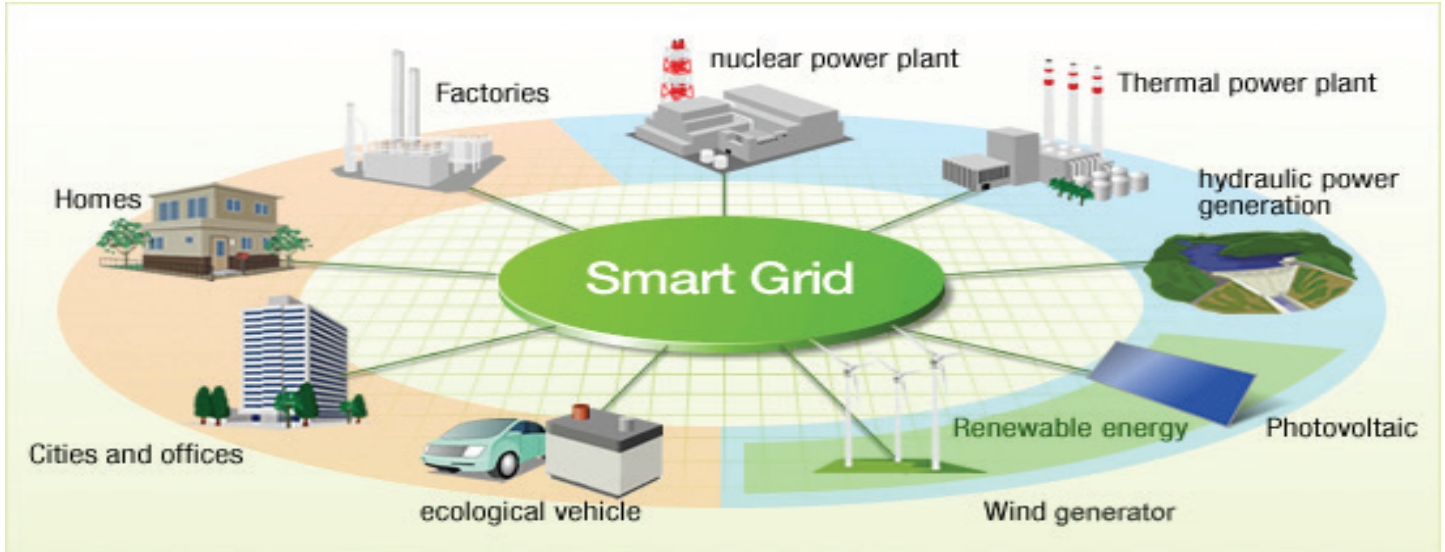
The project, costing Rs. 4.5 crore, was commissioned in February this year and KSCA (Karnataka State Cricket Association) is expected to break even in just four years. Not only this, it will also be able to generate revenues of Rs. 70-80 lakhs every year with the power it generates.

The maintenance of solar systems, such as the one in the Bangalore stadium, is cost-effective, and surplus energy from the roof of the stand can be fed directly into the city's power grid. While the installation costs will be recouped in just four years, the environment is already benefiting, as the use of solar energy helps save 600 tonnes of CO₂ per year....

-V. Nagarjuna
III B.Tech EEE

THE FUTURE ERA

SMART GRID



A “smart grid” is simply an advanced electrical distribution system that has the capability to balance electrical loads from diverse, and often intermittent, alternative energy generation sources.

The basic idea of Smart grids is about information and control as much as power management. This information can reroute electricity around problem spots until the problem is fixed, and adjust power levels to match demands. Both power suppliers and power consumers can be accommodated by smart grids. Wind and solar power can add to the grid, and consumers can be charged higher rates during peak consumption hours and lower rates when consumption is low. Smart grids can even adjust for reduced output from solar cells on cloudy days and from wind turbines on still days, in addition to the increased demands from air conditioners on hot days. Smart grids can also quickly respond to natural failures “Disaster Avoidance” or terrorist attacks by rerouting around problems or closing down the network entirely.

The smart grid is more than any one technology, and the benefits of making it a reality extend far beyond the power system itself. The transition from the grid we know today to the grid of tomorrow will be as profound as all of the advances in power systems over the last hundred years, but it will take place in a fraction of that time. The smart grid can be conceptualized as an extensive cyber-physical system that

supports and significantly enhances Controllability and responsiveness of highly distributed resources and assets within electric power systems. Renewable generation will make an increasingly important contribution to electric energy production into the future. Integration of these highly variable, widely distributed resources will call for new approaches to power system operation and control. Likewise, new types of loads, such as plug-in electric vehicles and their associated vehicle-to-grid potential, will offer challenges and opportunities. The EU’s Smart Grids technology platform summarizes the benefits of smart grids as follows. They:

1. Better facilitate the connection and operation of generators of all sizes and technologies.
2. Allow consumers to play a part in optimizing the operation of the system.
3. Provide consumers with greater information and options for choice of supply.
4. Significantly reduce the environmental impact of the whole electricity supply system.
5. Maintain or even improve the existing high levels of system reliability, quality and security.
6. Supply and Maintain and improve the existing services efficiently and Foster market integration.

In the application technologies for SG, an Intelligent Universal Transformer (IUT) has been introduced It is a power electronic base transformer

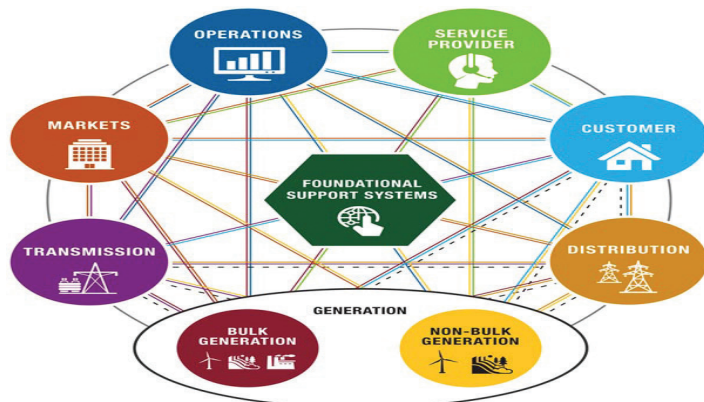
introducing for Advanced Distribution Automation (ADA) in future. ADA is the state of art employing the new architecture based on both the flexible electrical network and open communication construction comprise the Future Distribution System. IUT is a basic resource enrolling a key point in ADA conceptual construction which is fundamental part in smart grid network.

Smart grid concepts encompass a wide range of technologies and applications. We describe a few below that are currently in practice with the caveat that, at this early stage in the development of smart grids, the role of control, especially advanced control, is limited:

1. Advanced metering infrastructure (AMI) is a vision for two-way meter/utility communication. Two fundamental elements of AMI have been implemented. First, automatic meter reading (AMR) systems provide an initial step toward lowering the costs of data gathering through use of real-time metering information. Second, meter data management (MDM) provides a single point of integration for the full range of meter data.

2. Distribution management system (DMS) software mathematically models the electric distribution network and predicts the impact of outages, transmission, generation, voltage/frequency variation, and more.

3. Geographic information system (GIS) technology is specifically designed for the utility industry to model, design, and manage their critical infrastructure.



It contains: **i. Outage management systems (OMSs)** **ii. Intelligent electronics devices (IEDs)** **iii. Wide-area measurement systems (WAMS)** **iv. Energy management systems (EMSs)**

Some problems explained as:

1. PRIVACY PROBLEMS: Security experts believe that smart grid technology may enable some people to get control of the power supply.

2. GRID VOLATILITY: Smart Grid network has much intelligence at its edges; that is, at the entry point
MAR-2017

and at the end user’s meter. But the grid has insufficient intelligence in the middle, governing the switching functions. This lack of integrated development makes the grid a volatile network.

Smart Grids are most comprehensive technology during recent years and it has been grown rapidly because of its benefits. The Smart Grid is: Adaptive, with less reliance on operators, particularly in responding rapidly to changing conditions, Predictive, in terms of applying operational data to equipment maintenance practices and even identifying potential outages before they occur, Integrated, in terms of real-time communications and control functions, Interactive between customers and markets, Optimized to maximize reliability, availability, efficiency and economic performance Secure from attack and naturally occurring disruptions .

It has many features and the transition to a fully implemented smart grid brings a host of benefits in an often symbiotic relationship:

GRID OPERATORS will enjoy a quantum improvement in monitoring and control capabilities that will in turn enable them to deliver a higher level of system reliability even in the face of ever-growing demand. UTILITIES will experience lower distribution losses, deferred capital expenditures and reduced maintenance costs. CONSUMERS will gain greater control over their energy costs, including generating their own power, while realizing the benefits of a more reliable grid. THE ENVIRONMENT will benefit from reductions in peak demand, the proliferation of renewable power sources, and a corresponding reduction in emissions of CO2 as well as pollutants such as mercury. “Smart grid” enabled distribution could reduce electrical energy consumption by 5-10%, carbon dioxide emissions by 13-25%, and the cost of power-related disturbances to business by 87%. (Source: The Electric Power Research Institute). Smart grid enabled energy management systems have proven in pilots to be able to reduce electricity usage by 10–15%, and up to 43% of critical peak loads. (Source: The Brattle Group, SMUD and PNNL.) The Smart Grid vision generally describes a power system that is more intelligent, more decentralized and resilient, more controllable, and better protected than today’s grid.

-CH.Prem Kumar
III B.Tech EEE

HOW IT IS MADE

Incandescent light bulbs

This section as well as the following one (The Manufacturing Process) will focus on incandescent light bulbs. As mentioned earlier, many different materials were used for the filament until tungsten became the metal of choice during the early part of the twentieth century. Although extremely fragile tungsten filaments can withstand temperatures as high as 4500 degrees Fahrenheit (2480 degrees Celsius) and above. The development of the tungsten filaments is considered the greatest advancement in light bulb technology because these filaments could be produced cheaply and last longer than any of the previous materials.

The connecting or lead-in wires are typically made of nickel-iron wire. This wire is dipped into a borax solution to make the wire more adherent to glass. The bulb itself is made of glass and contains a mixture of gases, usually argon and nitrogen, which increase the life of the filament. Air is pumped out of the bulb and replaced with the gases. A standardized base holds the entire assembly in place. The base, known as the “Edison screw base,” was originally made of brass and insulated with plaster of paris and, later, porcelain. Today, aluminum is used on the outside and glass is used to insulate the inside of the base, producing a stronger base.

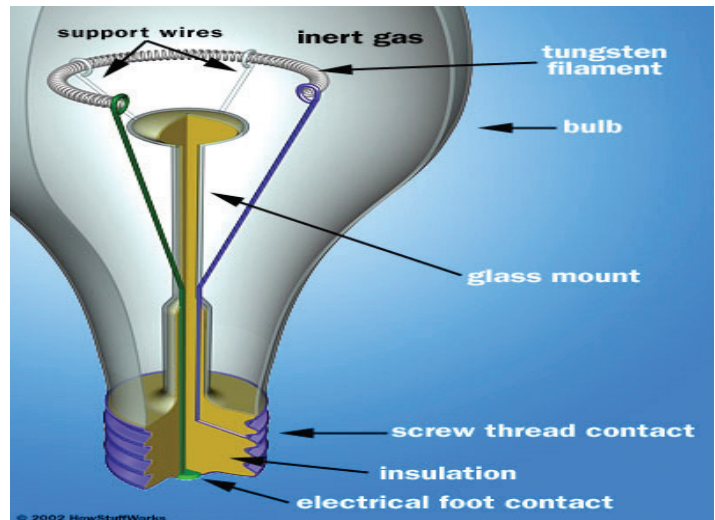
The Manufacturing Process

The uses of light bulbs range from street lights to automobile headlights to flashlights. For each use, the individual bulb differs in size and wattage, which determine the amount of light the bulb gives off (lumens). However, all incandescent light bulbs have the three basic parts—the filament, the bulb and the base. Originally produced by hand, the light bulb manufacturing is now almost entirely automated.

Filament

- The filament is manufactured through a process known as drawing, in which tungsten is mixed with a binder material and pulled through a die—a shaped orifice—into a fine wire. Next, the wire is wound around a metal bar called a mandrel in order to mold it into its proper coiled shape, and then it is heated in a process known as annealing. This process softens the wire and makes its structure more uniform. The mandrel is then dissolved in acid.

- The coiled filament is attached to the lead-in wires.



The lead-in wires have hooks at their ends which are either pressed over the end of the filament or, in larger bulbs, spot-welded.

Glass bulb

- The glass bulbs or casings are produced using a ribbon machine. After heating in a furnace, a continuous ribbon of glass moves along a conveyor belt. Precisely aligned air nozzles blow the glass through holes in the conveyor belt into molds, creating the casings. A ribbon machine moving at top speed can produce more than 50,000 bulbs per hour. After the casings are blown, they are cooled and then cut off of the ribbon machine. Next, the inside of the bulb is coated with silica to remove the glare caused by a glowing, uncovered filament. The company emblem and bulb wattage are then stamped onto the outside top of each casing.

Base

- The base of the bulb is also constructed using molds. It is made with indentations in the shape of a screw so that it can easily fit into the socket of a light fixture.

Assembly

Once the filament, base, and bulb are made, they are fitted together by machines. First, the filament is mounted to the stem assembly, with its ends clamped to the two lead-in wires. Next, the air inside the bulb is evacuated, and the casing is filled with an argon and nitrogen mixture. These gases ensure a longer-life for the filament. The tungsten will eventually evaporate and break. As it evaporates, it leaves a dark deposit on the bulb known as bulb-wall blackening. Finally, the base and the bulb are sealed. After testing, bulbs are placed in their packages and shipped to consumers.

-K. Vara Prasad
III B.Tech EEE

Top 5 countries in renewable energies

At the European Conference of Berlin that took place in 2004, the EU set itself an ambitious goal: that in 2020 it would reach a 20% use of renewable energies for its total energy consumption. In 2012, the average was 14% therefore the use of this type of clean energy (wind, solar...) must continue being promoted instead of fossil fuels (coal, petroleum...).

Is it possible to get energy only using renewable sources? A report from the European Environmental Agency, (Europe's onshore and offshore wind energy potential) confirms that wind energy alone would generate sufficient energy for Europe without any problems, its output for 2020, is 3 times greater than the foreseen demand, this amount will increase to 7 times by 2030.

Reducing greenhouse gases and abandoning the dependency on petroleum use is therefore an achievable reality.

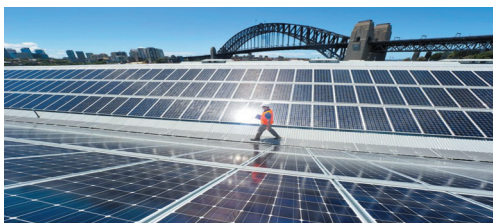
Which countries are the current leaders in using renewable energies?

Sweden: this Northern European country is developing while using limited coal, which is also more affordable, beneficial for the environment and for the consumer. So much so, that it has been commended by the IEA (International Energy Agency) for its energy policy. By 2010, the country already produced more energy from biomass than from petroleum.



Latvia: second place is also taken by a Nordic country. In Latvia, the most viable and common renewable energy is wind power, especially in regions with high wind speeds, which include the Baltic coast and western coast of the Gulf of Riga, its northern portion.

Finland: The Aland archipelago, halfway between Finland and Sweden is the perfect place to harness wind energy. The EU has set its reductions for greenhouse gas emissions, caused by burning fossil fuels such as petroleum, carbon and peat; and produce sufficient renewable energy to cover 38% of overall energy consumption by the year 2020. In 2012, it was already at 34.3%.



Austria: is another example of economic development based on renewable energy. In 2012, its percentage was 32.1%, nearing the 34% for 2020 set by the EU. A small example of the country's philosophy on renewable energies, knowing that energy from biomass has more than three years operating in this country with an amazing 90% efficiency.

Denmark: this country really understands renewable energies: by 2035 they expect to use 100% renewable energies, and by 2050 they would not be using fossil fuels at all. Envidable, isn't it? Additionally, it is surprising to know that it has complete support from the country's political spectrum, which is very unusual in most countries.



-G. Srikanth
IV B.Tech EEE

INSPIRING MINDS MISSILE MAN OF INDIA

Dr.A.P.J.ABDUL KALAM,who was a scientist,author and renoued president of India also known as “People’s president” was born on 15/10/1931 at Rameswaram. His father’s name is Jainlabudeen was a boat owner and his mother was Ashiamma,was housewife.His ancesistors were wealthy traders and his father took Hindu pilgrims back and forth between Rameswaram and with opening of pambun bridge in 1914,their family business failed. He sold newspapers to supplement his family income.

“Finding an aim in life before your 20, acquire knowledge continuously to reach this goal, work hard and persevere so you can define at all the problem and succeed”

Kalam went to St.Joseph’s college, Tiruchinapalli and graduated in Physics in 1954 and moved to Madras Institute of Technology in 1955 after completing his graduation in 1960, he joined in Defence Research Development Organisation (DRDO) and later transferred to ISRO as project director of Satellite Launch Vehicle (SLV-III)

***“Dream is not what you see in sleep,
It is thing which does not let you sleep”***

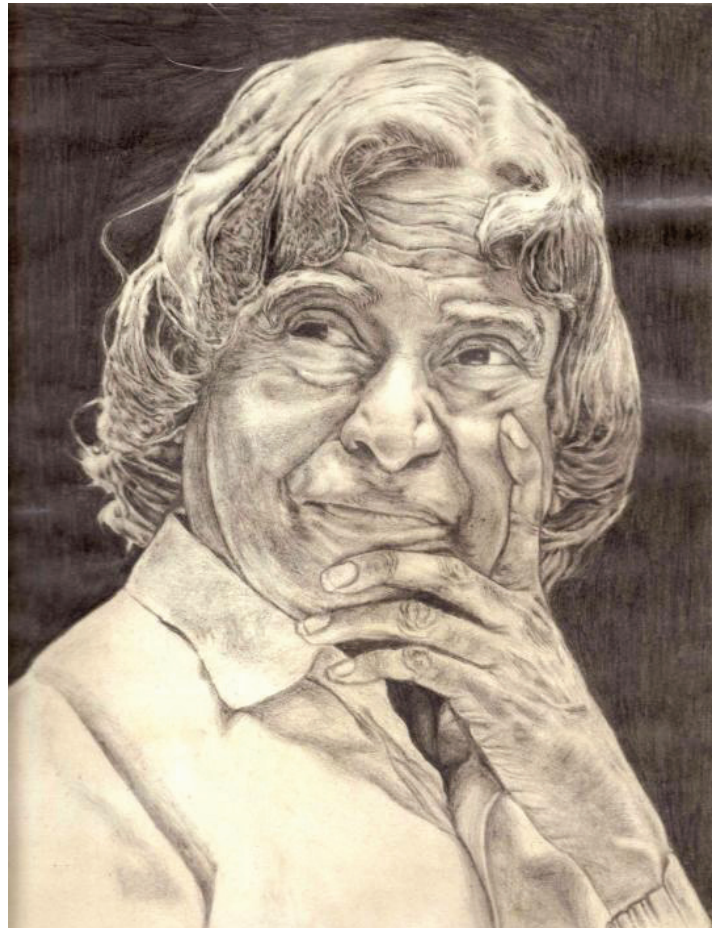
SLV-III successfully deployed ‘ROHINI’ satellite in 1980. He also expanded research program to include more engineers and also in development of military missiles program in India and India Civilian’s Space Program.

“Creativity is seeing the same thing as everybody, else, but thinking of something different”

Kalam believed that knowledge is combination of creativity, rightness and courage and he advocated the same to all the students in every occasion. With the support from NDA government in 2002, Dr. A.P.J.Abdul Kalam became the 11th president of India on 25 July 2002. He was well known as people’s president. He was recipient of several prestigious awards including BHARAT RATNA, India’s highest civilian honour and 3rd president and 1st scientist to win this honour

“Success is when your signature changes to an autograph”

He got down as president on 25 July 2012 and he returned to civilian life and served as visiting professor at many institution. He started a movement of youth.



“What can I give” in May, 2012 to defeat corruption. In his writings, India 2020, action plan to develop India was finest. He advocated that

“Young stars are not useless but they are used less”

On 27 July 2015. He visited IIM Shillong to deliver a lecture on “creating a liveable planet earth”, he collapsed due to cardiac arrest and was lacked pulse or other sign of life.

“END IS NOT END, IN FACT END MEANS EFFORT NEVER DIES”

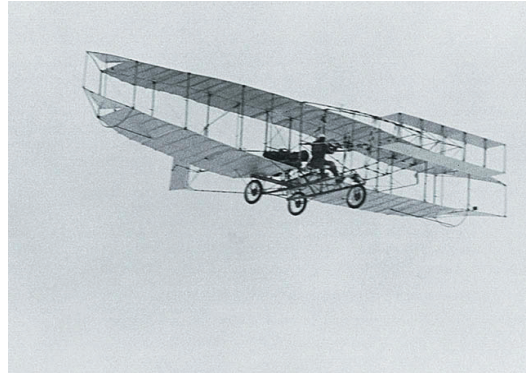
Now, our country is able to send 104satellite on single rocket in it’s first attempt and planning to have our own navigation systems and many further projects such as Chandrayan-II and to generate electricity from helium available on moon are due to initiative taken by Dr.A.P.J.Abdul Kalam only.

**-CH. Ajay Ram
III B.Tech EEE**

FIRST INVENTION MODEL



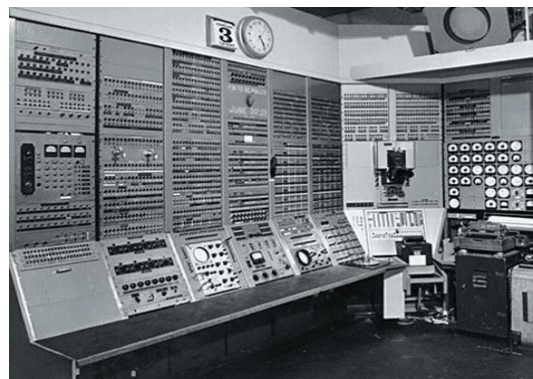
Smart phone by IBM in 1992



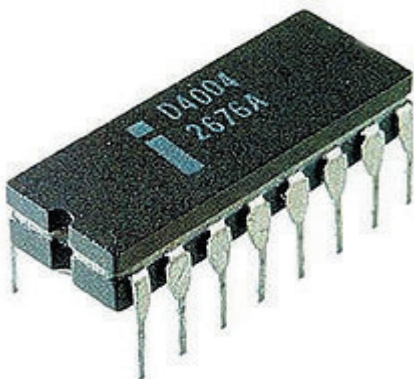
first Plane by Wright brothers in
Dec 17,1903



First TV in Sept,1927 in
Sanfrancisco



First Computer by Charless
Babbage



First Microprocessor by INTEL
in 1971



First Electrical Car in 182

-K. Hari Krishna
III B.Tech EEE

FACTS

1. Reports of people receiving shocks from electric fish date back to ancient Egyptian texts of 2750BC.
2. Ancient Romans recommended touching electric fish to cure headache or gout.
3. Around 600BC, Greek philosopher Thales of Miletus became the first person to experiment on electricity obtained by rubbing pieces of amber.
4. First use of the word 'electric' in print was in 1646, from the Greek 'elektron' meaning 'amber'.
5. Edison invented the electric chair not as a means of execution but to demonstrate the dangers of alternating current.
6. The first street in the world to be lit by electric light bulbs was Mosley Street, Newcastle upon Tyne, in 1879.
7. The first four common domestic items to be powered by electricity were the sewing machine, fan, kettle and toaster.
8. In the Mexican city of Torreon, you can be fined £20 for using an electric razor while driving.
9. Iceland is the only country whose electricity supply comes entirely from renewable sources.
10. The electric eel can deliver shocks of up to 600 volts. It is not an eel but a type of knifefish.

-CH.Narsu Naidu
I B.Tech EEE

CURRENT AFFAIRS

1. India, Australia MoU for cooperation in civil aviation sector.
2. Trump administration revokes law protecting transgender students.
3. India, Uganda agreed to cooperate in space programme and atomic energy.
4. Pakistan senate approved Hindu marriage bill.
5. UAE reveals its plan to build the first city on Mars by 2117.
6. Frank-Walter Steinmeier elected president of Germany.
7. India defeats South Africa to win ICC women's world cup qualifier 2017
8. ISRO successfully tests its cryogenic stage for GSLV MKIII for the flight duration.
9. India ranks at 43RD position in 5TH annual international IP index of USCC.
10. Union cabinet approves Pradhan mantra gram digital saksharta abhiyan.
11. Olympic champion Bolt wins "sportsman of the year" award.
12. India beat Pakistan to win T20 world cup 2017.
13. ISRO successfully launched record 104 satellites including Cartosat-2 in single mission.
14. Scientists discover 2 billion years of volcanic activity on Mars.
15. India's first floating elementary school inaugurated on Manipur's Loktak lake.
16. Andhra signs MoU with Japan for capital development.
17. National women's parliament begins in Andhra Pradesh.
18. First smart police station inaugurated in Guntur, Andhra Pradesh.
19. 6,117 Kuchipudi dancers set new Guinness World Record.
20. 20th National Conference for e-Governance begins in Visakhapatnam.

-P.Gowtham Jaibheem
I B.Tech EEE

KNOW YOUR EXAM

ISRO

Indian Space Research Organization (ISRO) was established on 15th August 1969 and it is the central organization that develops the Space Science and Space Technology in the country. It conducts the various examinations to recruit the skilled candidates for the relevant posts. Here we are providing the details about one of the exam is scientist/engineer in ISRO.

Position : Scientists/Engineers SC

Eligibility: BE/B.Tech or equivalent qualification in first class with an aggregate minimum of 65% marks or CGPA 6.84/10 Candidates applying with qualification of AMIE/Grad IETE should have 65% marks or CGPA 6.84 in Section B alone. Candidates who are going to complete the above course in the academic year 2016-17 are also eligible to apply, provided final degree is available by 31/8/2017. The qualification prescribed and the benchmark are only the MINIMUM requirement and fulfilling the same does not automatically make candidates eligible for Written Test.

Basic Pay: Rs. 56100/-

Age limit: 35 years as on 07.03.2017

Application Fee: Rs.100/-

Payment method :online using Internet Banking/Debit Card or Offline by visiting nearest SBI Branch.

Selection Process: written BE/B.Tech or equivalent qualification in first class with an aggregate minimum of 65% marks or CGPA 6.84/10 (average of all semesters for which results are available). The qualification prescribed and the benchmark are only the MINIMUM requirement and fulfilling the same does not automatically make candidates eligible for Written Test. Based on the academic performance and bio-data, initial screening will be conducted to short-list candidates for test.

Hiring Process: Written-test

SYLLABUS :

- | | |
|--------------------------------|----------------------------------|
| 1. Physical Electronics | 8. Circuitsrol Systems |
| 2. Electron Devices and ICs | 9. Communication Systems |
| 3. Signals and Systems | 10. SystemsMicrowave Engineering |
| 4. Network Theory | 11. Computer Engineering |
| 5. Electromagnetic Theory | |
| 6. Analog Electronic Circuits | |
| 7. Digital Electronic Circuits | |

ISRO Exam Pattern:

- In the test, candidates may attempt the total 80 questions.
- The time allotted for the examination is of 90 minutes.
- Applicants who qualify the test may go for the further process of recruitment.

-K.V.V.CH.D.Sai Subash
III B.Tech EEE

INTERVIEW TIPS

Some HR Round Questions And Their Answers:

1. Assuming that you are selected, what will be your strategy for next 60 days?

If I am selected for this position, I'll use my initial 60 days in understanding my role carefully in terms of the contribution to the business and increasing the overall profitability. I'll sit with my line manager and other juniors to understand what has already been done and what its impact has been. From there on, I'll formulate my strategy to growth in close conjunction with managers and see that it is properly implemented.

2. How would you improve upon our product/ company?

Since I'd be coming from an altogether new environment, I am bound to possess a new perspective towards everything here including the company, product, customers, environment, strategy etc. This will enable me to constructively question things which anyone else here might not do. This will help in improving the things and making the product & company better.

3. Don't you think, you are overqualified for this position?

You might feel that I possess more degrees than you require for this position. But, I believe that I grow everyday when I talk to my staff, customers and superiors. So, basically the learning process continues through out the life – I don't think I am over qualified.

4. Have you ever had a problem with your peer? Can you give us an example?

Yes, it happened once. I was quite friendly with a colleague of mine from the other department. While talking to him during the lunch hour, I casually told him about the new marketing strategy that the marketing team was thinking about. He mentioned it to his boss and that caused a lot of confusion between the two departments. This taught me a lesson that you must not discuss any departmental strategies with anyone from other department unless you have been authorised by your boss.

5. see, there's some gap in your work history. Why?

Yes, I was feeling exhausted after years of non-stop work. So, I decided to take a break and spend some time with my family on a rejuvenating vacation. I am happy to have returned fully recharged.

6. Can you tell us something about your previous boss?

All my bosses possessed some skills worth learning. I have always tried to learn something new from them including my previous boss.

7. Is there anything that you do not like about your last or current job?

I was quite enthusiastic while joining my last job. Towards the end, the number of challenges and opportunity to grow further started diminishing. A challenge loving and growth oriented person like me doesn't enjoy this.

8. Have there been instances, when your decision was challenged by your colleague or manager?

Yes, there have been many such instances. I like people who challenge my decisions rather than following me blindly. This keeps me ensured that I am surrounded by thinking brains rather than just a set of dumb followers. When someone challenges your decisions, you are bound to rethink over it and the chances of reaching the best option are brighter.

9. If you are allowed to change one thing about your last job, what would it be?

I have been working at a senior level since last many years. These roles have always needed me to make real time decisions. Sometimes the facts, figures and other information in real time cases are not complete & still we have to make a decision. In such cases, there exists a probability of making inaccurate decisions. Knowing this, I usually run down my old decisions to see the outcome. It makes sure that I don't repeat a mistake ever again in future. While carrying out one such exercise, I realised that the product promotion strategy that I recommended would have been different, if I had had the complete data and figures but there was no way to get them in real time.

-L. Venkateswara Rao
III B.Tech EEE

THINK OUT OF BOX



1. Twins(Adarsh and Anupam) were born in May but their birthday is in June. How's this possible?
2. If you had three apples and four oranges in one hand and four apples and three oranges in the other hand, what would you have?
3. Interviewer: He ordered a cup of coffee for the candidate. Coffee arrived; kept before the candidate, then he asked what is before you?
4. How can a man go eight days without sleep?
5. How can you lift an elephant with one hand?
6. If it took eight men ten hours to build a wall, how long would it take four men to build it?
7. A cat had three kittens: January, March and May. What was the mother's name.
8. what is the opposite of Nag panchmi?
9. James bond was pushed out of an airplane without any parachute. He survived. How?
10. Peacock is a bird who does not lay eggs, then how peacock's children are born?

-V.Yeswanth Sai Kumar
I B.Tech EEE

ANSWERS:

1. May is the name of the town.
2. Very large hands.
3. Candidate: Instantly replied "Tea"
4. He sleeps at night.
5. It is not a problem, since you will never find an elephant with one hand.
6. No time at all as it is already built.
7. What. It stated 'WHAT' was the mother's name
8. Nag did not punch me.
9. The plane was on a runway.
10. The female peacock eggs, not the male peacock.

ALUMNI ARTICLE

WAR OF CURRENTS - AC Vs DC

Science and Invention have always changed the fate of this world. But the underlying intentions of scientists may have different shades of commercial and social objectives. The trade off between these intentions will make a person wise in the view of world in spite of being known as knowledgeable.

Starting in the late 1880s, Thomas Edison and Nikola Tesla were embroiled in a battle now known as the War of the Currents. Edison developed direct current -- current that runs continually in a single direction, like in a battery or a fuel cell. During the early years of electricity, direct current (shorthand as DC) was the standard in the U.S. But there was one problem. Direct current is not easily converted to higher or lower voltages.

Tesla believed that alternating current (or AC) was the solution to this problem. Alternating current reverses direction a certain number of times per second -- 60 in the U.S. -- and can be converted to different voltages relatively easily using a transformer. Edison, not wanting to lose the royalties he was earning from his direct current patents, began a campaign to discredit alternating current. He spread misinformation saying that alternating current was more dangerous, even going so far as to publicly electrocute stray animals using alternating current to prove his point. He had worked all possible ways and went to all possible extents of defending DC to preserve his royalties.

In The Chicago World's Fair, 1893 General Electric (previously known as Edison Electric) bid to electrify the fair using Edison's direct current for \$554,000, but lost to George Westinghouse, who said he could power the fair for only \$399,000 using Tesla's alternating current. That same year, the Niagara Falls Power Company decided to award Westinghouse -- who had licensed Tesla's polyphase AC induction motor patent -- the contract to generate power from Niagara Falls. Although some doubted that the falls could power all of Buffalo, New York, Tesla was convinced it could power not only Buffalo, but also the entire Eastern United States. On Nov. 16, 1896, Buffalo was lit up by the alternating current from Niagara Falls. By this time General Electric had decided to jump on the alternating current train, too. It would appear that alternating current had all but obliterated direct current, but in recent years direct current has seen a bit of a renaissance.

Today our electricity is still predominantly powered by alternating current, but computers, LEDs, solar cells and electric vehicles all run on DC power. And methods are now available for converting direct current to higher and lower voltages. Since direct current is more stable, companies are finding ways of using high voltage direct current (HVDC) to transport electricity long distances with less electricity loss.

So it appears the War of the Currents may not be over yet. But instead of continuing in a heated AC vs. DC battle, it looks like the two currents will end up working parallel to each other in a sort of hybrid armistice. And none of that would be possible without the genius of both Tesla and Edison.

**- M.V. Satya Sai Chandra
JNTUV Alumni**

STUDENT ACHIEVEMENTS

T ROJA - 2ND IN WOMENS DAY PAINTING, 1ST IN DIGITAL INDIA PAINTING, 1ST IN KRISHNA PUSKHARALU PAINTING

P.HARISH RANOJEE - 2ND POSITION IN ROBOTICS WORK SHOP AT TECHNOSIA-2K15, 2ND POSITION IN DANCE IN ANNUAL DAY CELEBRATIONS

P.RAVI SAI SIDDU - RUNNERS IN TABLE TENNIS IN COLLEGE DAY CELEBRATIONS

G.PHANI TEJA - 2ND POSITION IN ROBOTICS WORK SHOP AT TECHNOSIA-2K15, 2ND POSITION IN DANCE IN ANNUAL DAY CELEBRATIONS IN JNTUK-UCEV

S BHARATHIDEVI - FIRST PRIZE IN PPT IN JNTUK-UCEV

CH SRAVANI - SECOND PRIZE IN PPT IN JNTUK-UCEV

G.SRIKANTH - WINNERS IN KHO-KHO INTER COLLEGIATE ZONE-A AT AVANTHI COLLEGE AND RAGHU COLLEGE

M.S.VAMSI KAMAL REDDY - 2ND POSITION IN ROBOTICS WORK SHOP AT TECHNOSIA-2K15, 2ND POSITION IN DANCE IN ANNUAL DAY CELEBRATIONS, 2ND PRIZE IN QUIZ IN FARADAY MEMORIAL

CH.V.V.SURYA SRI - SECOND PRIZE IN TUG OF WAR IN JNTUK-UCEV

B DEEPTHI - WON FIRST PRIZE IN QUIZ IN JNTUK-UCEV

A.ADIL - 2ND POSITION IN ROBOTICS WORK SHOP AT TECHNOSIA-2K15, 1ST PRIZE IN QUIZ IN FARADAY MEMORIAL

U.S.SASANK - FARADAY MEMORIAL QUIZ WINNER

V,VENKATESHWAR RAO - QUIZ RUNNER IN FARADAY MEMORIAL

M.RAJU - RUNNERS IN VOLLEY BALL IN COLLEGE DAY CELEBRATIONS

K.PRABHA SHANKAR - RUNNERS IN TABLE TENNIS IN COLLEGE DAY CELEBRATIONS

B. Sowjanya Beulah :- Women's Day General Quiz – Winners (2014) Annual Day-Discuss Throw – 3rd place, Table Tennis -Runners P. Krishna Sangeetha :- Central Zone Chess Winners -2016,2017; Republic Day - Painting -2017 Runners; Annual Day Painting – Winners, Rangoli – Winners; Krishna Pushkaralu - Painting Winners; Engineering Day Chess Winners, Painting Runners; Women's Day – Painting Winners 2016; Digital India week – Rangoli Runners

P .Krishna Nijasritha :- Faraday Memorial – 2015 - Singing – Runners; Independence day - 2016 – Singing - Winners

Pranathi:- Annual Day – Rangoli Winners; Women's Day - 2014- Quiz Winners

G. Anusha :- Republic Day – Painting – 3rd place; Women's Day - Painting - 2nd place; Krishna Pushkaralu - Painting - 1st place; Digital India Week – Digital Painting - 1st place

B. Sri Deepthi:- Faraday Memorial - General Quiz - 1st place

S. Bharathi Devi :- Faraday Memorial - PPT - 1st place

G. Sravani :- Academics - 1st place

P.D. Suneeha :- Pratibha Award

I.K. Tulasi :- Pratibha Award

B.BRAHMA TEJA - CERTIFICATE OF MERIT IN TABLE TENNIS IN COLLEGE DAY CELEBRATIONS

B.THRIVENDRA RAJU - WINNER IN QUIZ ON ENGINEERS DAY

V.SATISH - PARTICIPATED IN SOUTH ZONE INTER UNIVERSITY TOURNAMENT AT UNIVERSITY OF CALICUT KERALA,CHENNAI, WINNERS IN KHO-KHO INTER COLLEGIATE ZONE-A AT AVANTHI COLLEGE ,RAGHU COLLEGE, GMRIT

CH.APPALANAIDU - 1ST PRIZE IN PPT PRESENTATION IN DIGITAL WEEK, 1ST PRIZE IN JAM IN FAR-ADAY MEMORIAL

K.GOPI - RUNNERS IN TABLE TENNIS IN COLLEGE DAY CELEBRATIONS, ACADEMIC TOPPER IN 3RD B.TECH

PLACEMENTS

M.SAI KAMAL REDDY(13VV1A0223) - GREY CAMPUS

V.RAVI TEJA(13VV1A0220) - EFFECTRONICS

CH,APPALA NAIDU(14VV5A0263) - EFFECTRONICS

K.GOPI(14VV5A0266) - VEDHA IIT



DURING THE INAGURATION OF BRANCH MAGAZINE



**C
A
R
P
E
D
I
E
M**

SALUTE TO ISRO



ISRO Sets World Record
Successfully launches **Cartosat-2** and **103** other satellites at one go

FOR FEEDBACK EMAIL: thememoir2k17@gmail.com

MEMMOIR

FOLLOW US ON:



thememoir