

*PRIYADARSHINI ENGINEERING COLLEGE VANIYAMBADI-635751*

*DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING*

*EEE PEP*

*MAGAZINE - JUNE 2015*

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### ABOUT THE INSTITUTE

*Priyadarshini Engineering College, the flagship of Jai Barath Charitable Trust, was established in 1995 at Vaniyambadi in Vellore District of Tamil Nadu. The college has been approved by All India Council for Technical Education, New Delhi & affiliated to Anna University, Chennai. Priyadarshini Engineering College situated in the rural area of Vaniyambadi, Vellore District is committed to the vision of developing itself into a multi-campus, Inter-disciplinary Institution of Excellence through symbiotic efforts and innovative practices of management and faculty to provide the student with an ambient academic environment, ideal for the pursuit of knowledge and development carrier.*

### VISION OF THE INSTITUTE

- *To inculcate in the young rural minds the aptitude to compete with the quality technocrats.*

### MISSION OF THE INSTITUTE

- *To instill technical skills to compete in the sustainable world*
- *To impart holistic value based technical education*
- *To intensify research and development (r & d) activities in technological development*
- *To imbibe core values of love for motherland performance of duty, compassion, tolerance, honesty and integrity.*

### MOTTO

*Perseverance, Endurance, Commitment*

***“கற்றலும், கற்றவை கேட்டலும், கேட்டதன்கண் நின்றலும்”***

## PRINCIPAL MESSAGE



*I would like to welcome you back for the start of our new work ahead in the year. It is our mission to empower the learners to grow academically socially and emotionally by developing and supporting independent thinker and problem solvers, who strive for excellence in the class room and in the society throughout the year. I welcome and encourage your involvement in participation and input in making our college the best educational institution imparting technical education to all our students. Let us develop our college strategic plan with set targets and time frames to evaluate as to where we have succeeded or trailed and what to do improve, strengthen our teaching skill and introduce new methods in studies, in the conduct of examinations and provide an opportunity to a student to assess our lectures every semester. Also let us allow both teaching and non-teaching staffs to assess themselves in most in the most objective manner possible in order to enable the management to take realistic judgement whenever they approach for readressal of any grievances. Through this initiation we hope to attend the world class status in society and education system.*

*A desire can change nothing*

*A decision can change something*

*A determination can change everything*

*Life throws a set of challenges in everybody. An engineer has to face challenge in his/her domain areas, with strong innovative ideas, and with scientific knowledge. One's commitment to become an engineer, a devotion shown to studies in the college will bear fruits and will be palatial throughout one's life.*

## VICE PRINCIPAL MESSAGE



*It is no secret that community service is an important aspect of any student's overall performance. A significant community service is excellent not just for the personal growth and development of the sensibilities of a young student but also providing material for interviews down the line. There are many ways that one can help the less fortunate and get involved in the process of rebuilding. This can begin at home with one getting involved helping domestic staff, security drivers and other residents in the neighbourhood who are facing difficulties. History has always regarded the pattern of rebuilding people after the cycle of destruction. Japan is an example, having survived both the effects of war and National disaster. For those inclined to believe in the power of prayer, one's daily remembrance can include those who are suffering. The prayer goes beyond our daily needs and wants and in silence; one can really sense the bond that connects all humanity, beyond the barriers of religion caste and our personal ideas of family. The universal language of grief, brings about a deep connection that really reminds us of "Being Human".*

## HOD'S MESSAGE

*It is an occasion of great and satisfaction for the department of EEE, EEE PEB to bring out the third issue of the yearly of the technical magazine ,it gives me immense pleasure to note that the response to the magazine has been overwhelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing , I applaud the contributors for the stimulated thoughts and varied hues in in articles contributed by them.*



## VISION OF THE DEPARTMENT

- *To produce eminent electrical engineer specifically from the rural background.*

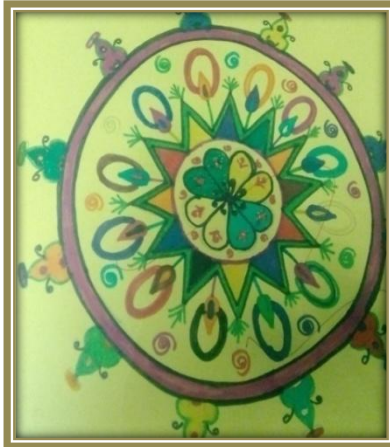
## MISSION OF THE DEPARTMENT

- *Infuse moral ethics and good virtues to the students*
- *Providing good technical knowledge for innovative research and development*
- *Making them excellent in extracurricular activities*

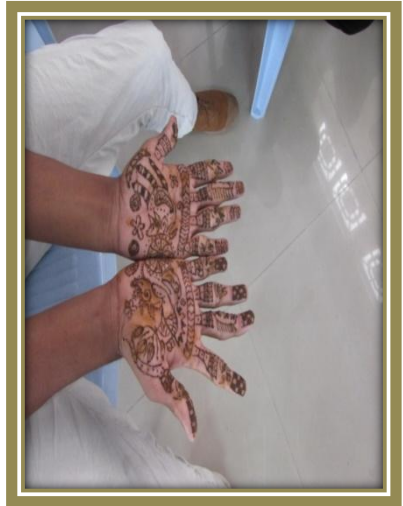
**VEGETABLE CARVING**



**CRAFT WORK**



**MEHANDI DESIGN**



**NIVEDHA S  
SRIMATHI A**

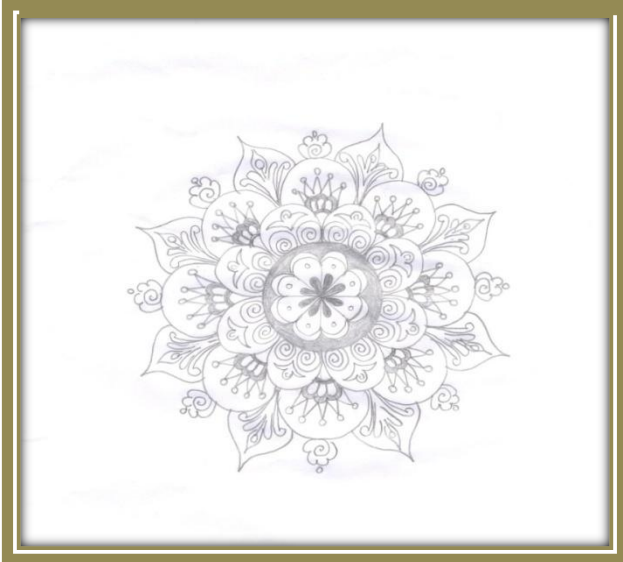
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**TAMILMOZHIL.D**  
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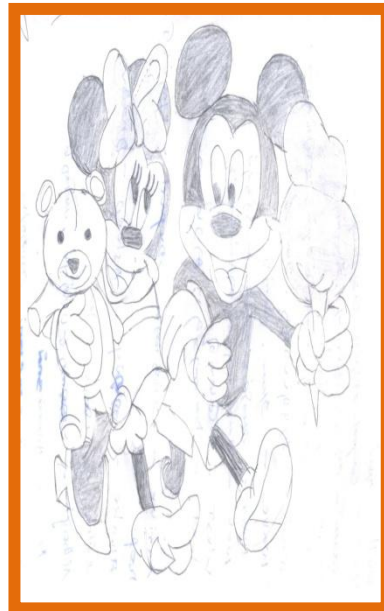
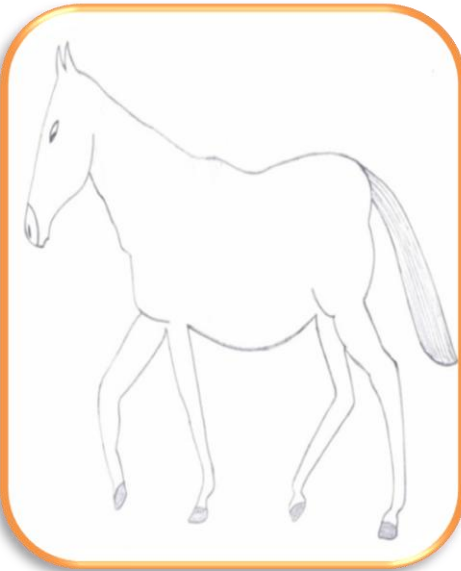


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**JAYAPRAKASH . L  
HARIHARAN S  
IV YEAR/EEE**



G.SANGEETHA  
IV YEAR EEE

JAYASHREE IV YEAR  
EEE

KAVIDHAI

கியற்கை

கல்யாணம் நாடும்,  
 அருவியாய் கரிய.  
 கல்யாணம் மரமும்,  
 தன்மும் பேச.  
 கியற்கையே,  
 காந்தல் கயதல் எத்தியது  
 பச்சை நிறத்தில்!  
 மலையின் மலர்,  
 தன்மும் மலர்,  
 கியற்கை சும்பம் ஆடா....

MARI P  
 IV YEAR/EEE

By. Jo. Mari

நட்பு

கடற்கரை மணலில்  
 நம் நட்பை எழுதி வைத்தேன்  
 சிலை வந்து அந்த நெல்லில்லை  
 பந்து நென்ற உண்மையான நட்பென்று  
 உனக்கு துன்பம் வந்தால்  
 நண்பர்களிடம் சொல்லாதே  
 துன்பத்தில் சொல் எனக்கு  
 நண்பன் இருக்கிறான் என்று.

SUGANYA.S  
 IV YEAR/EEE

By S. Suganya

EEE" STUDENTS POETRY

Get "Voltage" from your parents "POWER"  
 Give "RESISTANCE" to bad things  
 Select a "DIRECT CURRENT"  
 Speak like a "OPEN CIRCUIT"  
 Plan like a "CLOSED CIRCUIT"  
 Analyse your "LIFE NETWORK"  
 Achieve and Reach the "TOWER"

AJITH KUMAR.R  
 II YEAR/EEE



## MYSELF... ..

*"No man exists without a negative traits. I am one of them; we aren't perfect, but negative characteristics shouldn't overcome positive ones, this will let us to form as a kind hearted persons."*

*It took 19 years to create who I am today. Within these years I have given the freedom to explore the world in order to satisfy my curiosity toward all the strange and wonderful things in the world around me. I grew up in a healthy family. And im the only daughter to my lovely parents. This made my life colourful, and curious too. I don't want to follow the dogmatic ideas and clueless directions which sometimes exhaust me with its ineptitude. I will follow my innermost and always do what I think is right. I'll never grow old. I'll never stop loving what I do. I'll never stop being curious. I'll never stop being me. GEORGIAN writer said " YOU ARE ALIVE WHEN YOU FEEL, OTHERWISE*

*YOU ARE DEAD."* When we feel the world, we are with everyone and in everything, that's how we deal with life. I tried to dig into to my mind to perceive the real nature of myself. I don't want to a have a feeling that I have lived someones life, but mine. When I come up against a task I think is impossible, I think to myself, can I do this single. But only I should know what I can do and I have to prove myself to the world. Then I start my work with interest. I believe that nothing is forever. Love, friendship everything has an end. Lastly I consider myself as an philosopher or perhaps a hinker. I sometimes talk to myself, and think about the answers. I guess it just shows you that the world is real, that life isn't and never has been perfect. IF U DON'T BELIEVE IN YOU, YOU WON'T ACHIEVE.

NITHYA G  
IV YEAR/EEE

RIDDHI N DODIA  
IV YEAR/EEE

## ALPHABETS

1. Which letter of the alphabet is an insect?

A) **Bee**

2. Which letter is a part of the head?

A) **I (EYE)**

3. Which letter is a drink?

A) **T (TEA)**

4. Which letter is a water body?

A) **C (SEA)**

5. Which letter is an exclamation?

A) **O (Oh!!)**

6. Which letter is looking for causes?

A) **Y (WHY)**

7. Which letter represents people in a line?

A) **Q (QUEUE)**

8. Which letter is a measure of time?

A) **R (Hour)**

9. Which letter represents affirmation?

A) **S (YES)**

10. Which letter is for you and me?

A) **V (WE)**

## THREE THINGS IN LIFE

Three things in life that makes a good person:

**Sincerity, hardwork, compassion.**

Three things that are uncertain:

**Success, dreams, fortune.**

Three things in life that are most valuable:

**Love, friends, self-confidence.**

Three things in life that one should always have:

**Hope, peace, honesty.**

Three things in life that can save a person:

**God, faith, hope.**

Three things in life that can destroy a person:

**Pride, greed, anger.**

Three things in life that once gone never come back:

**Time, words, opportunity.**

**VIDHYA.S III YEAR EEE**

## BEING SMART ALWAYS

Smartness is an extremely subjective trait of a human. For a teacher, the student who scores 95/100 is smart; for a father, if his daughter can become an independent woman in life, she is smart; in a peer group, anyone who can make a come-back with a quick repartee is automatically assumed to be smart. So what do these 'smart' people have in common? Take a look:

### 1. Knowledge.

If smart is what you want to be, knowledge is what you will have to gather. Pick any smart person in your life, can bet if he/she is not a storehouse of a credible amount of information and worldly wisdom.

### 2. Confidence.

I had the power to make changes in the English language, I would make the word 'smart' a synonym of 'confidence'. Because these two qualities work hand-in-hand. One quality implies the other. These two traits can just never work in isolation.

### 3. Listen.

Have you ever seen any smart-ass trying to speak out of his turn. No. If you did, trust me he is not really a very smart person.

Because they always listen, soak in as much as they can. Why? Because Point no 1. So listen, listen intently and you will surprise yourself by the amount of knowledge you gain from sources you could never have imagined.

### 4. Think.

This is the most crucial part. Smart people think. And they think longer and deeper. For me, this is the only thing that separates a normal person from a smart man. You need to form opinions on diverse subjects and you need to back them up with some really impressive points, and those points are not going to come by themselves if you don't think.

**5. Alert.**

*Why? Because read the above point. You can only be smart if you think, and to think you need to have knowledge about the subject and to have knowledge, you need be alert. You need to be aware of your surroundings. Don't just see. Observe everything.*

**6. Polite. And Firm.**

*This is something you will notice in smart people. They never fight, never get into useless arguments; they will just say what they want to and walk away, because they are not desperate to prove a point. But being just polite won't work, you have got to be firm. You have got to have that tinge of narcissism about yourself. After all if you don't respect yourself, don't expect the world to respect you.*

**7. Belief.**

*Though this is the last point of the answer, yet it is the very first step you will have to take. Believe you are smart. Tell this to yourself every day, every hour and every minute. Keep on reminding yourself constantly about it. Even if the world knocks you down, rips your confidence apart, don't lose hope, do not settle, have a firm belief in yourself. Take a look at me, my father constantly keeps reminding me that I am a dumb-ass, yet here I am telling you how to be smart. :D*

*As others have said, you can't be smart always. But you can increase your smartness by improving bettering yourself as the situation demands. Here is a good quote for you:*

*Half of being smart is knowing what you are dumb about.*

*never miss an opportunity to learn in life.....*

*think before you speak.....*

*have many experience in live.....*

*develop a positive personality.....*

VISHNUPRIYA III YEAR EEE

## PRESENCE OF MIND

Albert Einstein, after the discovery of the Theory of relativity, was invited to colleges to give talks about the theory. One day during a speaking tour, Albert Einstein's driver, who often sat at the back of the hall during his lectures, remarked that he could probably give the lecture himself, having heard it so many times. Sure enough, at the next stop on the tour, Einstein and the driver switched places, with Einstein sitting at the back in his driver's uniform. Having delivered a flawless lecture, made a small mistake at the end. Just the way Einstein did the driver also asked "Any questions?". The driver was asked a difficult question by a member of the audience. "Well, the answer to that question is quite simple, I wonder why you asked me this question" he casually replied. "It's so simple, I bet my driver, sitting up at the back there, could answer it!"

Once, A Dog lost His Way Deep Into The Jungle. He Almost Fainted To See A Lion Coming Straight To Him At A Very Near Distant. "I Will Be Dead Today", Thought He. There Were Some Bones Lying Over There. He Turned His Back Towards Lion And Started Pretending As If He Is Eating Those Bones. When Lion Was Very Close To Him He Cried Out Loudly "Wow, What A Fun Eating A Lion, By Chance If I Can Get Another One, It Will Be A Treat ". Lion Thought "What A Dangerous Dog!!!! He Kills Lions And Eats It. Let Me Run Away From Here And Save My Life ". Now, There Was A Monkey Hiding On The Tree There Watching The Entire Show. He Thought " It's A Good Chance To Tell The Truth To The Lion. Lion Will Become My Friend And I Will Not Have To Run Saving My Life From Him ". He Just Ran Away To Inform The Entire Episode To Lion. The Dog Had Seen Him Going And Quickly Understood The Ploy. Both Lion And Monkey Were Coming Back To The Dog And The Lion Was Furious. When Lion Was Very Close To Him He Again Cried Out Loudly " It Has Been Half An Hour And Yet That Stupid Monkey Can't

3. Mark the Carpenter, returning home with his week's wages, was accosted by an armed robber on a deserted street. "Take my money," said Mark, "but do me a favour: shoot a bullet through my hat otherwise my wife won't believe I was robbed." The robber obliged. He threw Mark's hat into the air and put a bullet through it. "Let's make it look as if I ran into a gang of robbers," said Mark, otherwise my wife will call me a coward! Please shoot a number of holes through my coat." So the robber shot a number of holes through the carpenter's coat. "And now..." "Sorry," interrupted the robber. "No more holes. I'm out of bullets." "That's all I wanted to know!" said Mark. "Now hand me back my money and some more for the hat and coat that you've ruined or I'll beat you black and blue!" The robber threw down the money and ran.

4. Once I asked my little brother, What's the half of 8?  
He replied, it's depend.  
I said how?  
He replied, if vertically then 3  
And if horizontally then 0.

## CLEAN AND GREEN DRIVE

For a sustainable tomorrow, the need of the hour is to embed the habit of cleanliness in our behaviour. This is a programme for schools, colleges and communities towards cleaner and greener cities. It ensures that the students and youth who are the decision makers of tomorrow, become champions of greenery and cleanliness. They lead by example to make their city healthy and green. The aim is to increase the city's green cover and micro manage waste for institutions by instilling behavioural changes in children, young students and professional

### **Engage students/youth/professionals to make their area green and clean**

Students, youth and professionals are made aware of the need of waste management and the importance of the urban green cover by introducing them to basics of tree plantation and decentralized solid waste management in the institution. This is done through periodical Workshops focused on the Scientific planting of trees, Tree mapping around school, Waste segregation, Composting and Recycling.

**Tree Ambassadors** and **Tree Doctors** are created - they are trained to care for and identify common symptoms and diseases of the trees planted by the organizations. They will work with the organization's gardener and the RWA of the area to ensure the trees remain disease free.

## POORNIMA.S III YEAR

### **Micromanage waste in the institution**

Students learn to reduce waste being sent to garbage dumps by carrying in-house waste management through source segregation at every level. Generate compost for tree plantation and nursery by **Composting** biodegradable waste in the campus which will be used by the school, the RWA or in the green areas around.

### **Create nursery in campus**

The institution will setup a nursery to ensure this which can be a for-profit endeavour also. Procured seeds will be nurtured to saplings in the nursery. Every student/individual in the organization will adopt a sapling and ensure its health and nurture it till it is a fully grown tree.

### **Tree Plantation**

Students take up greening of the surrounding area and care for planted trees. Every sapling is planted outside the campus in a prescribed area will be cared for by its parent. The parents will be responsible for the trees and the Tree Ambassadors and Tree Doctors will supervise the monitoring in their prescribed areas.

Every tree will have a tree guard and a label which will contain the name of the species, the serial number and the parent's information so the individual feels responsible for the tree.

The institution is awarded a plaque and the students, parents, Ambassadors and Doctors are given badges and certificates. Felicitation will be done at a CLEAN-India Investiture Ceremony.

## GLOBAL WARMING

GOKULA III YEAR EEE

One of the biggest problems facing the world today is global warming. Many scientists believe that our production of carbon dioxide and other greenhouse gases is having a heating effect on the atmosphere, and this could be very dangerous for human life. This essay will examine the problem of global warming and suggest some ways of solving the problem.

Many problems could result from global warming. One of the biggest problems is rising sea level. This could result in the flooding of low lying coastal areas and cities, such as Egypt, the Netherlands, and Bangladesh. Some countries might even disappear completely! Another problem caused by global warming is changes in weather patterns. Many areas of the world are experiencing increased hurricanes, floods, and other unusual weather. A third problem associated with global warming is the effect on animals. Fish populations could be affected, while some insects which spread disease might become more common.

There are several things we can do to solve the problem of global warming. One solution is to stop producing CO<sub>2</sub>. We can do this by switching from oil, coal and gas to renewable energy. Another solution is to plant more trees. Trees absorb carbon dioxide and produce oxygen, which is not a greenhouse gas. A third solution is to use less energy and to recycle more products. Generating electricity is one of the main sources of carbon dioxide. If we use less electricity, we will produce less CO<sub>2</sub>.

If Global warming continues the world would be in danger. The major effects and impacts of Global Warming are:

- 1. Climate Change:** Global warming is causing climate change. The world's is becoming warmer and warmer. There is also prediction of regional climate changes along the ecosystem.
- 2. Sea Level Change:** One major consequence of global warming arising out of greenhouse effect is the rise in sea level. Four major changes take place prior to this. They are: Thermal expansion, mountain glacier melting, Greenland ice sheet melting and Polar (Arctic and Antarctic) ice sheet melting. Thus, the coastal cities and ports may be submerged under sea-water. Many islands may vanish from the earth surface as well as from the world map.
- 3. Water Balance:** Although changes in sea-level have received much publicity, problems of water availability are likely to be more serious and perhaps more expensive to solve. In future, warmer world will face water crisis in some parts while in other regions it will be wetter than it is now.

There is uncertainty regarding regional forecasts of future precipitation as warming of globe makes it difficult to predict. Also, pattern of agricultural changes, or effects on ecosystems in general are fairly unpredictable.

- 4. Human Health:** The human health is put at risk because of Global warming. In recent years, there have been newer reports of spread of major tropical diseases with changing climate. As the earth becomes warmer, more and more people are likely to be affected by tropical diseases.

## SOLAR PANEL

**Solar panel** refers to a panel designed to absorb the sun's rays as a source of energy for generating electricity or heating.

- A photovoltaic (in short PV) module is a packaged, connected assembly of typically  $6 \times 10$  solar cells.
- Solar Photovoltaic panels constitute the solar array of a photovoltaic system that generates and supplies solar electricity in commercial and residential applications.
- Each module is rated by its DC output power under standard test conditions, and typically ranges from 100 to 365 watts.
- The efficiency of a module determines the area of a module given the same rated output – an 8% efficient 230 watt module will have twice the area of a 16% efficient 230 watt module.
- There are a few solar panels available that are exceeding 19% efficiency. A single solar module can produce only a limited amount of power; most installations contain multiple modules.
- A photovoltaic system typically includes a panel or an array of solar modules, a solar inverter, and sometimes a battery and/or solar tracker and interconnection wiring.
- The price of solar power, together with batteries for storage, has continued to fall so that in many countries it is cheaper than ordinary fossil fuel electricity from the grid.

Solar modules use light energy (photons) from the sun to generate electricity through the photovoltaic effect.

- The majority of modules use wafer-based crystalline silicon cells or thin-film cells based on cadmium telluride or silicon.
- The structural (load carrying) member of a module can either be the top layer or the back layer.
- Cells must also be protected from mechanical damage and moisture. Most solar modules are rigid, but semi-flexible ones are available, based on thin-film cells.
- These early solar modules were first used in space in 1958.
- Electrical connections are made in series to achieve a desired output voltage and/or in parallel to provide a desired current capability.
- The conducting wires that take the current off the modules may contain silver, copper or other non-magnetic conductive [transition metals].
- The cells must be connected electrically to one another and to the rest of the system.
- Externally, popular terrestrial usage photovoltaic modules use MC3 (older) or MC4 connectors to facilitate easy weatherproof connections to the rest of the system.
- Bypass diodes may be incorporated or used externally, in case of partial module shading, to maximize the output of module sections still illuminated.
- Some recent solar module designs include concentrators in which light is focused by lenses or mirrors onto an array of smaller cells.
- This enables the use of cells with a high cost per unit area (such as gallium arsenide) in a cost-effective way.



## POWER FROM RENEWABLE ENERGY

### Hydroelectric power station

- A power station is where water flows through turbines using hydropower to generate Hydroelectricity.
- Power is captured from the gravitational force of water falling through penstocks to water turbines connected to generators.
- The amount of power available is a combination of height and flow.
- A wide range of Dams may be built to raise the water level, and create a lake for storing water.
- Hydropower is produced in 150 countries, with the Asia-Pacific region generating 32 percent of global hydropower in 2010.
- China is the largest hydroelectricity producer, with 721 terawatt-hours of production in 2010, representing around 17 percent of domestic electricity use.

During hours of peak demand, when the electricity price is high, the water pumped to the upper reservoir is allowed to flow back to the lower reservoir through a water turbine connected to an electricity generator.

- Unlike coal power stations, which can take more than 12 hours to start up from cold, the hydroelectric plant can be brought into service in a few minutes, ideal to meet a peak load demand.
- Two substantial pumped storage schemes are in South Africa, Palmiet Pumped Storage Scheme and another in the Drakensberg, Ingula Pumped Storage Scheme

### Pumped storage

- A pumped-storage is a reversible hydroelectric power plant. They are a net consumer of energy but can be used for storage to smooth peaks and troughs in overall electricity demand.
- Pumped storage plants typically use "spare" electricity during off peak periods to pump freshwater or saltwater from a lower reservoir to an upper reservoir.
- Because the pumping takes place "off peak", electricity is typically cheaper than at peak times.

### Wind

- Wind turbines can be used to generate electricity in areas with strong, steady winds, sometimes offshore.
- Many different designs have been used in the past, but almost all modern turbines being produced today use a three-bladed, upwind design.
- Grid-connected wind turbines now being built are much larger than the units installed during the 1970s.
- They thus produce power more cheaply and reliably than earlier models.

With larger turbines (on the order of one megawatt), the blades move more slowly than older, smaller, units, which makes them less visually distracting and safer for airborne animals.

**BHAMA III YEAR EEE**

## CELL PHONE

RAMESH.S III YEAR

*Evolution of mobile phones, through early smartphone*

*A **mobile phone** is a telephone that can make and receive calls over a radio frequency carrier while the user is moving within a telephone service area. The radio frequency link establishes a connection to the switching systems of a mobile phone operator, which provides access to the public switched telephone network (PSTN). Most modern mobile telephone services use a cellular network architecture, and therefore mobile telephones are often also called cellular telephones or cell phones. In addition to telephony, modern mobile phones support a variety of other services, such as text messaging, MMS, email, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, gaming, and photography. Mobile phones which offer these and more general computing capabilities are referred to as smartphones.*

*The first handheld mobile phone was demonstrated by John F. Mitchell and Martin Cooper of Motorola in 1973, using a handset weighing c. 4.4 lbs (2 kg). In 1983, the DynaTAC 8000x was the first commercially available handheld mobile phone. From 1983 to 2014, worldwide*

*mobile phone subscriptions grew to over seven billion, penetrating 100% of the global population and*

*Martin Cooper of Motorola made the first publicized handheld mobile phone call on a prototype DynaTAC model on April 4, 1973. This is a reenactment in 2007.*

*A handheld mobile radio telephone service was envisioned in the early stages of radio engineering. In 1917, Finnish inventor Eric Tigerstedt filed a patent for a "pocket-size folding telephone with a very thin carbon microphone". Early predecessors of cellular phones included analog radio communications from ships and trains. The race to create truly portable telephone devices began after World War II, with developments taking place in many countries. The advances in mobile telephony have been traced in successive "generations", starting with the early "0G" (zeroth generation) services, such as Bell System's Mobile Telephone Service and its successor, the Improved Mobile Telephone Service.*

*These "0G" systems were not cellular, supported few simultaneous calls, and were very expensive. The Motorola DynaTAC 8000X. First commercially available handheld cellular mobile phone, 1984.*

The first handheld mobile cell phone was demonstrated by Motorola in 1973. The first commercial automated cellular network was launched in Japan by Nippon Telegraph and Telephone in 1979. This was followed in 1981 by the simultaneous launch of the Nordic Mobile Telephone (NMT) system in Denmark, Finland, Norway and Sweden.<sup>[6]</sup> Several other countries then followed in the early to mid-1980s. These first-generation (1G) systems could support far more simultaneous calls, but still used analog technology.

In 1991, the second-generation (2G) digital cellular technology was launched in Finland by Radiolinja on the GSM standard. This sparked competition in the sector as the new operators challenged the incumbent 1G network operators.

Ten years later, in 2001, the third generation (3G) was launched in Japan by NTT DoCoMo on the WCDMA standard.<sup>[7]</sup> This was followed by 3.5G, 3G+ or turbo 3G enhancements based on the high-speed packet access (HSPA) family, allowing UMTS networks to have higher data transfer speeds and capacity.

By 2009, it had become clear that, at some point, 3G networks would be overwhelmed by the growth of bandwidth-intensive applications, such as streaming media.<sup>[8]</sup> Consequently, the industry began looking to data-optimized fourth-generation technologies, with the promise of speed improvements up to ten-fold over existing 3G technologies. The first two commercially available technologies billed as 4G were the WiMAX standard, offered in North America by Sprint, and the LTE standard, first offered in Scandinavia by TeliaSonera. The common components found on all phones are:

A battery, providing the power source for the phone functions.

An input mechanism to allow the user to interact with the phone. The most common input mechanism is a keypad, but touch screens are also found in most smartphones.

- A screen which echoes the user's typing, displays text messages, contacts and more.
- Basic mobile phone services to allow users to make calls and send text messages.
- All GSM phones use a SIM card to allow an account to be swapped among devices. Some CDMA devices also have a similar card called a R-UIM.
- Individual GSM, WCDMA, iDEN and some satellite phone devices are uniquely identified by an International Mobile Equipment Identity (IMEI) number.

Low-end mobile phones are often referred to as feature phones, and offer basic telephony. Handsets with more advanced computing ability through the use of native software applications became known as smartphones.

Several phone series have been introduced to address specific market segments, such as the RIM BlackBerry focusing on enterprise/corporate customer email needs, the Sony-Ericsson 'Walkman' series of music/phones and 'Cyber-shot' series of camera/phones, the Nokia Nseries of multimedia phones, the Palm Pre, the HTC Dream and the Apple iPhone.

### **Sound quality**

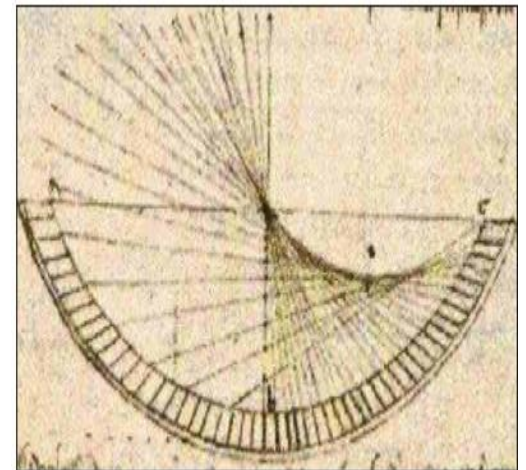
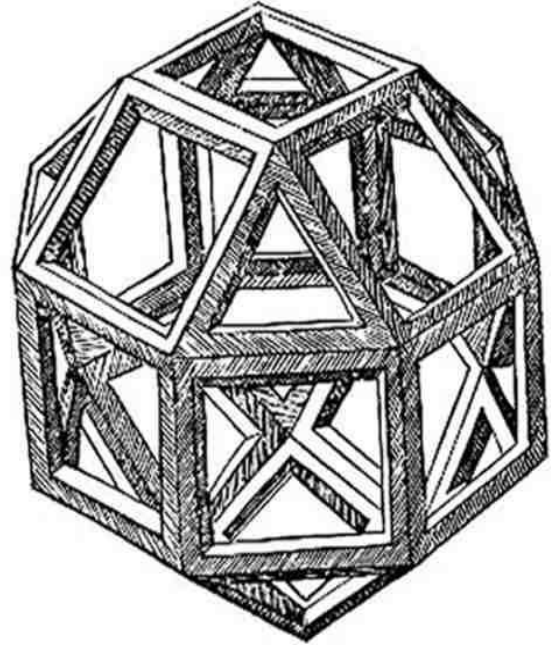
In sound quality, smart phones and feature phones vary little. Some audio-quality enhancing features, such as Voice over LTE and HD Voice, have appeared and are often available on newer smart phones. Sound quality can remain a problem with both, as this depends not so much on the phone itself, as on the quality of the network.<sup>[9][10]</sup> As such, for long-distance calls even features such as Voice over LTE and HD Voice may not improve things. In some cases smart phones can improve audio quality even on long-distance calls, by using a VoIP phone service, with someone else's Wi-Fi/internet connection.

*Paradoxes in Mathematics***GAYATHRI.V****IIND EEE**

$$\begin{aligned}
 1 \times 8 + 1 &= 9 \\
 12 \times 8 + 2 &= 98 \\
 123 \times 8 + 3 &= 987 \\
 1234 \times 8 + 4 &= 9876 \\
 12345 \times 8 + 5 &= 98765 \\
 123456 \times 8 + 6 &= 987654 \\
 1234567 \times 8 + 7 &= 9876543 \\
 12345678 \times 8 + 8 &= 98765432 \\
 123456789 \times 8 + 9 &= 987654321
 \end{aligned}$$

$$\begin{aligned}
 0 \times 9 + 8 &= 8 \\
 9 \times 9 + 7 &= 88 \\
 98 \times 9 + 6 &= 888 \\
 987 \times 9 + 5 &= 8888 \\
 9876 \times 9 + 4 &= 88888 \\
 98765 \times 9 + 3 &= 888888 \\
 987654 \times 9 + 2 &= 8888888 \\
 9876543 \times 9 + 1 &= 88888888 \\
 98765432 \times 9 + 0 &= 888888888
 \end{aligned}$$

$$\begin{aligned}
 6 \times 6 + 6 &= 42 \\
 66 \times 66 + 66 &= 4422 \\
 666 \times 666 + 666 &= 444222 \\
 6666 \times 6666 + 6666 &= 4444222 \\
 66666 \times 66666 + 66666 &= 44444222
 \end{aligned}$$



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