

Electronics & Communication Engineering News Letter

“**PESITRONICS**” 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.

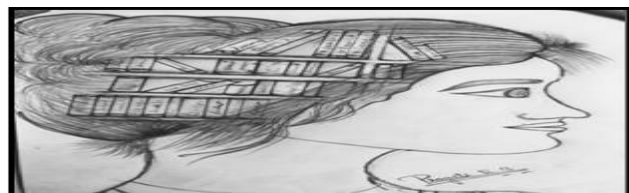
PSO2. Implement functional blocks of hardware-software co-designs for signal processing and communication applications.

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.

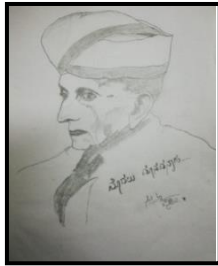
Staff and Students of E&CE have involved with several research/ curricular and co-curricular activities throughout the semesters and academic year, the PESITRONICS newsletter brings you the foretaste of all the activities in the E&CE Department.

GALLERY OF ARTISTS, POETS and WRITERS



ART FROM MEGHANA N M

Learn from yesterday, Live for today,
Hope for tomorrow.
The important thing is not to stop questioning.
-AlbertEinstein

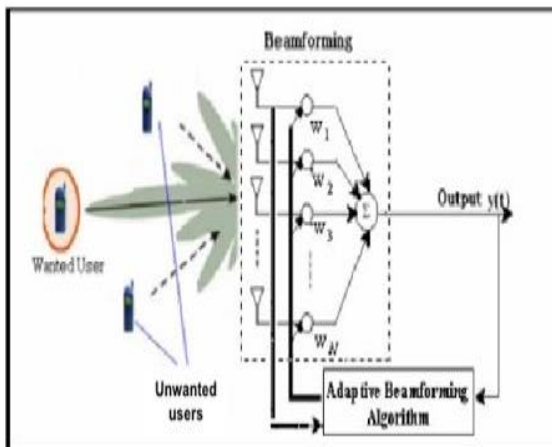


ART FROM MEGHANA P S



Photography from Prateek Kudalkar

Smart Antennas



Smart antenna is a digital wireless communications antenna system that takes advantage of diversity effect at the source (transmitter), the destination (receiver), or both. Diversity effect involves the transmission and/or reception of multiple radio frequency (RF) waves to increase data speed and reduce the error rate.

In conventional wireless communications, a single antenna is used at the source, and another single antenna is used at the destination. This is called SISO (single input, single output). Such systems are vulnerable to problems caused by multipath effects. When an electromagnetic field (EM field) is met with obstructions such as hills, canyons, buildings, and utility wires, the wavefronts are scattered, and thus they take many paths to reach the destination. The late arrival of scattered portions of the signal causes problems such as fading, cut-out (cliff effect), and intermittent reception (picket fencing). In a digital communications system like the Internet, it can cause a reduction in data speed and an increase in the number of errors. The use of smart antennas can reduce or eliminate the trouble caused by multipath wave propagation.

Smart antennas fall into three major categories: SIMO (single input, multiple output), MISO (multiple input, single output), and MIMO (multiple input, multiple output). In SIMO technology, one antenna is used at the source, and two or more antennas are used at the destination. In MISO technology, two or more antennas are used at the source, and one antenna is used at the destination. In MIMO technology, multiple antennas are employed at both the source and the destination. MIMO has attracted the most attention recently because it can not only eliminate the adverse effects of multipath propagation, but in some cases can turn it into an advantage.



Ms.Swathi K J



Ms.Shiplashree H S

6thsem B Sem, PESITM, Shivamogga

Massive MIMO for Next Generation

Wireless Systems

Wireless Networks are experiencing a very large substantial increase in the delivered amount of data due to a number of emerging applications that include machine-to-machine communications and video streaming. This very large amount of data exchange is expected to continue and rise in the next decade or so, presenting a very significant challenge to designers of wireless communications systems. This constitutes a major problem not only in terms of exploitation of available spectral resources, but also regarding the energy efficiency in the transmission and processing of each information unit that has to substantially improve. The wireless internet of the future (WIoF) will have therefore to rely on technologies that can offer a substantial increase in transmission capacity as measured in bits/Hz but do not require increased spectrum bandwidth or energy consumption.

Multiple-antenna or multi-input multi-output (MIMO) wireless communication devices that employ antenna arrays with a very large number of antenna elements which are known as massive MIMO systems have the potential to overcome those challenges and deliver the required data rates, representing key enabling technology for the WIoF.

Massive MIMO is a goldmine of research problems. While massive MIMO renders many traditional problems in communications theory less relevant, it uncovers entirely new problems that need research. They are

- [1] Fast and distributed coherent signal processing
- [2] The challenge of low-cost hardware
- [3] Hardware impairments
- [4] Internal power consumption
- [5] Channel Characterization
- [6] Cost of reciprocity calibration
- [7] Pilot contamination
- [8] New deployment scenarios.



Mr. JAGADISH M Mr. NATARAJ S D
Asst. Prof, Dept. of ECE, PESITM Shivamogga



GROUP PHOTO OF 2014-18 BATCH OUTPUT STUDENTS (A-SECTION)

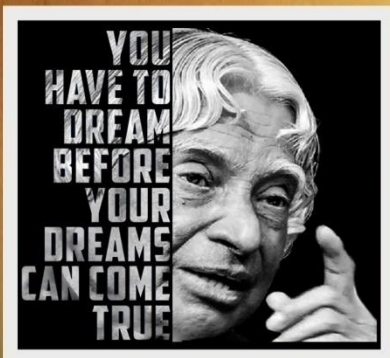


GROUP PHOTO OF 2014-18 BATCH OUTPUT STUDENTS (B-SECTION)

INSPIRATIONAL QUOTES

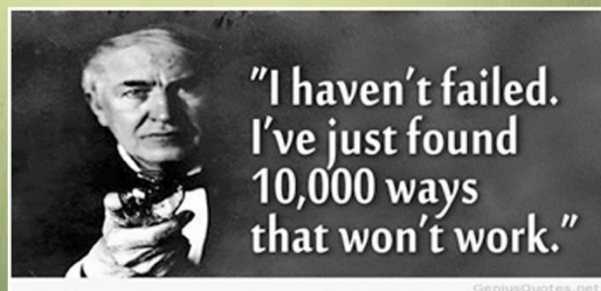
*Arise Awake and stop
not till the goal is reached*

-- SWAMI VIVEKANANDA



*Without your involvement
you can't succeed with your
involvement you can't fail*

-- A.P.J. ABDUL KALAM



-- THOMAS A. EDISON

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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