

Electronics & Communication Engineering News Letter

***6 PESITRONICS *7** Imagination Becomes Reality

PES Institute of Technology & Management, Shivamogga

Affiliated to AICTE, ISO 9001 2015 Certified Institute, NH-206, Sagar road, Shivamogga-577204.

Vision

To be a leading center of excellence in the field of electronics and communication engineering for learning and research with professional ethics.

Mission

M1: To provide quality technical education for students to develop into globally competent professionals.

M2: To develop a framework for collaboration and multidisciplinary activities to ensure ethical and value based education to address social needs.

Quality Policy

Our Quality Policy is to develop highly skilled human resources with the ability to adapt to an intellectually and technologically changing environment with the participative efforts of the management, staff, students and parents.

PESITM is committed to comply with ISO 9001 :2015 requirements and continually improve the quality of services and quality Management System.

Program Educational Objectives (PEO)

Electronics & Communication Engineering is a branch of engineering that incorporates skills and expertise needed in the industries. Bachelor's program in Electronics & Communication Engineering is aimed at preparing graduates who will.

PEO 1: To develop the ability among students to understand the concept of core subjects.

PEO2: To give exposures to emerging technologies, adequate training and opportunities to work as team on multidisciplinary projects with effective communication skills.

PEO3: To cultivate ethical practices in Professional, Societal & Environmental needs by engaging in life-long learning.

Program Specific Outcomes (PSOs)

ECE graduates will be able to:

PSO1. Analyze and design analog & digital circuits or systems for a given specification and function.

PSO2. Implement functional blocks of hardware-software co-designs for signal processing and communication applications.

Dept. of Electronics and Communication Engineering became functional with the establishment of the institute in the year 2007. Being the core branch in Engineering, it has a lot of potential in various Sectors such as Telecommunication, IT, Low power VLSI Design, Embedded system & Robotics, and Manufacturing & Testing. The current intake for UG Program is 120.

Dept. of E&CE has highly skilled faculties, well equipped with latest laboratory equipments & industrial software's like CADENCE, MATLAB, Xilinx and more. Department has conducted and organized National Conference, workshops and technical talks related to the current trends and technology.

Staff and Students of E&CE have involved with several research/ curricular and co-curricular activities throughout the semesters and academic year, the PESITRONICS newsletter brings you the foretaste of all the activities in the E&CE Department.

GALLERY OF ARTISTS, POETS and WRITERS



ART FROM DHANARAJ M V



ART FROM KAVANA R A



ART FROM SOUMYA G K

HOW MATHS AND LIFE ARE RELATED.....

- **Vector:** Life needs direction, hence it is a vector
- **Complex:** Life is full of complex problems
- **Integration:** Life is an integration of good and bad
- **Analytical:** Life is difficult for one to analyze
- **Determinants:** The value of determinants of life is determined by god
- **Differentiation:** Life is differential into four stages namely childhood, youth, middle age and old age
- **Probability:** Life is one where the probability of success should be high

- **Modern algebra:** As algebra changes from ancient to modern man's life style should AI so change from ancient to modern
- **Trigonometry:** The sum of squares of hard work and intelligence is equal to the square of success in life

MATHEMATICS- The king of all —ARTS|| and the queen of all —SCIENCES||

M – Morality

A - Action

T – Truthfulness

H – Humility

E - Excellence

M - Memory

A – Ability

T - Talent

I-Integrity

C – Character

S – Sincerity

If I feel unhappy, I do —**MATHEMATICS**I to become happy.....

Ms.Sushma J, 4thsem, B sec, PESITM

5G-The Power for the Future of "Internet of Things"

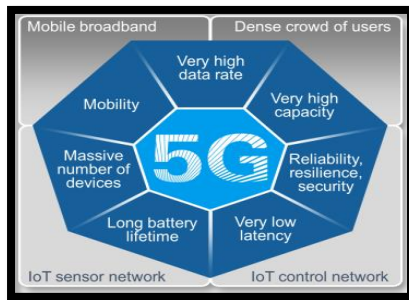
Imagine you, waiting for a bus in a bus-stop and if you are made available with the real time information of the location of your bus and at what time it may reach, it would be valuable information for you being a traveler. If you can locate nearest dustbin to throw garbage, nearest ATM machine to draw hard cash, and also locate hospital and other emergency services on your phone's app and show you the optimized path to reach there, you are living in the smart world. Thanks to Internet-Of-Things, the network of physical objects—devices, vehicles, buildings and other items—embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data.



Currently, most of communications are on a single mode transmission — you search for something, it comes back to you. You call someone; you have that communication back and forth. With 5G technology, communications will become interactive and responsive. 5G will bring massive improvements in data rates with speeds up to 10 Gbps meaning that an HD

movie will download in seconds. It will also reduce the amount (in technical terms, the "latency") of time information takes to get from one place to another. 5G will allow many more connections than the current 4G networks. Finally, 5G will consume less power overall and will require less energy from devices using the new protocol.

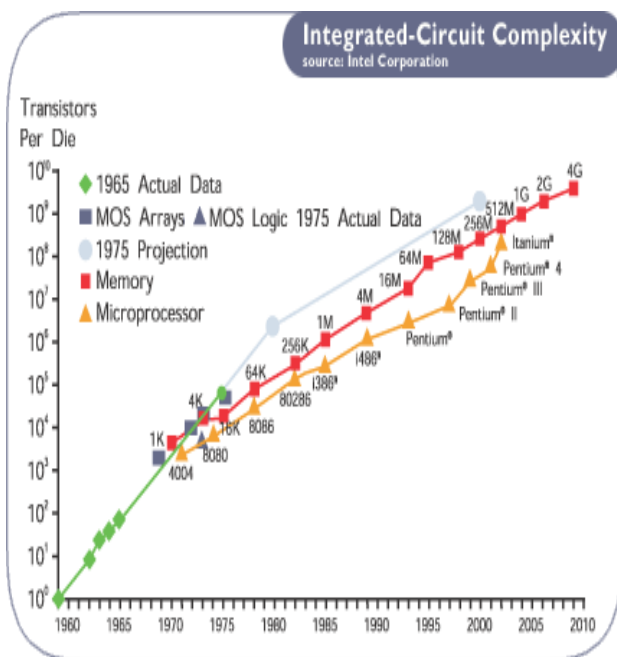
S M ABHISHEK, 4PM12EC053, 8th B,
PESITM



By 2020, when 5G will come online globally, some 50 billion “things” will be connected. Think of self-driving cars that have capabilities to communicate with traffic lights, smart city sensor systems, savvy home appliances, industrial automation systems, connected health innovations, personal drones, robots and more. 5G will make the internet of things more effective, more efficient from a spectral efficiency standpoint. Each IOT device and network will use exactly and only what it needs and when it needs it, as opposed to just what’s available. Today, about 30 to 40 percent of the world’s population is connected in one way or another, over the next 10 to 20 years a hundred percent of the population will be connected, this equates to 8 or 9 billion more people demanding network capabilities. This is how people will get educated, this is how people will have access to information and this is how the world turns smarter with the introduction of 5G wireless communication technologies to aid Internet of ‘Everything’.

MOORE'S LAW, DEBUNKED...?!!

An observation made by Intel co-founder Gordon Moore in 1965. He noticed that the number of transistors per square inch on integrated circuits had doubled every year since their invention. Is it valid today? May be, only in textbooks we read. Present [Intel](#)'s chief executive, Brian Krzanich has warned that Moore's Law, the prediction made by its co-founder that computing power would double every two years, has finally begun to slow and may never return to the rhythm



that has underpinned advances in the tech industry for half a century.

Theoretical physicist Michio Kaku this week has discussed in a short video why Moore's Law will collapse "in about 10 years or so". In this video presented by Big Think, the law created by Gordon E. Moore is not debunked, but is instead explained as having a limit - you can't keep getting smaller forever. Since Moore's law was first established, it's pretty much been proven true - but it's all about to end: imagine that!

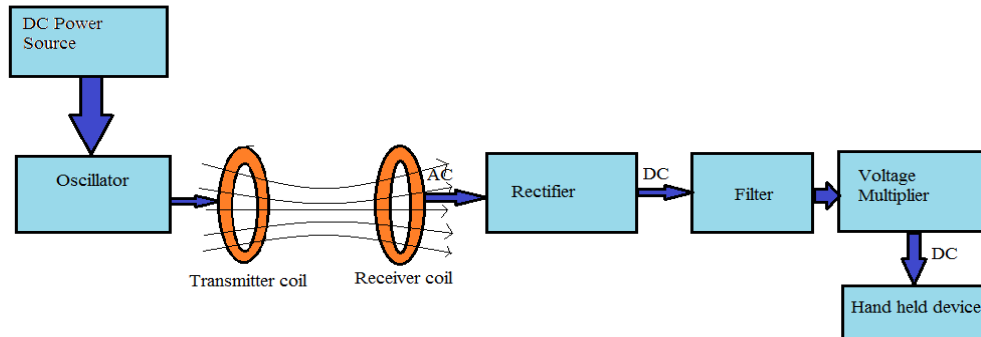
What you'll find here is that of course, Moore's Law can't go on forever. There is a time when there's nowhere to go but to different materials of course, and you can't make computing power on no matter at all. The limits of silicon are about to be reached as we reach the limits of Moore's Law as well. Physicist Kaku explains in a video that once we get to processes that are 5nm, we've got nowhere to go with silicon as anything smaller will overheat much too quickly.

The number of transistors you can cram into a chip can't increase forever because of the physical limitations of silicon based chips. Some [research](#) is suggesting that this was already the case at 28nm(nanometer) but microprocessor giant Intel [reported](#) a 14nm achievement in 2014. The biggest hurdle to keep shrinking transistors to tiny atomic sizes is heat and leakage. What do you think, folks? Will we be moving away from this limited factory process sooner than 10 years or will we stick with it even with its given limits? Where does the current process end? And will we continue to need more processing power into the future, or will we simply become satisfied at some point? I think you will have to get into research, no doubt!



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WIRELESS MOBILE CHARGING



Wireless Charger System it is used to charge the mobile battery by using wireless charger. The dream of wireless charging is just to be able to plop your phone on a shelf after work and have it fully charged when you pick it up again on your way out. This technology will replace cables and standardize on one interface, potentially being able to adjust power settings to charge different types of batteries.

Working: In Wireless charging system there are two circuits, a **transmitter** circuit and a **receiver** circuit. The **transmitter** circuit consists of step down transformer of 230/12V. This transformer steps down 230V AC from main supply to 12V AC. Then that 12V AC is converted into 12V DC with the help of bridge rectifier. After that a 2200/25V capacitor is used to filter the ripples and pure DC is supplied. Then the oscillator circuit oscillates at 10MHz and with the help of transmitting coil it transmits the wireless power. The **receiver** circuit receives the power through receiving coil and passes through voltage multiplier circuit (consisting of diode and capacitor voltage multiplier) and through that voltage the mobile charging is achieved.

Wireless charging may one day replace plugs and wires similar to how Wi-Fi and Bluetooth have modernized personal communication. Wireless charging with inductive coupling uses an electromagnetic field that transfers energy from the transmitter to the receiver. Consumers are wild about the convenience of simply placing a portable device on a charging mat. Wireless charging works well with mobile phones, digital cameras, media players, gaming controllers and Bluetooth headsets. Other potential applications are power tools, medical devices, e-bikes and electric cars (EVs).



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We need articles for future additions of Newsletter

Please consider providing a short item of news, or an in depth article for the next edition of the newsletter. We would like to invite everybody to submit a short story/article/announcement that can fit in the following structure.

News items and announcements -

- Short, topical, news oriented technical/ non-technical topics.
- Paintings, sketches, comics, poems, dag-writings, short stories etc.
- Major and minor technical articles are also accepted.
- Jokes, Punch dialogues, quotes of your own could be included.
- All of above said matters could be accepted in English or in kannada formats

Feel free to communicate with the student and staff coordinators for more details.

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