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ELECTRO-MOTTO

Magazine of

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

R.V.R. & J.C.COLLEGE OF ENGINEERING
(AUTONOMOUS)
Chandramoulipuram, Chowdavaram, GUNTUR – 522 019.

From the Principal

It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Electrical and Electronics department of RVR&JC College of Engineering has always been striving to keep itself ahead of the competition. The essential purpose of a magazine is to inform, engage, inspire and entertain a diverse readership including alumni, parents, students, faculty, staff and other friends of the college by telling powerful stories that present a compelling, timely and honest portrait of the college and its extended family. This magazine has made an earnest attempt in this direction and brought out certain aspects to the eyes of the public so that they may understand and know the EEE department even better.

Dr. K. Srinivasu

From the HOD of EEE

I am happy to note that the magazine brought out in our EEE department is of good quality and taste. Hearty congratulations to the editorial team. It is a matter of great pleasure for me to go through the wonderful contributions made by the students. This magazine is intended to bring out the hidden literary talents in the students and to inculcate leadership skills among them. The outside world will come to know about the caliber of our students through this magazine. I extend my thanks to all the contributors for their articles, poems and drawings.

Dr.K.Chandrasekhar

ABOUT THE DEPARTMENT:

The Department of Electrical and Electronics Engineering has been established during the academic year 1994 - 1995 with an intake of 60 students. The intake has been enhanced to 120 from the academic year 2004 -2005 and 180 from the academic year 2013-2014. Department was accredited twice by National Board of Accreditation of AICTE first in the year 2002 with A-Grade for five years and in the year 2007 for three years. We have over 10 laboratories with advanced equipment and facilities for supporting our teaching and research. It is envisioned to strengthen the quality of its faculty, research and teaching facilities, as well as student's academic performance.

Our vision:

The vision of the department of Electrical & Electronics Engineering is "To impart education leading to highly competent professionals in the field of Engineering who are globally competent and to make the Department a Centre for Excellence".

Our Mission:

The mission of the department of Electrical & Electronics Engineering is "The Integrated development of professionals with knowledge and skills in the fields of specialization, ethics and values needed to be employable in the fields of Electrical Engineering and contribute to the economic growth of the employing organization and pursue lifelong learning**".**

Achievements:

The Department of Electrical & Electronics Engineering standing among all the other branches of our college.

- Accredited "A" grade for two years by NBA, AICTE New Delhi in the year 2012 for two years.
- Accredited "A" grade for three years by NBA, AICTE New Delhi in the year 2007 for three years.

- Accredited "A" grade for five years by NBA, AICTE New Delhi in the year 2002 for five years.
- College Accredited by APSCHE, Hyderabad in academic Audit Grade. It is informed that it is the Second best among the private Engineering Colleges in Andhra Pradesh.
- P.G. Course M.Tech. In Power Systems Engineering was started in 2004 with an intake of 18 students.
- The Students of the department excels in the University Examinations by being University I Rank Every Year.
- The Department is the winner of CZARS Title (Overall Championship) thrice in the years 2008, 2014, 2016 within the college.

Program Educational Objectives:

I. To facilitate the students to become Electrical & Electronics Engineers who able to competent, innovative and productive in addressing the broader interests of the organizations & society.

II. To prepare the students to grow professionally with proficient soft skills.

III. To make our graduates to engage and excel in activities to enhance knowledge in their professional works with ethical codes of life & profession.

Program Outcomes:

Engineering Graduates will be able to:

PO1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs) of EEE Department:

PSO 1: Graduates of the program must demonstrate knowledge and hands on competence in developing, Testing, Operation and Maintenance of Electrical & Electronics systems.

PSO 2: Graduates of the program must demonstrate knowledge and hands on competence in Modern Engineering tools to engage in life-long learning and to successfully adapt in multi disciplinary environments.

PSO 3: Graduates of the program must demonstrate knowledge in Project Management techniques, environmental issues and Green technologies.

List of Students who received academic prizes on Annual day celebrations in 2016

IV/IV B.Tech EEE			
Regd No.	**Name**	**CGPA**	**Rank**
Y11EE908	TanmaiVajrala	9.783	First
Y11EE894	SanthoshiKavyaPrasad.P	9.726	Second
Y11EE847	Kasukurthi Aishwarya	9.675	Third
III/IV B.Tech EEE			
Regd No.	**Name**	**CGPA**	**Rank**
Y12EE912	Vitta.Venkata Sravani	9.93	First
Y12EE828	Garikapati.Gayathri	9.92	Second
Y12EE850	Kshatri.LNS Singh	9.77	Third

II/IV B.Tech EEE			
Regd No.	**Name**	**CGPA**	**Rank**
Y13EE879	Kommuru.Himabindu	10	First
Y13EE941	Seshank.Vanama	10	Second
Y13EE915	Palisetti.Sai Ram	9.96	Third

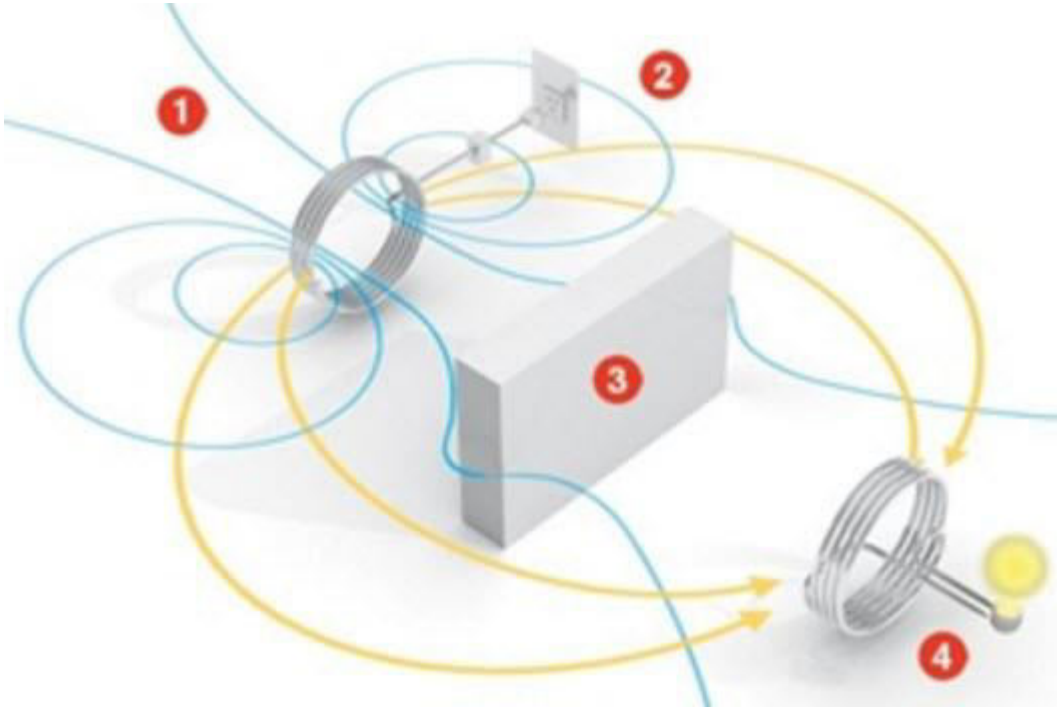
I/IV B.Tech EEE			
Regd No.	**Name**	**CGPA**	**Rank**
Y14EE925	Peddi Deepika	10.00	First
Y14EE931	Pullaamsetty Naga Revathi	10.00	Second
Y14EE834	Ganta Chaturya	9.92	Third

M.Tech (PSE)			
Regd No.	**Name**	**CGPA**	**Rank**
Y13MTPS816	T. Lakshmi Prasanna	9.576	First
Y13MTPS812	Sk.Salma	9.552	Second
Y13MTPS815	T.Srikar	9.524	Third

I/II M.Tech (PSE)			
Regd No.	**Name**	**CGPA**	**Rank**
Y14MTPS810	Nadimpalli Anjani Pavani	9.0	First
Y14MTPS803	Bhavana Devireddy	8.89	Second
Y14MTPS812	Peddi swathi Mastan	8.85	Third

WPT (Wireless Power Transmission) Technology

WPT technology is an old technology and it was demonstrated by “Nikola Telsa” in the year 1980. Wireless power transmission mainly uses three main systems such as microwaves, solar cells and resonance. Microwaves are used in an electrical device to transmit electromagnetic radiation from a source to a receiver. Accurately the name WPT states that, the electrical power can be transferred from a source to a device without using wires. Basically, it includes two coils they are a transmitter coil & a receiver coil. Where the transmitter coil is powered by AC current to create a magnetic field, which in turn induces a voltage in the receiver coil.



The basics of wireless power transmission include the inductive energy that can be transmitted from a transmitter coil to a receiver coil through an oscillating magnetic field. The DC current supplied by a power source is changed into high frequency AC current by particularly designed electronics built into the transmitter.

In the TX (transmitter) section, the AC current increases a copper wire, that creates a magnetic field. Once an RX (Receiver) coil is located near to the magnetic field,

then the magnetic field can induce an AC current in the receiving coil. Electrons in the receiving device, converts the AC current back into DC current that becomes working power.

The technology for wireless power transmission or wireless power transfer (WPT) is in the forefront of electronic development. Applications involving microwaves, solar cells, lasers, and resonance of electromagnetic waves have had the most recent success with WPT. The main function of wireless power transfer is to allow electrical devices to be continuously charged and lose the constraint of a power cord. Although the idea is only a theory and not widely implemented yet, extensive research dating back to the 1850's has led to the conclusion that WPT is possible. The three main systems used for WPT are microwaves, resonance, and solar cells. Microwaves would be used to send electromagnetic radiation from a power source to a receiver in an electrical device.

The concept of resonance causes electromagnetic radiation at certain frequencies to cause an object to vibrate. This vibration can allow energy to be transmitted between the two vibrating sources. Solar cells, ideally, would use a satellite in space to capture the suns energy and send the energy back to Earth. This concept would help to solve the major energy crisis currently concerning most of the world. These ideas would work perfectly in theory, but converting the radio frequencies into electrical power and electrical power to radio frequencies are two main problems that are withholding this idea to become reality. This paper will explore the technological applications of microwaves, resonance, and solar cells in WPT and explain the basic technique of transmitting power wirelessly. It will also include problems encountered during experimentation and recent advances in the field. The paper will also include the futuristic applications of WPT and its ability to solve the energy crisis.

Today, portable technology is a part of everyday life. Most commonly used devices no longer need to draw power from the supply continuously. But from portability emerges another challenge: energy. Almost all portable devices are battery powered, meaning that eventually, they all must be recharged using the wired chargers currently being used. Now instead of plugging in a cell phone, PDA, digital camera, voice recorder, mp3 player or laptop to recharge it, it could receive its power wirelessly–quite literally, “out of thin air”.

Future is in our hands - IOT

Smart toasters, connected rectal thermometers and fitness collars for dogs are just some of the everday "dumb items" being connected to the web as part of the so-called Internet of Things (IoT).

Connected machines and objects in factories offer the potential for a 'fourth industrial revolution', and experts predict more than half of new businesses will run on the IoT by 2020.

Here's everything you need to know about the increasingly connected world.

What is the Internet of Things?

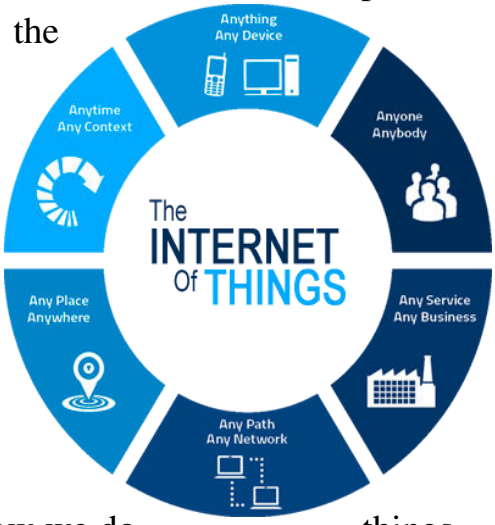
In the broadest sense, the term IoT encompasses everything connected to the internet, but it is increasingly being used to define objects that "talk" to each other. "Simply, the Internet of Things is made up of devices – from simple sensors to smartphones and wearables – connected together," Matthew Evans, the IoTprogram head at techUK, told WIRED.

By combining these connected devices with automated systems, it is possible to "gather information, analyze it and create an action" to help someone with a particular task, or learn from a process. In reality, this ranges from smart mirrors to beacons in shops and beyond.

"It's about networks, it's about devices, and it's about data," Caroline Gorski, the head of IoT at Digital Catapulttold WIRED. IoT allows devices on closed private internet connections to communicate with others and "the Internet of Things brings those networks together. It gives the opportunity for devices to communicate not only within close silos but across different networking types and creates a much more connected world."

Why do connected devices need to share data?

An argument has been raised that only because something can be connected to the internet doesn't mean it should be, but each device collects data for a specific purpose that may be useful to a buyer and impact the wider economy.



Within industrial applications, sensors on product lines can increase efficiency and cut down on waste. One study estimates 35 per cent of US manufacturers are using data from smart sensors within their set-ups. US firm Concrete Sensors has created a device that can be inserted into concrete to provide data on the material's condition.

"IoT offers us opportunity to be more efficient in how we do things, saving us time, money and often emissions in the process," Evans said. It allows companies, governments and public authorities to re-think how they deliver services and produce goods.

"The quality and scope of the data across the Internet of Things generates an opportunity for much more contextualized and responsive interactions with devices to create a potential for change," continued Gorski. IoT "doesn't stop at a screen".

Where does the IoT go next?

Even those who have purchased one of the myriad smart home products – from light bulbs, switches, to motion sensors – will attest to the fact IoT is in its infancy.

Products don't always easily connect to each other and there are significant security issues that need to be addressed. IoT botnets, created using a network of out-of-date devices recently took large websites and services offline. A Chinese firm later recalled 4.3 million unsecured connected cameras.

At the center of creating a vast, reliable IoT network lies one significant issue: compatible standards. Connected objects need to be able to speak to each other to transfer data and share what they are recording. If they all run on different standards, they struggle to communicate and share. The Institute of Electrical and Electronics Standards Association lists a huge number of standards being developed and worked on for different applications.

"Additional needs are emerging for standardization," the Internet Society says. If standardization happens it will let more devices and applications be connected.

Gorski described IoT, even among those with the most experience of the concept, as a "relatively immature market" but said 2016 may have been a turning point. The Hyper cat standard is now supported by ARM, Intel, Amey, Bae Systems and Accenture and the firms are currently agreeing on a format for "exposing collections" of URLs, for example.

"In the short term, we know [IoT] will impact on anything where there is a high cost of not intervening," Evans said. "And it'll be for simpler day-to-day issues – like finding a car parking space in busy areas, linking up your home entertainment system and using your fridge webcam to check if you need more milk on the way home.

What makes you an electrical engineer?

A career as an Electrical Engineer is best suited for someone who is investigative. To a lesser extent, this career is well suited for someone who is realistic and conventional.

Realistic

A realistic person is someone who is very body-oriented. This individual enjoys using their hands and eyes to solve practical problems. They like doing outdoor, mechanical, and physical activities. It's very natural for a realistic person to relate to the physical world—this type of person usually does not deal with problems concerning ideas, data, or people, but rather, they like to concentrate on problems they can solve with their hands.

Investigative

The role of a electrical engineer requires someone who enjoys visualizing and solving problems with their mind. To solve problems, they prefer reading and studying, books and text, rather than their using their hands. They tend to analyze situations before making decisions. Investigative people are independent thinkers that are both curious and insightful.

Conventional

A good electrical engineer is typically careful, quiet, and pays close attention to detail. Following a set of rules appeals to electrical engineers as they like to feel secure and certain. They prefer to carry out tasks assigned by others rather than

take on a leadership role. They are typically neat, tidy, and enjoy working with data in structured settings.

An electrical engineer must be careful about detail and thorough in completing work tasks. Electrical engineers must be good at analyzing information and using logic to address work-related issues and problems. The role of an electrical engineer often involves dealing with difficult obstacles. It is important for a electrical engineer to be able to continue to try even though something is difficult.

Facts about Electricity

- Electricity travels at the speed of light - more than 186,000 miles per second!
- A spark of static electricity can measure up to three thousand (3,000) volts.
- A bolt of lightning can measure up to three million (3,000,000) volts, and it lasts less than one second!
- Electricity always tries to find the easiest path to the ground.
- Electricity can be made from wind, water, the sun and even animal poop.
- A 600 megawatt natural gas plant can power 220,000 homes.

- The first power plant - owned by Thomas Edison - opened in New York City in 1882.
- Thomas Edison invented more than 2,000 new products, including almost everything needed for us to use electricity in our homes: switches, fuses, sockets and meters.

- Benjamin Franklin didn't discover electricity, but he did prove that lightning is a form of electrical energy.
- Electricity plays an important role in the way your heart functions. Muscle cells in the heart are contracted by electricity that runs through your body.

- Electrocardiogram (ECG) machines are used in hospitals to measure the electricity flowing through a patient's heart, displaying a line that spikes with every heartbeat.
- The first successful electric car was built in 1891 by American inventor William Morrison.
- Reports of people receiving shocks from electric fish date back to ancient Egyptian texts of 2750BC.
- Around 600BC, Greek philosopher Thales of Miletus became the first person to experiment on electricity obtained by rubbing pieces of amber
- First use of the word 'electric' in print was in 1646, from the Greek 'elektron' meaning 'amber'.
- Edison invented the electric chair not as a means of execution but to demonstrate the dangers of alternating current.
- Iceland is the only country whose electricity supply comes entirely from renewable sources
- The first street in the world to be lit by electric light bulbs was Mosley Street, Newcastle upon Tyne, in 1879.
- The first four common domestic items to be powered by electricity were the sewing machine, fan, kettle and toaster.
- Google searches account for about 0.013% of the worlds' energy usage. This equals enough electricity to power 200,000 homes continuously. The

energy it takes to conduct 100 searches on Google is the equivalent of a light bulb burning for 28 minutes.

- The Brooklyn Bridge was the first bridge to be lit using electricity.
- A typical microwave oven consumes more electricity powering its digital clock than it does heating food.
- Water doesn't actually conduct electricity. Impurities in water is what makes it conduct electricity.

Can India Achieve 100% Renewable Energy?

By 2050, India could rely entirely on renewable energy to create a sustainable energy future.To secure its energy future, India urgently needs to design/implement innovative policies and mechanisms that promote increased use of abundant, sustainable, renewable resources. All of India's future energy demand could be met by utility-scale and rooftop PV, concentrated solar power, onshore and offshore wind, geothermal, and conventional hydropower. This would require building many more solar power systems and wind farms, hybrid solar-natural gas plants, solar thermal storage and advanced battery-based grid energy storage systems. Investment in these technologies would create millions of new jobs and an economic stimulus of at least US $1 trillion, and perhaps much more if all indirect (ripple) effects are

included. Other major changes involve use of electric vehicles and the development of enhanced Smart Grids. Making the transition to 100% renewable energy is both possible and affordable, but requires political support.

The Government of India has taken several measurable steps toward improving infrastructure and power reliability (such as development of renewable energy from solar and wind), clearly more needs to be done, and fast. One step in the right direction was the establishment of the Jawaharlal Nehru National Solar Mission (JNNSM) in late 2009. However, the present JNNSM target of producing 10% of the country's energy from solar − 20GW by 2022 − is totally inadequate. JNNSM needs to take bolder steps, with the help of central and state Governments, in order to play a greater role in realizing India's solar energy potential. One such step would be establishment of a nationwide solar initiative to facilitate deployment of 100 million solar roofs and utility-scale generation installations within the next 20 years. In achieving such a goal, India could become a major player and international leader in solar energy for years to come.

10 Strategies that India can Implement, Beginning Today:

To reach the goal of 100% of renewable energy by 2050 the following steps are recommended.

1. Aggressively expand large-scale deployment of both centralized and distributed renewable energy including solar, wind, hydro, biomass, and geothermal to ease the strain on the present transmission and distribution system – and allow more off-grid populations to be reached. Facilitate growth in large scale deployment by installing 100 million solar roofs and large utility-scale solar generation, through both centralized and distributed energy within the next 20 years;

2. Enact a National Renewable Energy Standard/Policy of 20% by 2020 – to create demand, new industries and innovation, and a new wave of green jobs;

3. Develop favorable government policies to ease the permitting process, and to provide start-up capital to promote the exponential growth of renewable energy. Create and fund a national smart infrastructure bank for renewable energy;

4. Accelerate local demand for renewable energy by providing preferential Feed-in-Tariffs (FIT) and other incentives such as accelerated depreciation; tax holidays; renewable energy funds; initiatives for international partnerships/collaboration, incentives for new technologies; human resources development; zero import duty on capital equipment and raw materials; excise duty exemption; and low-interest rate loans.

5. Phase out all conventional energy subsidies. Force petroleum products to compete with other fuels like biomass and biogas, etc.;

6. Accelerate the development and implementation of cost-effective energy efficiency standards to reduce the long-term demand for energy. Engage States, industrial companies, utility companies, and other stakeholders to accelerate this investment;

7. Initiate a move to electrify automotive transportation or develop Electric Vehicles – plug-in hybrids – such as the Nissan Leaf, Tesla Model S, or Chevy Volt, etc. Develop and implement time-of-day pricing to encourage charging of cars at night. Adopt nationwide charging of electric cars from solar panels on roofs, and solar-powered Electric Vehicle charging stations around the country. Thousands of these solar-powered recharging stations could spread across India just like the present public call office (PCO), giving birth to the "Green Revolution." These recharging connections could be deployed at highly-concentrated areas including shopping malls, motels, restaurants, and public places where vehicles are usually parked for extended periods;

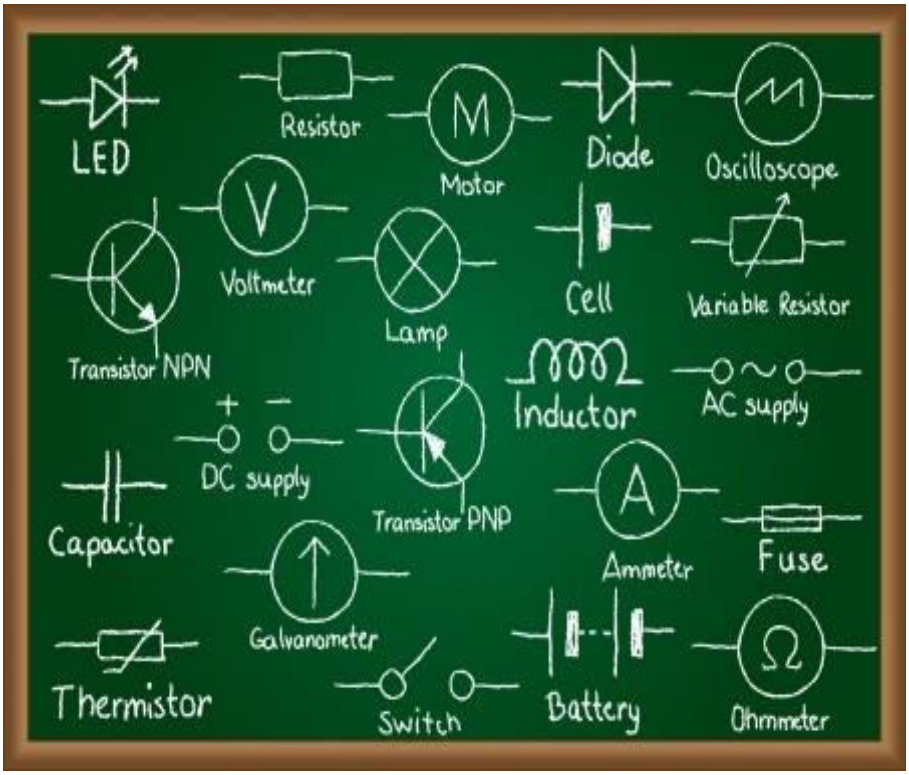
8. Aggressively invest in a smart, two-way grid (and micro-grid). Invest in smart meters, as well as reliable networks that can accommodate the two-way flow of electricity. Such networks need to be resilient enough to avoid blackouts and accommodate the advanced power generation technologies of the future;

9. Develop large-scale solar manufacturing in India (transforming India into a global solar manufacturing hub). Promote and establish utility-scale solar and wind generation parks and farms. Also, establish R&D facilities within academia, research institutions, industry, government and private entities to guide technology development.

10. Work towards a Hydrogen Economy development plan. Hydrogen can be fed into fuel cells for generating heat and electricity – as well as for powering fuel cell vehicles. Produce hydrogen from renewable energy sources such as solar and wind. If done successfully, hydrogen and electricity will eventually become society's primary energy carriers for the twenty-first century.

Fun with Electrical

- A Polish airline was on its daily flight from Warsaw to Switzerland. While flying over the Alps, the aircraft hit turbulence and started to shake violently and become unstable. The airhostess seeing the panicked reaction on the faces of the passengers took the microphone and said, "We need to make the aircraft stable. All Poles please move to the left half of the plane".



- My wife's first husband was an electrical engineer. As it happens, so am I. Shortly before we got married, she asked me,

"Do you think it's really a good idea to marry two electrical engineers?"
My response: "It's OK to marry two electrical engineers as long as you marry them in series, not in parallel."

- What would a barefoot man get if he stepped on an electric fence?
  -A pair of shocks.

- What do electricians chant when they meditate?
  -Ohm.

- How did Benjamin Franklin feel after discovering electricity?
  -Shocked.

- Two atoms were walking down the street one day, when one of them exclaimed, 'Oh no – I've lost an electron!'
  'Are you sure?' the other one asked.
  'Yes,' replied the first one, 'I'm positive.'

A TO R ADVICE TO MY DEAREST FRIENDS

Amplitude – Always be honest

Bias – Be there when they need you

Cathode – Cheer them and give them encouragement

Diode – Don't look for their mistakes, go ahead

Electronics – Encourage their dreams, what would be without them?

Field – Forgive them though they are wrong sometimes

Gate – Get together to make any discussion

Harmonic – Have faith in them

Inductance – Ignore all their mistakes

JFET – Join together and give support

Kmap – Keep in touch till they live

Latch – Love them always

Microprocessor – Make them feel special

Nyquist – Never forget them

O p-amp – Open free to offer help

Potentiometer – Praise them honestly and openly

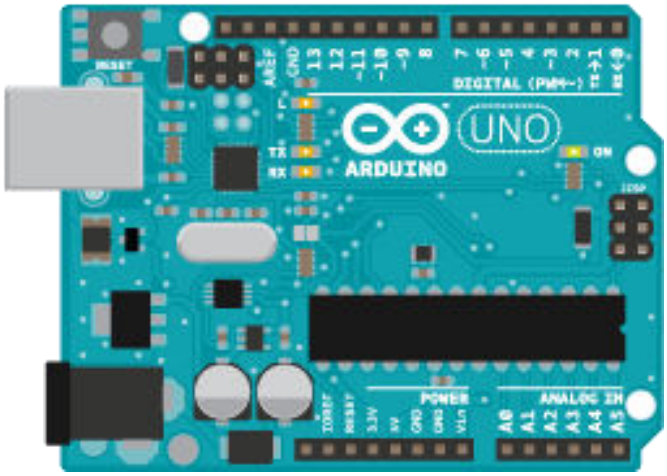
Q –point – Quietly discharge when they are angry

Resistor – Really listen to their words; make your ears free to them

The Making of Arduino

How five friends engineered a small circuit board that's taking the DIY world by storm?

Arduino is a low-cost microcontroller board that lets even a novice do really amazing things. You can connect an Arduino to all kinds of sensors, lights, motors,



and other devices and use easy-to-learn software to program how your creation will behave. You can build an interactive display or a mobile robot and then share your design with the world by posting it on the Net.Released in 2005 as a modest tool for Banzi's students at the Interaction Design Institute Ivrea (IDII), Arduino has spawned an international do-it-yourself

revolution in electronics.Arduino has become the most influential open-source hardware movement of its time.

Arduino rose out of another formidable challenge: how to teach students to create electronics, fast. It was 2002, and Banzi, a bearded and avuncular software architect, had been brought on by IDII as an associate professor to promote new ways of doing interactive design—a nascent field sometimes known as physical computing. But with a shrinking budget and limited class time, his options for tools were few.

Like many of his colleagues, Banzi relied on the BASIC Stamp, a microcontroller created by California Company Parallax that engineers had been using for about a decade. Coded with the BASIC programming language, the Stamp was like a tidy little circuit board, packing the essentials of a power supply, a microcontroller, memory, and input/output ports for attaching hardware. But the BASIC Stamp had two problems, Banzi discovered: It didn't have enough computing power for some of the projects his students had in mind, and it was also a bit too expensive—a board plus basic parts could cost about US $100. He also needed something that could run on Macintosh computers, which were ubiquitous among the IDII designers. What if they could make a board that suited their needs themselves?

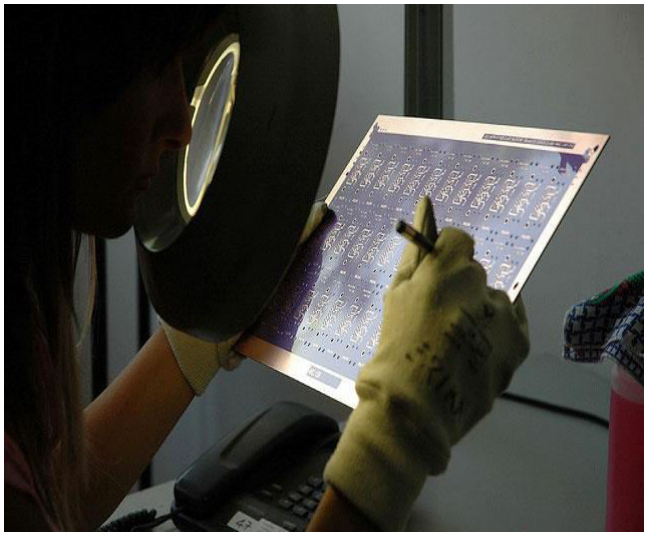
Banzi had a colleague from MIT who had developed a designer-friendly programming language called Processing. Processing was rapidly gaining popularity because it allowed even inexperienced programmers to create complex—and beautiful—data visualizations. One of the reasons for its success was an extremely easy-to-use integrated development environment, or IDE. Banzi wondered if they could create similar software tools to code a microcontroller instead of graphics on a screen.

A student in the program, Hernando Barragán, took the first steps in that direction. He developed a prototyping platform called Wiring, which included both a user-friendly IDE and a ready-to-use circuit board. It was a promising project that

continues to this day, but Banzi was already thinking bigger: He wanted to make a platform that was even simpler, cheaper, and easier to use.

The first prototype board, made in 2005, was a simple design, and it wasn't called Arduino. Massimo Banzi would coin the name later that year.

Banzi and his collaborators were strong believers in open-source software. Since the purpose was to create a quick and easily accessible platform, they felt they'd be better off opening up the project to as many people as possible rather than keeping it closed. The open-source model had long been used to fuel innovation for software, but not hardware. To make it work, they had to find an appropriate licensing solution that could apply to their board. After some investigation, they realized that if they simply looked at their project differently, they could use a license from Creative Commons, the nonprofit group whose agreements are normally used for cultural works such as music and writing. "You could think of hardware as piece of culture you want to share with other people," Banzi says. For one of the "real" engineers on the team, Gianluca Martino, the unconventional, meatball-surgery approach to circuit board design was enlightening. Martino describes it as a "new way of thinking about electronics," he says, "not in an engineering way, where you have to count electrodes, but a do-it-yourself approach."



The product the team created consisted of cheap parts that could easily be found if users wanted to build their own boards, such as the ATmega328 microcontroller. But a key decision was to ensure that it would be, essentially, plug-and-play: something someone could take out of a box, plug into a computer, and use immediately. Boards such as the BASIC Stamp required that DIYers shell out for

half a dozen other items that added to the total cost. But for theirs, a user could just pull out a USB cable from the board and connect it to a computer Mac or PC to program the device.

"The philosophy behind Arduino is that if you want to learn electronics, you should be able to learn as you go from day one, instead of starting by learning algebra," says another member of the team, telecommunications engineer David Cuartielles. They handed 300 blank printed circuit boards to the IDII students with a simple directive: Look up the assembly instructions online, build your own board, and use it for something. One of the first projects was a homemade alarm clock that hung from the ceiling by a cable. Whenever you hit the snooze button, the clock would rise tauntingly higher into the air until you just had to get up.

Soon other people heard about the boards. And they wanted one. The first customer was a friend of Banzi's, who ordered one unit. The project was starting to take off, but one major thing was missing a name for their invention. One night over drinks at the local pub, it came to them: Arduino, just like the bar and the king.

The Virtues of a Teacher

To be a teacher is to have a fair share of selflessness and service.
To be a teacher is to reflect patience and purity in his conduct.
To be a teacher is to be heightened by the zeal of life.
To be a teacher is to be flavored with courtesy and kindness.
To be a teacher is to be tempered by impartiality and integrity.
To be a teacher is to be sustained by awareness and alertness.
To be a teacher is to be enriched by love and sympathy.

Puzzle

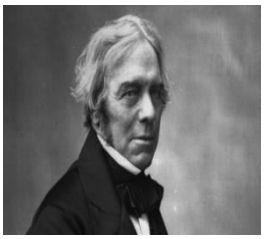
Five friends have their gardens next to one another, where they grow three kinds of crops: fruits (apple, pear, nut, cherry), vegetables (carrot, parsley, gourd, onion) and flowers (aster, rose, tulip, lily).

1. They grow 12 different varieties.
2. Everybody grows exactly 4 different varieties
3. Each variety is at least in one garden.
4. Only one variety is in 4 gardens.
5. Only in one garden are all 3 kinds of crops.
6. Only in one garden are all 4 varieties of one kind of crops.
7. Pear is only in the two border gardens.
8. Paul's garden is in the middle with no lily.
9. Aster grower doesn't grow vegetables.
10. Rose growers don't grow parsley.
11. Nuts grower has also gourd and parsley.
12. In the first garden are apples and cherries.
13. Only in two gardens are cherries.
14. Sam has onions and cherries.
15. Luke grows exactly two kinds of fruit.
16. Tulip is only in two gardens.
17. Apple is in a single garden.
18. Only in one garden next to Zick's is parsley.
19. Sam's garden is not on the border.
20. Hank grows neither vegetables nor asters.
21. Paul has exactly three kinds of vegetable.

Who has which garden and what is grown where?

"Nothing is too wonderful to be true if it be consistent with the laws of nature."

-MICHAEL FARADAY

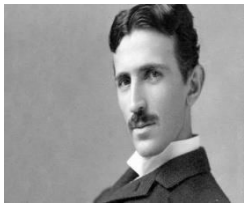


" I can calculate the motion of the heavenly bodies but not the madness of the people"

ISAAC NEWTON

The spread of civilization may be likened to a fire; first, a feeble spark, next a flickering flame, then a mighty blaze, ever increasing in speed and power

-NIKOLA TESLA



Puzzle Solution:

Hank:	pear	apple	cherry	rose
Sam:	cherry	onion	rose	tulip
Paul:	carrot	gourd	onion	rose
Zick:	aster	rose	tulip	lily
Luke:	pear	nut	gourd	parsley

EEE department have won the Czars Trophy in Annual day celebrations in 2016.

సాక్షి అమరావతి Mon, 05 December 2016
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EEE student's article published in daily newspaper

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