

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
UNIVERSITY COLLEGE OF ENGINEERING VIZIANAGARAM



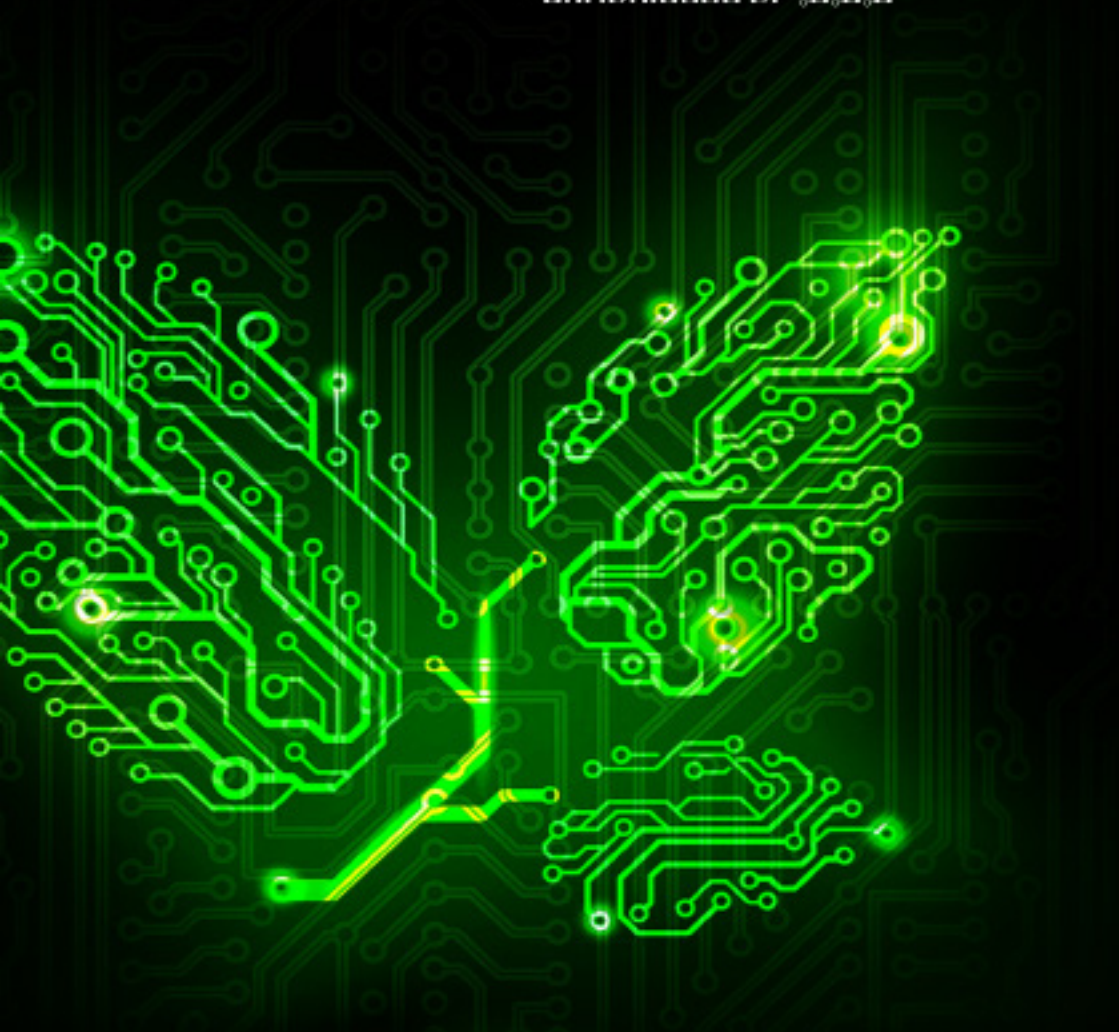
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING



Presents

THE MEMOIR

OF CHRONICLES OF EEE



VOL-3

JUNE 2017

SAY NO TO R



**MAKE CAMPUS RAGGING
GO AHEAD, REPORT R**

RAGGING



NG FREE.
RAGGING

NO RAGGING



THE MEMOIR CHRONICLES OF BEE

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 third edition of our magazine “THE MEMOIR-chronicles of eee”.

We would like to take this opportunity to thank our Principal, Dr. V. Sreenivasulu and 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 electrical and electronics like Futuristic Ion Engine, “living material”, Sun’s Magnetic Field, electronic components created from corn starch. 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 third 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 third 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.

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MESSAGE OF MAGAZINE

The Effects of Ragging

Ragging is the action of scolding, teasing, criticizing or nagging a person. It is generally committed by the senior students. Ragging often takes place in hostels. The new students were subjected to simple teasing and mock interviews. Today, it has degenerated into torture of the innocent. The new students who resist and complain to authorities are tortured the most. Ragging has some positive effects, but it should be discouraged.

The accurate meaning of the word 'ragging' is 'to tease', but even the dictionary says it is an archaic meaning. The main objective of ragging means of an interaction they get close and know one another. But in practice, it is nothing but a kind of torture. It is a form of an abuse on the newcomers of educational institutions in India.

Ragging is any disorderly conduct whether spoken or written by an act which causes annoyance, hardship or psychological harm to a student. It is generally committed by senior students upon the first year students.

Ragging generally takes place in colleges and hostels. There are many tales of torture and humiliation that are associated with ragging. The new students feel that they are in for a series of practical jokes at the hands of the senior students. Once they fall into the clutches of the latter, they do not find a way to escape. There are a few senior students in every hostel who do not take enough interest in studies. They indulge in ragging, bullying, etc. They create an image of themselves as rowdies. No one dares to interfere with their ways.

Senior students tease the new students about their looks and manners. The tall and the short, the fat and the lean, all become easy targets. Students wearing glasses, have their glasses snatched away and are made to read without them. A few of them are made to bow before the senior students and are forced to greet them with folded hands. Sometimes the eatables brought by the new stu-

dents are eaten by the seniors in the formers presence. Ragging may be in the form of a mock interview of the new entrants. The senior students would take the position of interviews, while the new students become the interviewees. Sometimes they are asked indecent questions and are made to make obscene gestures.

In the beginning, ragging was an amusing practice. It has degenerated into an evil. It has become a synonym for torture. The Supreme Court of written or by an act which adversely affects the physique or psyche of a fresher or a junior student is an act of ragging. But if through ragging the decency and morals are violated or one's body gets injured or if any wrongful restraint or criminal intimidation is involved in it, then ragging becomes a legal offence. Ragging in India commonly involves serious abuses and clear violations of human rights. The Supreme Court has taken a strong stand to curb ragging. Ragging has been declared as a criminal offence.

India's first and only registered anti ragging NGO, Society against Violence in Education SAVE has claimed that ragging is widely and dangerously prevalent in engineering and other academic institutions, mainly in the hostels.

For such cases, there are certain punishments in UGC's anti ragging guidelines which include a fine up to rupees twenty five thousand, cancellation of admission, withholding of scholarship debarring from appearing for examinations, suspension or expulsion from hostel and rustication from institution for period of one or four semesters. Even the institutions where raging is prevalent could be punished. By withdrawing of afflation or other privileges and daring any degree and withholding grants.

Most authorities have tackled the problem with iron hands. More effective steps need taken to deal with the evil. The institutes should arrange counseling session for fresher's so that they can speak their mind. Anti ragging cells should also be established. A fresher party should be organized by the institute itself within two weeks of the start of the academic session so that the junior and senior students can easily interact with one another.

Gunda Bhargav Naidu

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III EEE

ABOUT A SCIENTIST

Heinrich Hertz

Heinrich Hertz was a German scientist and physicist who became the first scientist to prove that electromagnetic waves did indeed have an existence and in so doing he proved what had only been a theory first put forwards by the Scottish physicist James Clerk Maxwell. His theories went on to be developed into what later came to be known as radio waves, however, it is also important to point out that another huge conclusion from his research on electromagnetic waves was that he was also able to prove that both light and heat are different forms of electromagnetic radiations.



"...the question as to the nature of force will not have been answered; but our minds, no longer vexed, will cease to ask illegitimate questions."

Heinrich Hertz

Quick Facts

Famous as	Physicist
Nationality	German
Born on	22 February 1857 AD
Zodiac Sign	Pisces
Born in	Hamburg
Died on	01 January 1894 AD
Place of death	Bonn
Children	Carl Hellmuth Hertz
Education	Ludwig Maximilian University of Munich, Humboldt University of Berlin, Technische Universität München
Discoveries / inventions	Dipole Antenna, Wireless Telegraphy, Radar
Awards	Rumford Medal - 1890

Childhood & Early Life

Heinrich Rudolf Hertz was born on 22 February 1857 to Gustav Ferdinand Hertz and Anna Elisabeth Pfefferkom, in Hamburg, Germany. In 1880, Heinrich Hertz submitted his doctoral thesis that dealt with the subject of electromagnetic induction and the same year the University of Berlin awarded him with his doctorate.

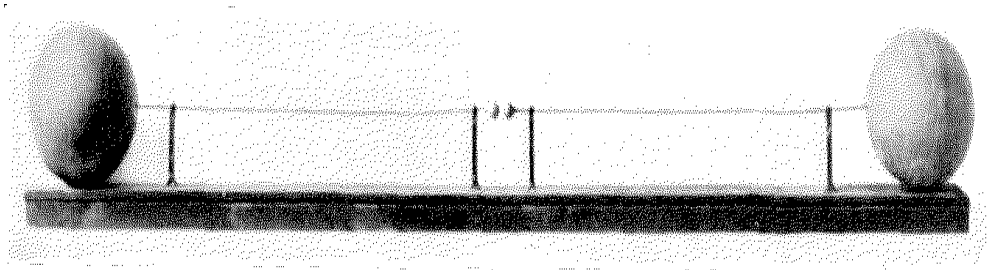
Career

Following his post-doctoral research at the University of Berlin under Hermann von Helmholtz, Heinrich Hertz was appointed as lecturer of theoretical physics in the University of Kiel in 1883 and two years later the University of Karlsruhe appointed him as a professor.

It was in the same year that he was appointed at the University of Kiel that Hertz started his research on Maxwell's electromagnetic theory. Following his appointment at the University of Karlsruhe in 1885, Heinrich Hertz's research on electromagnetic waves went up to a new level and during the next four years he managed to generate electromagnetic waves in the laboratory. Consequently, he successfully proved that both light as well as heat were nothing but electromagnetic radiations. The waves came to be called Hertzian in his honour.

Major Works

During his relatively short career as a scientist and theoretical physicist Heinrich Hertz accomplished a lot but it was his research



Hertz's first radio transmitter: a dipole resonator consisting of a pair of one meter copper wires ending in 30 cm zinc spheres. When an induction coil applied a high voltage between the two sides, sparks across the center spark gap created standing waves of radio frequency current in the wires, which radiated radio waves. The frequency of the waves was roughly 50 MHz, about that used in modern television transmitters.

on electromagnetic waves that stands out as the greatest achievement in his career. Prior to Hertz's research electromagnetic waves had only been a theory propounded by James Clerk Maxell. Those waves were what came to be later known as radio waves..

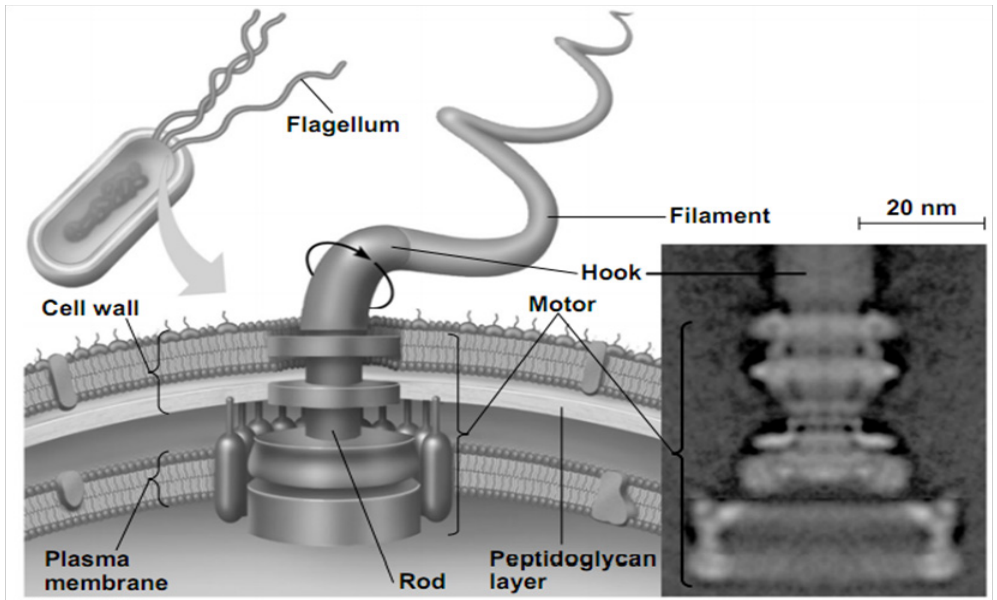
Awards & Achievements

The Italian Society of Sciences awarded Heinrich Hertz with the Matteucci Medal, in 1888. In 1890 the Royal Society awarded Hertz with the Rumford Medal. Personal Life & Legacy

Heinrich Hertz got married to Elisabeth Doll who was a lecturer of geometry at the University of Karlsruhe. Heinrich Hertz died on 1 January 1894 in Bonn due to granulomatosis with polyangiitis also known as GPA. Two years prior to his death he had an operation to cure migraine but that had led to complications that culminated in his death, at the age of 36. Hertz, the unit used to denote frequency, has been named in his honour.

Ganta Amruth Kumar
15VV1A0206
III EEE

Ancient High Performance Electric Motors Discovered....That Are Still In Production!



Perpetual motion is everywhere and mankind lacks even a crude understanding of how 'relative' that motion is, much less it's origin. Take for example, the flagellar motor. Arguably the most efficient electric motor known to man, it was discovered to be the inboard electric motor inside the bodies of certain bacteria. The flagellar motor is complete with sensors, switches, stator, rotor, bushings, drive shaft, universal joint, propeller....etc. The motor spins at up to 100,000 rpm, stops and starts nearly instantaneously, and combines it's output with other motors via their intertwined spiral 'propellers'. This is how the bacteria swims. It ACTUALLY uses highly advanced electric motors to spin propellers at super high speed!

Examine the pictures closely.... How does one honestly ascribe such an engineering feat as a self replicating electric motor, so small that 8 million of them would fit end to end in the thickness of the root of an average human hair, to blind, dumb, chance? Man is so clumsy in comparison.... actually, there is really NO comparison. Which means that if one is of the atheistic stripe, one is left to face the stark "apparent" reality that the very "pinnacle" of evolution, 'mankind', is rather infinitely LESS than the sum of his parts!

Many a sciential geek extraordinaire would jump for joy if he could

make a two piece macro object with moving part in a common 3d printer! (myself included)

Recently, it was discovered that certain jumping insects employ working gears, (accurate to within 1/30,000,000 of a second! No... 'evolution'...mindless, blinded, nothingness did not assemble such fine Masterwork.

One can readily see the many parallels between the Amazing Microcosm and it's behavior, compared to the interaction of people and the societies of today! All of it....spelled out, re-enacted on the smallest scale! Truly Wondrous.

That the brain of mankind is 'wired' into space time, and capable of seeing future events innately, has been proven statistically in the lab, and categorically in the observations of many among the world's populations at large.

Shaik Afroz
15VV1A0243
III EEE



STUDENT ARTICLES

Scientists have produced the first “living material”

Researchers at Massachusetts Institute of Technology have made a material with the properties of living and non-living things using the bacterium *E.coli*.

Their study suggests that in the future be possible materials that will evolve and renew themselves, and will be used by the development of biosensors and solar panels. Researchers led by Timothy Luoma, assistant professor of electrical and biological engineering have shown that it is possible to connect gold nanoparticles and quantum points in the so-called “living material”.

These smart materials will be able to react to the environment, such as living cells, but will also develop complex networks that are necessary for the application. For example, self-healing materials can help absorbance and conducting electricity in solar cells. These materials also can repair scratches or defects without external intervention. “Our idea is to combine the world of inanimate and animate and make hybrid materials with functional cells,” said Lu.

Controlling bacteria



In order to develop the material, scientists were “getting involved” in “producing biofilm” to force the bacteria that uses nanoparticles and quantum dot.

Biofilm helps bacteria (such as those that inhabit tartar) that “sticks” to the surface, and in the case of a large quantity, it is about a fiber made of a series of protein subunits CsgA.

For the study, the researchers altered the natural ability of *E. coli* that produces CsgA and made a genetically designed strain that produces CsgA only in certain circumstances, for example, when present molecule AHL.

This has helped scientists to control the production of biofilm formation in bacteria.

In the next part of the study, the researchers designed by E.coli that produces CsgA associated with peptides containing the amino acid histidine . Production of targeted CsgA was controlled by limiting the amount of other molecules ATC .

When gold nanoparticles are added to a mixture of fiber , histadin was ” bought” these particles and creating a network of gold nanoconnections. In the future, such a network could be used in advanced computer science and biosensors .

Researchers have even demonstrated that bacteria can evolve and interact with each other to make them ” persuaded ” to produce CsgA linked to histidine .

” This is a very simple system , but it shows that cells can communicate with each other and changing the composition of the material over time ,” says Lu . ” We hope that this will succeed in imitating the ways in which natural systems are being developed , such as the bones .”

The study was published in the journal Nature Materials .

Source: <http://www.thesciencenews.info/2014/04/scientists-have-produced-first-living.html>

Bhupathi Sai Naveen Naidu
15VV1A0230
III EEE

This Futuristic Ion Engine Could Carry Our Luggage To Mars

NASA tests a prototype 13-kilowatt Hall thruster. The solar electric propulsion system could be ready to fly soon.

NASA

When the first astronauts get to Mars sometime in the 2030s or 40s, they’re going to need more supplies than can fit in a backpack and rolling luggage. Their habitat, food, rovers, and return

vehicle will all have to be pre-delivered. To do all that hauling, NASA is developing an ultra efficient spacecraft engine, and this week the agency announced that Aerojet Rocketdyne will be the company to manufacture it.

The cargo truck of the solar system will use solar power to charge up and expel xenon gas from its backside. The method is said to be up to 10 times more efficient than current chemical propulsion systems. Aerojet Rocketdyne has a 36-month contract

to produce the engine, and after that the space agency plans to test fly it on a mission to an asteroid. Later it might deliver cargo and maybe even people to Mars. If it works, it will provide a powerful yet efficient way to explore deep space.

The “solar electric propulsion” engines work somewhat like how the Dawn spacecraft’s engines work. The spacecraft’s solar panels will generate electricity. Those electrons will get trapped in a magnetic field and then used to ionize the xenon propellant. The magnetic field also generates an electric field, and together they’ll make those charged xenon particles shoot out of the spacecraft at high speeds, thrusting out a cloud of plasma that moves the spacecraft forward. Whereas the Dawn spacecraft’s engines have 2.6kW thrusters, Aerojet Rocketdyne’s engines will have 13kW thrusters. If it works, it will provide a powerful yet efficient way to explore deep space.

Ion propulsion has a lower thrust than chemical means, but it’s a lot more fuel-efficient and can continuously accelerate the spacecraft. Whereas a chemically driven spacecraft could reach Mars in as little as 8 or 9 months, this method might take up to 36 months. But because the spacecraft won’t have to carry as

much fuel to get there, that frees up space to carry more cargo.

The Asteroid Redirect Mission will be driven by Aerojet Rocketdyne’s solar electric propulsion system. The spacecraft will travel to an asteroid and steal a boulder from it. (Illustration)

NASA

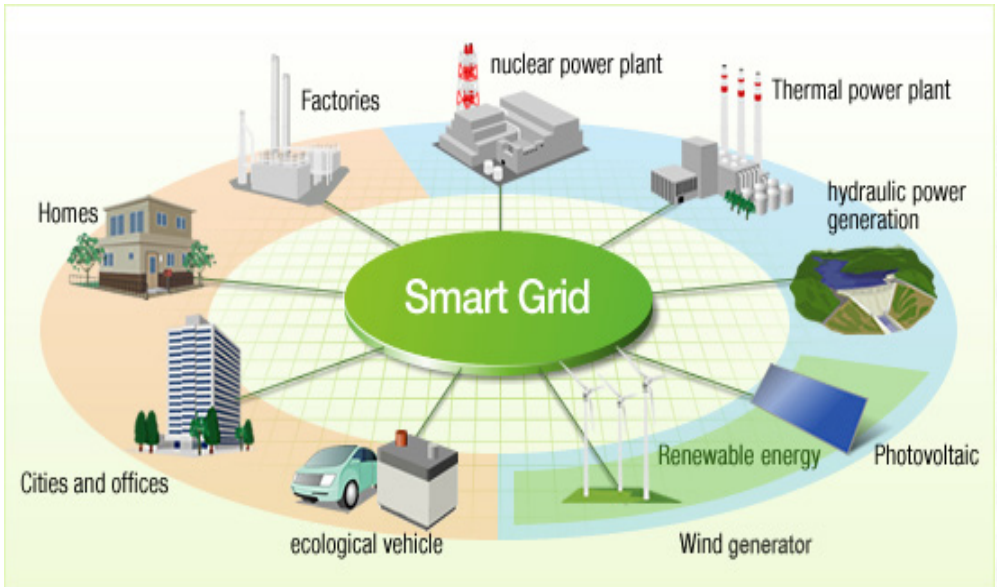
Because solar electric propulsion is slower, it’s not likely to be used to carry humans into deep space, unless it’s used in combination with chemical propulsion to speed things up.

As a test drive for Mars, NASA is planning to launch the engines in the 2020s. During the Asteroid Redirect Mission, the engines will propel a spacecraft to an asteroid, where it’ll pick up a boulder and carry it into orbit around the moon. There, astronauts will rendezvous with it to test other equipment in development for the Journey to Mars (including the Space Launch System and the Orion capsule).

NASA says ARM could launch in 2021, and bring the asteroid boulder back into lunar orbit for astronauts to analyze in 2026.

\ Kuppli Venkata Ramana
15VV1A0241
III EEE

Grid Modernization & the Smart Grid



America's economy, national security and even the health and safety of our citizens depend on the reliable delivery of electricity. The U.S. electric grid is an engineering marvel with more than 9,200 electric generating units having more than 1 million megawatts of generating capacity connected to more than 600,000 miles of transmission lines.

The electric grid is more than just generation and transmission infrastructure. It is an ecosystem of asset owners, manufacturers, service providers, and government officials at Federal, state, and local levels, all working together to run one of the most reliable electrical grids in the world.

Our electric infrastructure is aging and it is being pushed to do more than it was originally designed to do. Modernizing the grid to make it "smarter" and more resilient through the use of cutting-edge technologies, equipment, and controls that communicate and work together to deliver electricity more reliably and efficiently can greatly reduce the frequency and duration of power outages, reduce storm impacts, and restore service faster when outages occur.

"Smart grid" technologies are made possible by two-way communication technologies, control systems, and computer processing. These advanced technologies include

advanced sensors known as Phasor Measurement Units (PMUs) that allow operators to assess grid stability, advanced digital meters that give consumers better information and automatically report outages, relays that sense and recover from faults in the substation automatically, automated feeder switches that re-route power around problems, and batteries that store excess energy and make it available later to the grid to meet customer demand.

This exciting transformation of the nation's electric grid creates both challenges and opportunities to advance the capabilities of today's electricity delivery system. A critical component of grid modernization is a coordinated, strategic research, development and demonstration (RD&D) effort that involves both the public and private sectors.

OE's Role in Grid Modernization

Since its inception, OE has catalyzed investment in electric and energy infrastructure. Over the years, OE has continued investing in the research, development, and demonstration of advanced technologies while also developing new modeling and analytics capabilities that can evolve as technology and policy needs mature.

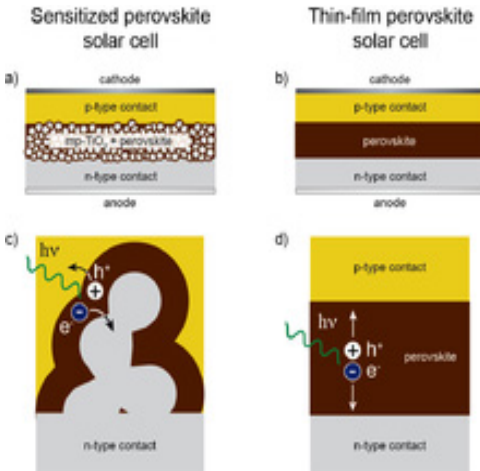
OE manages programs related to modernizing the nation's power grid, including, but not limited to, grid scale energy storage; smart grid research and development; advanced technologies such as solid-state transformers and power flow controllers that can optimize power delivery and enhance resilience (power electronics); complex interactive capabilities that can allow the system to respond to change (adaptive networks); intelligent communications and control systems; and new measurements, data analytics, and models that leverage the latest scientific advancements in mathematics and computation.

Legislative Mandates

In December 2007, Congress passed, and the President approved, Title XIII of the Energy Independence and Security Act of 2007 (EISA). EISA provided the legislative support for DOE's smart grid activities and reinforced its role in leading and coordinating national grid modernization efforts. EISA Section 1303 established at DOE the Smart Grid Advisory Committee and Federal Smart Grid Task Force.

Devapogu David Sagar
15VV1A0232
III EEE

Discovery could dramatically boost efficiency of Perovskite solar cells



This atomic force microscopy image of the grainy surface of a perovskite solar cell reveals a new path to much greater efficiency. Individual grains are outlined in black, low-performing facets are red, and high-performing facets are green. A big jump in efficiency could possibly be obtained if the material can be grown so that more high-performing facets develop.

Scientists from the Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Lab) have discovered a possible secret to dramatically boosting the efficiency of perovskite solar cells hidden in the nanoscale peaks and valleys of the crystalline material.

Solar cells made from compounds that have the crystal structure of the mineral perovskite have captured scientists' imaginations. They're inexpensive and easy to fabricate, like organic solar cells. Even more intriguing, the efficiency at which perovskite solar cells convert photons to electricity has increased more rapidly than any other material. This is in the ballpark of the efficiency of silicon solar cells.

Using photoconductive atomic force microscopy, the scientists mapped two properties on the active layer of the solar cell that relate to its photovoltaic efficiency. The maps revealed a bumpy surface composed of grains about 200 nanometers in length, and each grain has multi-angled facets like the faces of a gemstone.

"If the material can be synthesized so that only very efficient facets develop, then we could see a big jump in the efficiency of perovskite solar cells, possibly approaching 31 percent," says Sibel Leblebici, a postdoctoral researcher at the Molecular Foundry.

For the past two years, scientists at the nearby Joint Center for Artificial

Photosynthesis have been making thin films of perovskite-based compounds, and studying their ability to convert sunlight and CO₂ into useful chemicals such as fuel. Switching gears, they created perovskite solar cells composed of methylammonium lead iodide. They also analyzed the cells' performance at the macroscale. The scientists also made a second set of half cells that didn't have an electrode layer. They also mapped two properties that relate to the cells' photovoltaic efficiency: photocurrent generation and open circuit voltage.

This was performed using a state-of-the-art atomic force microscopy technique, developed in collaboration with Park Systems, which utilizes a conductive tip to scan the material's surface. The method also eliminates friction between the tip and the sample. This is important because the material is so rough and soft that friction can damage the tip and sample, and cause artifacts in the photocurrent.

Surprise discovery could lead to better solar cells. The resulting maps revealed an order of magnitude difference in photocurrent generation, and a 0.6-volt difference in open circuit voltage, between facets on the same grain. In addition, facets with high photocurrent generation had high open circuit voltage, and facets

with low photocurrent generation had low open circuit voltage.

“This was a big surprise. It shows, for the first time, that perovskite solar cells exhibit facet-dependent photovoltaic efficiency,” says Weber-Bargioni.

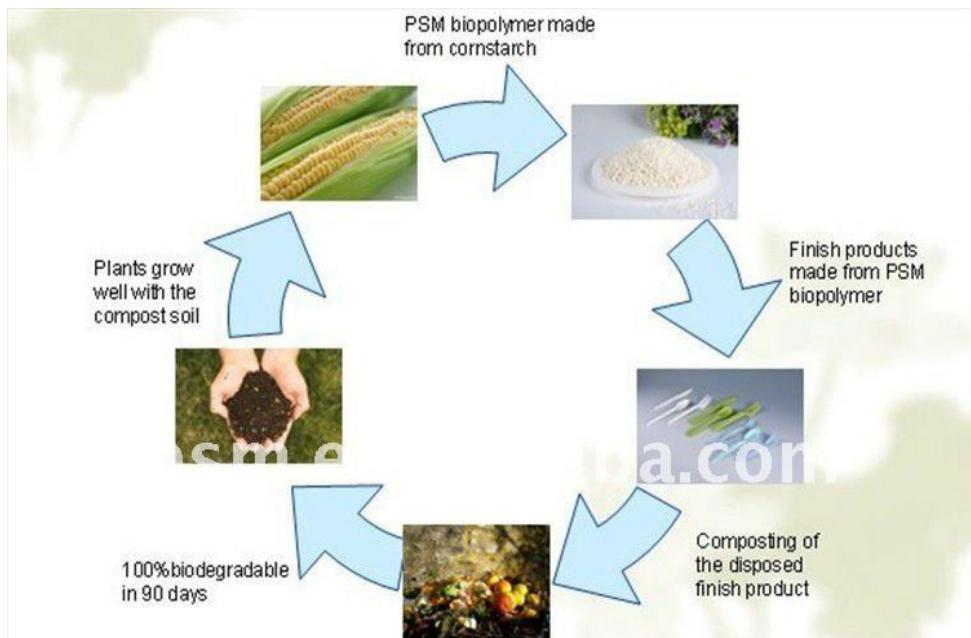
In practice, the facets behave like billions of tiny solar cells, all connected in parallel. As the scientists discovered, some cells operate extremely well and others very poorly. In this scenario, the current flows towards the bad cells, lowering the overall performance of the material. But if the material can be optimized so that only highly efficient facets interface with the electrode, the losses incurred by the poor facets would be eliminated.

“This means, at the macroscale, the material could possibly approach its theoretical energy conversion limit of 31 percent,” says Sharp.

A theoretical model that describes the experimental results predicts these facets should also impact the emission of light when used as an LED.

Pasalapudi Sai Pavan Kumar,
Yandamuri Srinivasa Sai Bhaswanth
15VV1A0242&34
III EEE

Degradable electronic components created from corn starch



As consumers upgrade their gadgets at an increasing pace, the amount of electronic waste we generate continues to mount. To help combat this environmental problem, researchers have modified a degradable bioplastic derived from corn starch or other natural sources for use in more eco-friendly electronic components. They report their development in ACS' journal Industrial & Engineering Chemistry Research.

In 2014, consumers around the world discarded about 42 million metric tons of e-waste, according to a report by the United Nations University. This

poses an environmental and human threat because electronic products are made up of many components, some of which are toxic or non-degradable. To help address the issue, Xinlong Wang and colleagues sought to develop a degradable material that could be used for electronic substrates or insulators.

The researchers started with polylactic acid, or PLA, which is a bioplastic that can be derived from corn starch or other natural sources and is already used in the packaging, electronics and automotive industries. PLA by itself, however, is brittle and flammable, and doesn't have the right

electrical properties to be a good electronic substrate or insulator. But the researchers found that blending metal-organic framework nanoparticles with PLA resulted in a transparent film with the mechanical, electrical

and flame retardant properties that make the material a promising candidate for use in electronics.

Maradana Dileep kumar

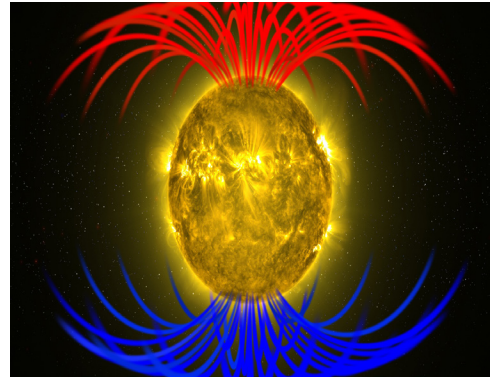
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III EEE

The Sun's Magnetic Field is about to Flip

The sun's magnetic field changes polarity approximately every 11 years. It happens at the peak of each solar cycle as the sun's inner magnetic dynamo re-organizes itself. The coming reversal will mark the midpoint of Solar Cycle 24. Half of "solar max" will be behind us, with half yet to come. Hoeksema is the director of Stanford's Wilcox Solar Observatory, one of the few observatories in the world that monitors the sun's polar magnetic fields. The poles are a herald of change. Just as Earth scientists watch our planet's polar regions for signs of climate change, solar physicists do the same thing for the sun. Magnetograms at Wilcox have been tracking the sun's polar magnetism since 1976, and they have recorded three grand reversals—with a fourth in the offing.

Solar physicist Phil Scherrer, also at Stanford, describes what happens: "The sun's polar magnetic fields weaken, go to zero and then emerge again with the opposite polarity. This



is a regular part of the solar cycle."

A reversal of the sun's magnetic field is, literally, a big event. The domain of the sun's magnetic influence (also known as the "heliosphere") extends billions of kilometers beyond Pluto. Changes to the field's polarity ripple all the way out to the Voyager probes, on the doorstep of interstellar space.

An artist's concept of the heliospheric current sheet, which becomes more wavy when the sun's magnetic field flips.

When solar physicists talk about solar field reversals, their conversation

often centers on the “current sheet.” The current sheet is a sprawling surface jutting outward from the sun’s equator where the sun’s slowly rotating magnetic field induces an electrical current. The current itself is small, only one ten-billionth of an amp per square meter (0.0000000001 amps/m²), but there’s a lot of it: the amperage flows through a region 10,000 km thick and billions of kilometers wide. Electrically speaking, the entire heliosphere is organized around this enormous sheet.

Cosmic rays are also affected. These are high-energy particles accelerated to nearly light speed by supernova explosions and other violent events in the galaxy. Cosmic rays are a danger to astronauts and space probes, and some researchers say they might affect the cloudiness and climate of

Earth. The current sheet acts as a barrier to cosmic rays, deflecting them as they attempt to penetrate the inner solar system. A wavy, crinkly sheet acts as a better shield against these energetic particles from deep space. As the field reversal approaches, data from Wilcox show that the sun’s two hemispheres are out of synch.

“The sun’s north pole has already changed sign, while the south pole is racing to catch up,” Scherrer said. “Soon, however, both poles will be reversed, and the second half of solar max will be underway.”

When that happens, Hoeksema and Scherrer will share the news with their colleagues and the public.

Dr. Tony Phillips
Science@NASA

Suggu Kumar
15VV1A0240
III EEE

“ELECTRIC”, “ELECTRICAL”, AND “ELECTRONIC”

The meanings of “electric”, “electrical”, and “electronic” often overlap, but the three adjectives are not completely interchangeable. The easiest case to deal with is electronic, which was originally defined as follows:

An electronic device is a device consisting of a large number of small complex parts that utilize elec-

tricity (such as microchips).

We can speak of electronic equipment, electronic components, electronic computers (a term falling into disuse due to the fact that all modern computers are electronic), and other electronic devices. In modern usage, anything that has an “electronic version” (i.e. a version for

electronic devices) and was originally done or produced without the use of electronic devices can be described as being “electronic” itself (with “electronic” often abbreviated as “e”), for example, electronic mail (e-mail, email), electronic media, electronic government (e-government), electronic music, ...

The words “electric” and “electrical” have an overlapping meaning: Both electric and electrical can be used to describe physical properties of electricity.

It is possible to use “electrical current” as well as “electric current”, “electrical power” as well as “electric power”, etc. However, when referring to a particular device that is based on turning electricity into another form of energy, the preferred form is “electric”:

electric motor, electric guitar, electric light, electric spark plug, ...
Somewhat surprisingly, when speak-

ing about unspecified devices or something only related to electricity, most speakers use the adjective “electrical” instead:

electrical device, electrical equipment, electrical system, electrical engineering, electrical worker, ...
In most of these, “electronic” would also work, but it would carry a different meaning. For instance, a smartphone and a laptop could be described as electronic devices, whereas most people would call electric drills, toasters, and similar “primitive” tools electrical devices.

Finally, only the word “electric” (not “electrical”) can be used metaphorically as a synonym for “exciting”, as in
electric evening, electric atmosphere, electric effect on the audience, ...
ETC..

Boddapu Paramesh
15VV1A0239
III EEE

Electronic Components Abbreviations

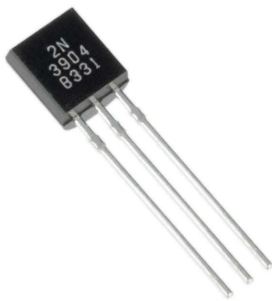
Here is a list of Electronic Component name abbreviations widely used in the electronics industry:

- AE: aerial, antenna
- B: battery
- BR: bridge rectifier
- C: capacitor
- CRT: cathode ray tube
- D or CR: diode
- F: fuse
- GDT: gas discharge tube
- IC: integrated circuit
- J: wire link
- JFET: junction gate field-effect transistor
- L: inductor
- LCD: Liquid crystal display

- LDR: light dependent resistor
- LED: light emitting diode
- LS: speaker
- M: motor
- MCB: circuit breaker
- Mic: microphone
- Ne: neon lamp
- OP: Operational Amplifier
- PCB: printed circuit board
- PU: pickup
- Q: transistor
- R: resistor
- RLA: RY: relay
- SCR: silicon controlled rectifier
- FET: field effect transistor
- MOSFET: Metal oxide semiconductor field effect transistor
- TFT: thin film

- transistor(display)
- VLSI: very large scale integration
- DSP: digital signal processor
- SW: switch
- T: transformer
- TH: thermistor
- TP: test point
- Tr: transistor
- U:integrated circuit
- V: valve (tube)
- VC: variable capacitor
- VFD: vacuum fluorescent display
- VR: variable resistor
- X: crystal, ceramic resonator
- XMER: transformer
- XTAL: crystal
- Z: zener diode

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HOW IT IS MADE?

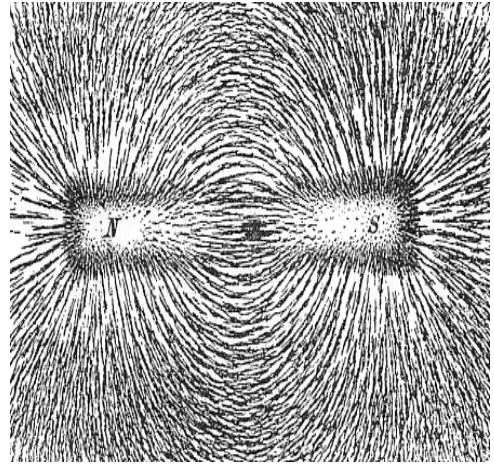
Magnet

A magnet is a material that can exert a noticeable force on other materials without actually contacting them. This force is known as a magnetic force and may either attract or repel. With other materials, the magnetic force is much larger, and these are referred to as magnets. The Earth itself is a huge magnet.

Some magnets, known as permanent magnets, exert a force on objects without any outside influence. The iron ore magnetite, also known as lodestone, is a natural permanent magnet. Other permanent magnets can be made by subjecting certain materials to a magnetic force. When the force is removed, these materials retain their own magnetic properties. Although the magnetic properties may change over time or at elevated temperatures, these materials are generally considered to be permanently magnetized, hence the name.

Other magnets are known as electromagnets. They are made by surrounding certain materials with a coil of wire.

All magnets have two points where the magnetic force is greatest. These two points are known as the



poles. For a rectangular or cylindrical bar magnet, these poles would be at opposite ends. One pole is called the north-seeking pole, or north pole, and the other pole is called the south-seeking, or south pole. This terminology reflects one of the earliest uses of magnetic materials such as lodestone. When suspended from a string, the north pole of these first crude compasses would always “seek” or point towards the north. This aided sailors in judging the direction to steer to reach distant lands and return home.

In our present technology, magnet applications include compasses, electric motors, microwave ovens, coin-operated vending machines, light meters for photography, automobile horns, televisions, loudspeakers, and tape recorders. A simple refrigerator note holder and a complex medical magnetic resonance

imaging device both utilize magnets.

History

The word magnet is derived from the Greek name magnetis lithos, the stone of Magnesia, referring to the region on the Aegean coast in present-day Turkey where these magnetic stones were found.

The first use of a lodestone as a compass is generally believed to have occurred in Europe in about A.D. 1100 to A.D. 1200. The term lodestone comes from the Anglo-Saxon meaning “leading stone,” or literally, “the stone that leads.” The Icelandic word is leidir-stein, and was used in writings of that period in reference to the navigation of ships.

Even more powerful ceramic magnets using rare earth elements were successfully formulated in the 1970s with further advances in this area in the 1980s.

Raw Materials

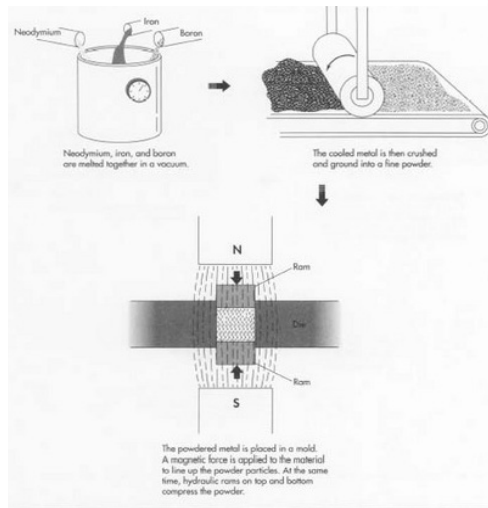
Permanent Magnet Materials

Permanent magnet lodestones contain magnetite, a hard, crystalline iron ferrite mineral that derives its magnetism from the effect the earth’s magnetic field has on it. Various steel alloys can also be magnetized. The first big step in developing more effective permanent magnet materials

came in the 1930s with the development of Alnico alloy magnets. These magnets take their name from the chemical symbols for the aluminum-nickel-cobalt elements used to make the alloy. Once magnetized, Alnico magnets have between 5 and 17 times the magnetic force of magnetite.

Ceramic permanent magnets are made from finely powdered barium ferrite or strontium ferrite formed under heat and pressure.

In the 1970s, researchers developed permanent magnets made from powdered samarium cobalt fused under heat. These magnets take advantage of the fact that the arrangement of the groups of atoms, called magnetic domains, in the hexagonal crystals of this material tend to be magnetically aligned. Because of this natural alignment, samarium-cobalt magnets can be made to produce magnetic forces 50 times stron-



THE MEMOIR CHRONICLES OF BEE

facture of magnetic tapes for sound and data recording.

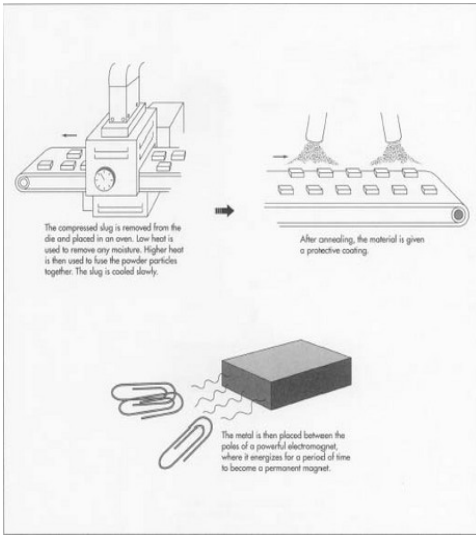
The Future

One of the applications of more powerful permanent magnets would be the development of small, high-torque electric motors for battery-powered industrial robots and laptop computer disk drives. More powerful electromagnets could be used for the levitation and propulsion of high-speed trains using pulsed magnetic fields. Such trains, sometimes called maglev trains, would be supported and guided by a central, magnetic “rail.” They would move without ever contacting the rail, thus eliminating mechanical friction and noise. Pulsed magnetic fields could also be used to launch satellites into space without relying on expensive and heavy booster rockets.

Magnetic fields can also be used in materials research to study the behavior of semiconductors used in electronics to determine the effects of making micro-sized integrated circuits.

Read more: <http://www.madehow.com/Volume-2/Magnet.html#ixzz4rfaNnlYu>

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ger than magnetite. Headphones for small, personal stereo systems use samarium-cobalt permanent magnets. Samarium-cobalt magnets also have the advantage of being able to operate in higher temperatures than other permanent magnets without losing their magnetic strength.

Similar permanent magnets were made in the 1980s using powdered neodymium iron boron which produces magnetic forces almost 75 times stronger than magnetite. These are the most powerful permanent magnets commercially available today.

Electromagnet Materials

Pure iron and iron alloys are most commonly used in electromagnets. Silicon iron and specially treated iron-cobalt alloys are used in low-frequency power transformers.

A special iron oxide, called a gamma iron oxide, is often used in the manu-

INSPIRING MINDS

Nick Vujicic Biography

Nick Vujicic is famous inspirational speaker from Australia, known for having founded the 'Life Without Limbs' establishment. This biography provides detailed information about his childhood, profile, career and timeline

Also Known As	Nicholas James Vujicic
Famous As	Evangelist
Nationality	Australian Famous Australian Men
Birth Date	4th December, 1982 AD
Age	34 Years
Born In	Melbourne
Father	Boris Vujicic
Mother	Dushka Vujicic
Siblings	Aaron Vujicic, Michelle Vujicic
Spouse/Partner	Kanae Miyahara
Children	Kiyoshi James Vujicic
Religion	Christianity
Founder/Co-Founder	Life Without Limbs
Net Worth	\$0.5 million

Nick Vujicic, famous for his inspirational speeches, was born without limbs in his body. However, instead of letting his disability deter his everyday life, he took it as a challenge, using it to change millions of lives with the same faith that kept him going. As a child of ten, he always wondered why he was different from others, and decided to drown himself since he saw no purpose to his living.

However, he stopped himself in time, thinking of his loving parents and how much it would hurt them to see him dead. From then on, there was no looking back for this young man, who now has founded his own organization, called 'Life Without Limbs'. He has released motivational films, like 'Life's Greater Purpose' and 'Biog-

raphy of a Determined Man of Faith'. He has also written a book titled 'Life Without Limits: Inspiration for a Ridiculously Good Life'. This speaker has even acted in a short film, 'The Butterfly Circus', earning the film three awards, and bagging one himself, for his brilliant portrayal of a man very much like himself, who is given a second chance to love himself. He is a devout Christian, believing that God

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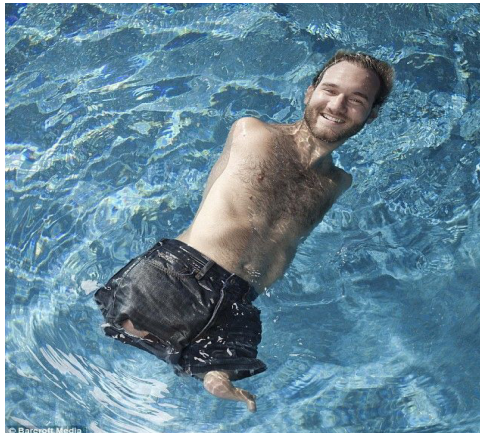
loves everyone equally, and has taken it upon himself to spread the message to everyone around the world.

Childhood & Early Life

Nicholas James Vujicic the eldest son of Dushka and Boris was born in Melbourne, Australia, on December 4, 1982. The infant, though healthy in all other aspects, was born with autosomal recessive tetra-amelia, a rare condition where the child has no limbs at all, except feet with just two toes.

Career

When Nick, as he is known, turned seventeen, he started delivering speeches in his church group. He earned a Bachelor's degree in Commerce, specializing in financial planning and accountancy, from the 'Griffith University' in Queensland. As a speaker, he mainly addresses school children, young adults, and working professionals. He has also



spoken at various churches, all across the globe, because he believes that Christ loves him as He loves all his children.

In his career, Nick has travelled to more than sixty countries around the world, and has touched the lives of millions of people. In 2005, he established an NGO named 'Life Without Limbs', which has its headquarters in Agoura Hills, California.

In the same year, Vujicic released the DVD of a documentary movie, titled 'Life's Greater Purpose'. The film talks about the motivational speaker's childhood, how he learned to use whatever was there of his limbs, and his married life.

In March 2008, Nick appeared in the '20/20' television series aired in the United States, for an interview, taken by presenter Bob Cummings.



The movie won a lot of accolades, including the first prize awarded by the ‘Doorpost Film Project’, and the ‘Best Short Film’ at the ‘Method Fest Independent Film Festival’, as well as the ‘The Feel Good Film Festival’.

In 2010, Nick wrote a book, ‘Life Without Limits: Inspiration for a Ridiculously Good Life’, under the banner of publishing company, ‘Random House’. He also released a DVD titled ‘Biography of a Determined Man of Faith’.

Vujicic gave a heart-rending speech in Switzerland, at the ‘World Economic Forum’, for their Annual Meeting’s special session, ‘Inspired for a Lifetime’, in 2011.

Major Works

Nick is an evangelist who is known for his organization, ‘Life Without Limbs’, that hosts events and presents talks on courage and faith in God to overcome any adversity faced in life.

Awards & Achievements

In 1990, Vujicic’s determination and courage impressed the world, and he was felicitated with the ‘Australian Young Citizen Award’.

He was one of the contenders for the ‘Young Australian of the Year Award’ in the year 2005.

In 2010, he won the ‘Best Actor in Short Film’ award at the ‘Method Fest

Independent Film Festival’ for his performance in the role of Will, from the movie ‘The Butterfly Circus’.

Personal Life & Legacy

In 2012, Vujicic got married to the love of his life, Kanae Miyahara, and the couple have been blessed with a son, Kiyoshi James.

Net Worth

Nick, who runs an NGO, ‘Life Without Limbs’, aimed at helping people overcome challenges in their lives, has an estimated net worth of 500,000 dollars.

Trivia

This motivational speaker is best known for his saying, “If God can use a man without arms and legs to be His hands and feet, then He will certainly use any willing heart!”

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Inventors & Inventions

"If I have seen further, it is only because I have stood on the shoulders of giants" Sir Isaac Newton

Although this list represents the most famous inventors in the electric/electronic field, it is only a small subset of the great minds that have brought us to our current level of understanding, and the technology we enjoy today.

Inventor

Contribution

William Gilbert	1544 - 1603	investigated magnetism & static electricity
Otto von Guericke	1602 - 1686	invented first electrostatic generator
Francis Hauksbee	1666 - 1713	studied electrostatic repulsion, first mercury vapor light
Emilie du Chatelet	1706 - 1749	studied infrared emission & measured conservation of energy (leading towards $E=MC^2$ equation)
Benjamin Franklin	1706 - 1790	studied electrical charges & labeled them "positive" & "negative", and a whole lot more!
Luigi Galvani	1737 - 1798	discovered electrical effects between different metals, and in biological cells
Alessandro Volta	1745 - 1827	developed the forerunner of the electric battery
André Marie Ampère	1775 - 1836	established a measurable relationship between electricity and magnetism
HansChristian Oersted	1777 - 1851	developed experiments in electromagnetism
Carl Friedrich Gauss	1777 - 1855	experimented with electrical charges and magnetism, and established a method for measuring magnetic fields

Georg Simon Ohm 1789 - 1854 his work led to the mathematical relationship between voltage, current, and resistance called “Ohm’s Law”

Michael Faraday 1791 - 1867 developed measurement methods in capacitance & electromotive force

1910 - 1989 co-invented the solid-state transistor with John Bardeen and Walter Brattain, leading to the creation of Silicon Valley

Jack Kilby 1923 - 2005 patented the first integrated circuit while at Texas Instruments, then later patented the portable calculator

Robert Noyce 1927 - 1990 further developed the integrated circuit to include more transistors on a silicon substrate

Gordon Moore

born 1929 co-founded Intel in 1968 & known for “Moore’s Law” which observes that integrated circuit complexity doubles every 2 years

10 Amazing Facts about India

- 1.) Vinod Dahn invented Pentium chip (90% of the today's computers run on it).
- 2.) Sabeer Bhatia created Hotmail (Hotmail is world's No.1 web based email program).
- 3.) 38% of doctors in USA are Indians.
- 4.) 12% of scientists in USA are Indians.
- 5.) 36% of NASA scientists are Indians.
- 6.) 34% of Microsoft employees are Indians.
- 7.) 28% of IBM employees are Indians.
- 8.) 17% of INTEL scientists are Indians.
- 9.) 13% of XEROX employees are Indians.
- 10.)The famous board game, called Chess, was invented in India.

CURRENT AFFAIRS

GK Current Affairs Quiz: 2017

Question 1: Who has been named as the new CEO of Prasar Bharati?

- A. Shashi Shekhar Vempati
- B. Jawhar Sircar
- C. Rajeev Singh
- D. Deepak Kumar Hota

Question 2: UN General Assembly has elected how many non-Permanent UNSC Members?

- A. 4
- B. 6
- C. 7
- D. 5

Question 3: Abdul Rahman recently passed away. He was a famous _____

- A. Politician
- B. Poet
- C. Actor
- D. Hockey player

Question 4: Who among the following won 2017 UEFA Champions League title?

- A. Juventus
- B. Barcelona
- C. Real Madrid
- D. Milan

Question 5: All states have agreed to rollout GST from?

- A. June 30
- B. July 1
- C. July 31
- D. None of these

Question 6: India's first freight village will be set up in which of the following cities?

- A. Ahmedabad
- B. Kochi
- C. Varanasi
- D. Noida

Question 7: Which Indian bureaucrat has been appointed as a public policy fellow to a top American think-tank?

- A. Meera Shankar
- B. Nirupama Rao
- C. Chokila Iyer
- D. Sujatha Singh



Question 8: Who is the newly elected Chancellor of Jamia Millia Islamia (JMI)?

- A. Najma Heptulla
- B. Mohammad Hadis Lari
- C. Aftab Ahmad
- D. M.A. Zaki

Question 9: Love Raj Singh has become the first Indian to scale Mt. Everest 6 times. He hails from which state?

- A. Bihar
- B. Madhya Pradesh
- C. Odisha
- D. Uttarakhand

Question 10: Dailong village, which has been declared as a biodiversity heritage site, is in which state?

- A. Assam
- B. Nagaland
- C. Manipur
- D. Meghalaya

Gongada Devendra Sri Surya Teja

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CURRENT AFFAIRS

KNOW YOUR EXAM

What is ESE/ IES ?

Indian Engineering Services comprise of engineers who work under the government of India and designated as Class – 1 officer. They administer a large segment of the public sector economy, which constitutes of Indian Railways, Power, Telecommunications, Central Water engineering, Defence service of Engineers, Central Engineering Service, etc. The nature of work performed by these bureaucrats largely depends on their engineering branch and the service or cadre they are recruited in. The career progression goes smoothly attaining high esteem. The first position offered is that of Asst. Executive engineer and the hierarchy ends at the position of Chairman/ Managing Director.

A combined competitive examination is conducted by the Union Public Services Commission (UPSC) for recruitment to the Indian Engineering Services. The Examination constitutes of a written examination followed by an interview for the personality test. The recruitment of qualified candidates is made under the following categories:

- Electronics & Telecommunication Engineering
- Electrical Engineering

- Mechanical Engineering
- Civil Engineering

ESE 2018 Eligibility

(I) Nationality:

A candidate must be either:

- (a) A citizen of India or
- (b) A subject of Nepal or A subject of Bhutan or
- (c) A Tibetan refugee who came over to Indian before the 1st January, 1962 with the intention of permanently settling in India or
- (d) A person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka or East African countries of Kenya, Uganda, the United Republic of Tanzania, Zambia, Malawi, Zaire and Ethiopia or from Vietnam with the intention of permanently settling in India.

Provided that a candidate belonging to categories (b), (c) and (d) above shall be a person in whose favor a certificate of eligibility has been issued by the Government of India.

(II) Age Limits:

- A candidate for this examination must have attained the age of 21 years and must not have attained the age of 30 years on the 1st January, of the exam year.
- The upper age-limit of 30 years will be relaxable up to 35 years in the case of Government servants of the following categories, if they are employed in a Department/Office under the control of any of the authorities mentioned in column 1 below and apply for admission to the examination for all or any of the Service(s)/Posts mentioned in column 2, for which they are otherwise eligible.
- The upper age-limit prescribed above will be further relaxable:
 - (i) Upto a maximum of five years if a candidate belongs to a scheduled caste or a scheduled tribe.
 - (ii) Upto a maximum of three years in the case of candidates belonging to OBC category.

(iii) Upto a maximum of five years if a candidate had ordinarily been domiciled in the state of Jammu & Kashmir during the period from 1st January, 1980 to the 31st day of December, 1989.

(iv) Upto a maximum of three years in the case of defence service personnel disabled in operations during hostilities with any foreign country or in a disturbed area, and released as a consequence thereof.

(v) Upto a maximum of five years in the case of ex-servicemen including Commissioned Officers and ECOs/SSCOs who have rendered at least five years Military Service as on 1st August, and have been released (i) on completion of assignment (including those whose assignment is due to be completed within one year from 1st August) otherwise than by way of dismissal or discharge on account of misconduct or inefficiency, or (ii) on account of physical disability attributable to Military Service or (iii) on invalidment; (vi) Upto a maximum of five years in the case of ECOs/SSCOs who have completed an initial period of assignment of five years of Military Services as on 1st August, and whose assignment has been extended beyond five years and in whose case the Ministry of Defence issues a certificate that they can apply for civil employment and they will be released on three months notice on selection from the date of receipt of offer of appointment.

(vii) Upto a maximum of 10 years in the case of blind, deaf-mute and Orthopaedically handicapped persons.

(III) Minimum Educational Qualifications:

- Obtained a degree in Engineering from a university incorporated by an act of the central or state legislature in India or other educational institutions established by an act of Parliament or declared to be deemed as universities under section-3 of the university grants commission act, 1956 or
- Passed Section A and B of the Institution Examinations of the Institution of Engineers (India) or
- Obtained a degree/diploma in Engineering from such foreign University/College/Institution and under such conditions as may be recognised by the Government for the purpose from time to time or
- Passed Graduate Membership Examination of the Institute of Electronics and Telecommunication Engineers (India) or
- Passed Associate Membership Examination Parts II and III/Sections A and B of the Aeronautical Society of India or
- Passed Graduate Membership Examination of the Institution of Electronics and Radio Engineers, London held after November 1959

Provided that a candidate for the post of Indian Naval Armament Service (Electronics Engineering Posts and Engineer Group 'A' in Wireless Planning and Coordination Wing/Monitoring Organization) may possess any of the above qualifications or the qualification mentioned below namely: M.Sc. degree or its equivalent with Wireless Communication, Electronics, Radio Physics or Radio Engineering as a special subject.

How to prepare for ESE?

- ESE written exam consists of both objective and conventional type questions hence theory, conceptual knowledge and problem solving techniques are equally important.
- Good writing skills, excellent presentation, subjective theory, explanations, derivations, diagrams and equations will fetch you good marks in conventional or subjective paper.
- Be aware of exam pattern like how many technical & non-technical questions are asked, negative marks, weightage, exam duration and marks per question. Always make a habit of referring previous year question papers.
- Prefer Reference books for derivations, equations, conceptual thinking, theory etc.
- Short Cut Techniques: Use short techniques for numerical solving instead of traditional approach.
- Reading news paper, watching morning bulletin, surfing websites will help the candidates to prepare and score better in the General ability paper carrying 200 marks. Do not neglect General Ability part as this section is scoring and also plays an important role in personal interview.
- Practice previous year question papers and analyze the weak topics and concentrate more on those topics. Always try to solve the papers in given time to obtain an idea that how many questions you are able to solve in given time limits.
- Intense knowledge of the subjects, strong basics, and clear concepts helps in better understanding of the subjects and prove to be instrumental in getting good scores.
- Personal Interview: Sound technical knowledge, Positive attitude, Body language, Good communication skills, knowledge about current affairs plays an important role to clear personal interviews. Candidates should be prepared for the questions about their strengths and weaknesses.

10 Ways to Improve Your Communication Skills

There are specific things to do that can improve your communication skills:

1. Listen, listen, and listen. People want to know that they are being heard. Really listen to what the other person is saying, instead of formulating your response. Ask for clarification to avoid misunderstandings. At that moment, the person speaking to you should be the most important person in your life. Another important point is to have one conversation at a time. This means that if you are speaking to someone on the phone, do not respond to an email, or send a text at the same time. The other person will know that she doesn't have your undivided attention.

2. Who you are talking to matters. It is okay to use acronyms and informal language when you are communicating with a buddy, but if you are emailing or texting your boss, "Hey," "TTYL" or any informal language, has no place in your message. You cannot assume that the other person knows what the acronym means. Some acronyms have different meanings to different people, do you want to be misunderstood? Effective communicators target their message based on who they are speaking to, so try to keep the other person in mind, when you are trying to get your message across.

3. Body language matters. This is important for face-to-face meetings and video conferencing. Make sure that you appear accessible, so have open body language. This means that you should not cross your arms. And keep eye contact so that the other person knows that you are paying attention.

4. Check your message before you hit send. Spell and grammar checkers are lifesavers, but they are not foolproof. Double check what you have written, to make sure that your words are communicating the intended message.

5. Be brief, yet specific. For written and verbal communication, practice being brief yet specific enough, that you provide enough information for the other person to understand what you are trying to say. And if you are responding to an email, make sure that you read the entire email before crafting your response. With



enough practice, you will learn not to ramble, or give way too much information.

6. Write things down. Take notes while you are talking to another person or when you are in a meeting, and do not rely on your memory. Send a follow-up email to make sure that you understand what was being said during the conversation.

7. Sometimes it's better to pick up the phone. If you find that you have a lot to say, instead of sending an email, call the person instead. Email is great, but sometimes it is easier to communicate what you have to say verbally.

8. Think before you speak. Always pause before you speak, not saying the first thing that comes to mind. Take a moment and pay close attention to what you say and how you say it. This one habit will allow you to avoid embarrassments.

9. Treat everyone equally. Do not talk down to anyone, treating everyone with respect. Treat others as your equal.

10. Maintain a positive attitude and smile. Even when you are speaking on the phone, smile because your positive attitude will shine through and the other person will know it. When you smile often and exude a positive attitude, people will respond positively to you.

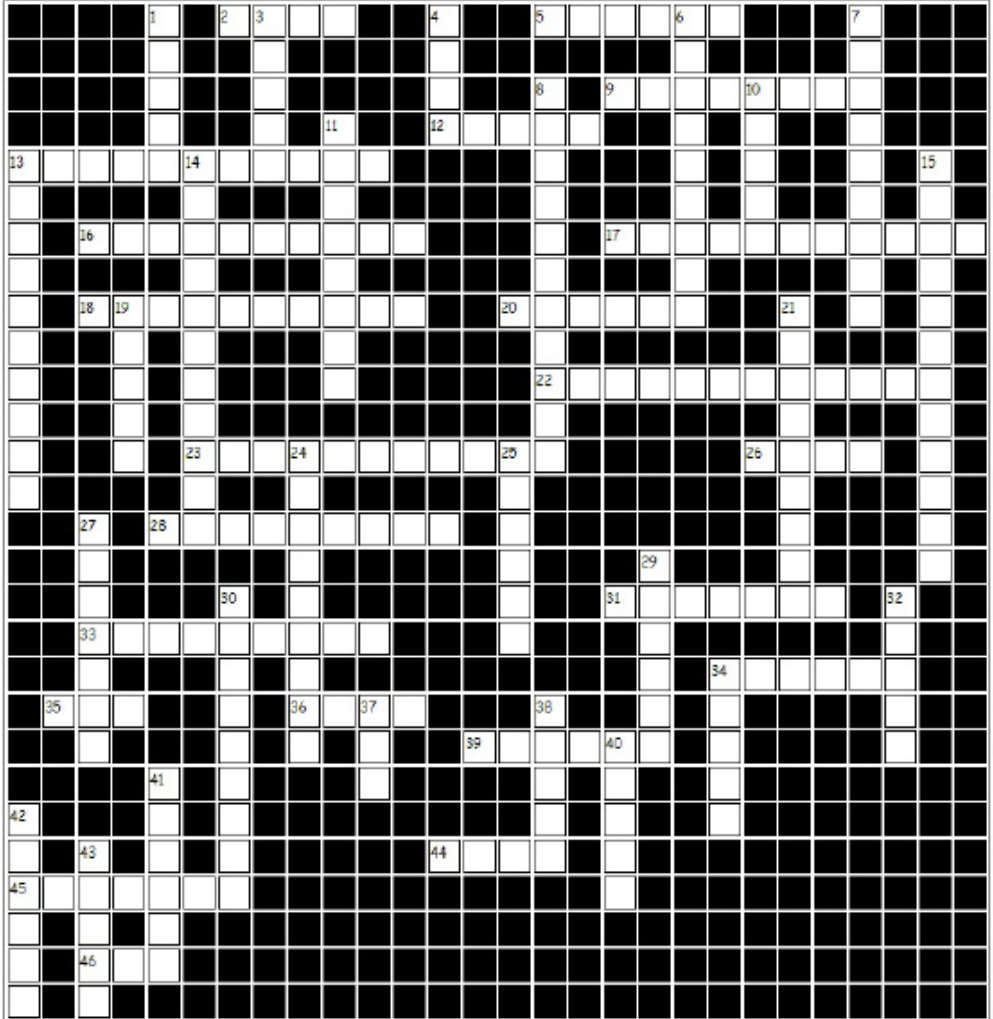
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The Electrical Crossword Puzzle

See if you can find all the electrical terms hidden in this puzzle.



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Across

- 2. What current is measured in.
- 5. A device for disconnecting a circuit.
- 9. Lots of sockets connected

together. (4,4) (2 words)

- 12. One of the towers that carries electricity around the country.
- 13. Device for stepping voltages up or down.

16. What the coloured plastic coating on wire is called.
17. The way the current in a domestic supply constantly changes.
18. A resistor that reacts to heat.
20. The bit that remains stationary in a motor.
22. Measures waveforms.
23. The study and use of semi-conductors.
26. Make connection by pushing it in.
28. The action of removing the insulation from wire.
31. A device that gives DC electrical energy from chemicals.
33. An attractive force that makes motors and other stuff work.
34. Melt it to fix components to the board.
35. Light emitter - one way too!
36. Unit of resistance.
39. Tool that grips and cuts sometimes.
44. The wire melts to protect you.
45. Something that replenishes a battery's energy.
46. An abbreviation for a light sensitive device.

Down

1. Electromotive force and potential difference is measured in this.
3. What gives us turning power from electricity.
4. A unit that gives off light from an element.
6. Something that is good at passing a current.
7. A device that produces electricity.
8. The points where we attach wires or components together.
10. What we use to measure electrical energy.
11. A component that limits the flow of current.
13. Semi-conductor with 3 connections to it.
14. A type of lighting tube.
15. The box with all the fuses or circuit breakers in. (8,4) (2 words)
19. The unit of inductance.
21. Something that is bad at passing a current.
24. A device that stores electrical charge.
25. What most cables are made from.
27. A tool that squashes a connection onto a wire.
29. The unit of capacitance.
30. Full wave or half wave device to change AC to DC.
32. A portable supply of light.
34. Something you get when touching high voltage.
37. Abbreviation for a protective device.
38. Current only flows one way through this component
40. The bit that turns in a motor.
41. Popular brand of insulation tester.
42. Take the plug!
43. Another name for wire.

Put your grey cells to work

1. Feed me and I live, yet give me a drink and I die Who am I? .
2. What kind of room has no doors or windows?
3. What gets broken without being held?
4. What kind of tree can you carry in your hand?
5. Which word in the dictionary is spelled incorrectly?
6. A girl who was just learning to drive went down a one-way street
7. If you have me, you want to share me. If you share me, you haven't got me. What am I?
8. He has married many women, but has never been married. Who is he?
9. Take off my skin – I won't cry, but you will! What am I?
10. What invention lets you look right through a wall?

Answers will be given in next edition :-P

STUDENT ACHIEVEMENTS

T roja	2nd in womens day painting 1st in digital india painting 1st in krishna puskaralu 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
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.V.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 beaulah	women's day general quiz winners (2014) annual day discuss throw 3rd place table tennis runnersp
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
Mar-2017	
B.Brahma teja	certificate of merit in table tennis in college day
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 faraday memorial

K.Gopi

runners in table tennis in college day celebrations
academic topper in 3rd b.Tech

Placements Mar-2017

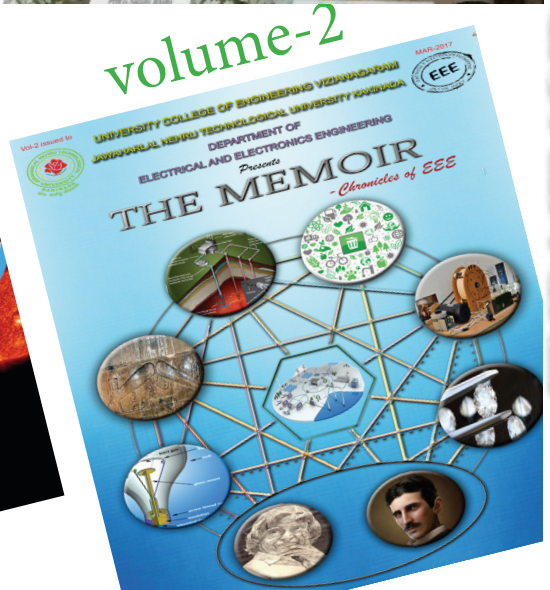
M.Sai kamal reddy (13vv1a0223) - grey campus

V.Ravi teja (13vv1a0220) - effectronics

Ch,appala naidu (14vv5a0263) - effectronics

K.Gopi (14vv5a0266) - vedha iit

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