![PMC TECH INSPIRE TO INNOVATE]

A NATIONAL LEVEL TECHNICAL SYMPOSIUM
On
Innovision'19

07th Feb 2019

Organized by

Department of Electronics & Communication Engineering

In association with

Er. Perumal Manimekalai Polytechnic College

Hosur, Krishnagiri, Tamil Nadu - 635 117.

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Our Institution

"PMC TECH play influential role with Industries for providing meaningful impact on overall competency and skill levels of the students in relation to knowledge updating with practicality in learning and professionalizing them aiming at the developing scenario of current and future technologies."

PMC TECH Group of Institutions, Hosur, Tamilnadu established in the year 1996 is run by "Er. Perumal Manimekalai Telugu Minority Educational and Charitable Trust" under the dynamic leadership of Shri. Er. P. Perumal, Founder Chairman. The Institutions comprise Matriculation School, ITI, Polytechnic, Engineering College and Research Studies providing quality education in the region.

Er. Perumal Manimekalai polytechnic college (established 1996) approved by AICTE and affiliated to Dote Chennai, is an ISO 9001:2015 certified Institution. The Institute provide scholarly and professional environment with quality education & skill oriented training that help students becoming best employable for Industries and professional entrepreneurs for the Nation. The Institute supports students' creativity/innovations by establishing Scientific and Industrial Research Organization (SIRO), Women Technology Park (WTP), Centre for IIT Bombay Employability Skill Trainings, Business Incubation Centre (MSME BI), Innovation & Entrepreneurship Development Centre (IEDC) etc., for research and developments.

Vision:

PMC Tech -Polytechnic College shall emerge as a premier Institute for valued added technical education coupled with Innovation, Incubation, Ethics and Professional values.

Mission:

1. To foster the professional competence through excellence in teaching and learning.
2. To nurture overall development of students by providing Quality Education & Training.
3. To provide innovative environment to learn, innovate and create new ideas for the betterment of oneself and society.

About the Department

The Department of Electronics and Communication Engineering was established in the academic year 2001-2002. It has well equipped laboratories with a state of art Computer Laboratory, Electronics Devices etc… VLSI & Simulation Lab well equipped with software's such as Multisim, Xilinx, etc., Qualifiedand experienced faculty members have been involved in teaching and conducting various short term courses for the benefit of students.

Vision:

To provide quality environment for Electronics and Communication Engineering diploma holders to excel in profession to cater the needs for self and societal development.

Mission:

M1: Provide good learning environment to enable the students to face the challenges of technological advancement through theoretical and practical orientation.

M2: Enable students to develop skills to solve complex technological problems.

M3: To nurture innovation and leadership quality to address the industrial and social needs.

Program Educational Objectives (PEOs)

PEO1: Adopt and upgrade themselves in the technological challenges of present and futures.

PEO2: Have good practice in using modern electronics, and IT Tools, for the design and analysis of complex engineering problems.

PEO3: Absorb and apply fundamental knowledge to solve industry and societal problem.

Program Specific Outcomes (PSOs)

PSO1: The Electronics and Communication Engineering diploma students will be able to provide with a solid foundation in Electronics, Communication and Networking which required to design products for modern electronics.

PSO2: To provide students with an academic environment, to innovate and adopt to technical changes.

PSO3: To prepare the students to excel in their profession to provide viable solution for industrial and societal problem.

About the Symposium

Most of the present day research are taking place with focus towards technology and education in this engineering the foremost leader. It plays a unique role in exploiting innovative technology

This Conference provides a real opportunity to bring together scientists, researchers and academician of different disciplines to discuss new issues, tackle complex problems and find advanced solutions breeding new trends in Engineering.

Organizing Committee Members

Chief Patrons

Er. P. Perumal, Chairman, PMC TECH – Group of Institutions

Shri. P. Kumar, Secretary, PMC TECH – Group of Institutions

Smt. P. Mallar, Trustee, PMC TECH – Group of Institutions

Patron

Mr. N. Balasubramaniam, Principal, PMC TECH – Polytechnic College

Convener

Mrs.J.Blaizelet Mary, HOD/ECE

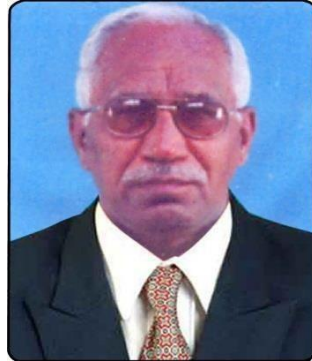## Co-ordinators

Mr. C Veeramani Lect/ECE

Members

Mrs. M. Selvakumar, Lect/ECE

Mrs. Flarance Jenifer Lect/ECE

Mr. M Rajkumar Lect/ECE

Mrs. N Nagalakshmi Lect/ECE

Chairman's Message

I feel immense pleasure to inscribe my message for the souvenir. It has been saidthat the mask of success contains many hidden faces behind it. **Innovision'19 Symposium** as well as this institution is an assertion of this fact.

Absolute teamwork and strong vision resulted in Digital Marketing (**Innovision'19**)" a National level symposium organized by the Department of Electronics and Communication Engineering. Our Institution Strive to travel beyond the boundaries of Mere books. We have realized that our future is abstract and unknown but youth in our hands are real and can be Moulded. This souvenir gives us just the glimpses of the achievements be held by our institution. Brighter days are still to come. And my heartfelt wishes for that.

The diligent contribution made by our faculty members and elaborated endeavor done by our students are the foundations of **Innovision'19**Conference.

"You don't have to be great to start, but you have to start to be great"

My best wishes for the future!

Er. P. Perumal

Chairman,

PMC TECH – Group of Institutions.

Secretary's Message

It gives me great pleasure to send the message for the souvenir, which is to be released at **Innovision'19**Symposium. **Innovision'19**Symposium is being organized on 7th Feb 2020 by Department of Electronics and Communication Engineering, Hosur.

An Institution of Higher Education, where students and faculty members are busy in learning and research, organizes such co-curricular activities for giving an opportunity to the students to celebrate their competence in technology and to inculcate in them the qualities of confidence, innovative thinking and analytical abilities. Co-curricular activities are intimately connected with the inner-being of a person. On the one hand, these permit an individual to express oneself and understand oneself better.

We want PMC Tech to be a great Institution. While making every single classroom, laboratory and workshop interesting is important, while working to make our programs practice-oriented is PMC Tech's mission, development of the complete personality of every student in all the hues, which come together to create a great human being, is the objective of the Institution. Such programs contribute a great deal in achieving the PMC Tech's objectives.

I convey my Best Wishes for the success of **Innovision'19**, organized by department of Electrical and Electronics Engineering.

Shri. P. Kumar,

Secretary,

PMC TECH – Group of Institutions.

Trustee's Message

A feeling of great pride and contentment rises to witness our event "**Innovision'19**and this souvenir is nothing else but the reflection of the success saga our institution has created.

It has always been a tradition of our institution of confer holistic education to the learners which not only gives the qualification but also intends to mold them into better human beings. And I wish the same tradition will be followed in future years. Being a constant witness of the progress of our institution, I can surely acclaim that in times to come, our institution will prove to be an epitome of excellence in imparting quality education.

The sincere work and strength put up by our faculties and dear students in materializing this conference is worth admiring. This souvenir reflects aspiring vision and inspiring insight of our students and faculties.

So, my good wishes are always with them.

Many congratulations to all!

Smt. P. Mallar,

Trustee,

PMC TECH – Group of Institutions.

Principal's Message

Er. Perumal Manimekalai Polytechnic College has been the crest of jewels in the educational map of Tamilnadu. Its unrivalled excellence in conferring quality education of PMC Tech has played pivotal role in the technical development of the learners.

The sincere and meticulous work pattern has been the heritage given by our Institution. As a consequence, our institution has cultivated a tradition of bestowing learners with best quality academic education. Apart from that, to develop creative, conceptive and analytical skills as well as to furnish the learners with research and leadership skills technical festivals are essential. So the Department of Electronics and Communication Engineering has organized '**Innovision'19**' a National level Symposium andit stands a class apart from all the events. And I dream our conference will provide a forum for all the students to exchange their learning experiences as well as their creativetechnical knowledge. I am assured that our Symposium will represent the students bothquantitatively and qualitatively.

My cordial felicitations to all!

Congratulation to all of the students. Yours efforts have not gone unnoticed!

Best wishes for this, **National Level Symposium – Innovision'19**.

Mr. N. Balasubramaiam,

Principal,

HoD's Message

 This National conference on " **Wireless Communication** (**Innovision'19**)" organized by ECE department, to focus the attention of all concerned professionals to discuss at length concern with emerging trends in engineering and technology.

 To seek solutions wherever possible and identify areas where further in research. Invited contributions from professional bodies for knowledge sharing. Enormous participants confirmed their registration and presentation in National level symposium.

 PMC Tech is making strides towards evolving directions for the growth and dissemination of technical knowledge for the purpose of research and innovation. It is with these clear thoughts the department of Electronics and communication Engineering has been organizing National level Symposium. This year the focus is on

 Moreover, this whole event is a conclusion of synchronized efforts done by our faculty members and students. Congratulations to them for their sincere and earnest hard work. I, hope this conference will be a platform for all our energized students where they can explore their hidden potential.

Wish you best of luck in your endeavor.

Mrs.J.Blaizelet Mary , HOD/ECE,

PMC TECH – Polytechnic College.

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Wireless Communication

Abstract

Wireless communication technology **transmits information over the air using electromagnetic waves like IR (Infrared), RF (Radio Frequency), satellite, etc**. For example, GPS, Wi-Fi, satellite television, wireless computer parts, wireless phones that include 3G and 4G networks, and Bluetooth.

Wireless and Telecommunication have become an integral part of each other to provide wireless communication to common man that helps people located in any part of the world communicate easily.

Introduction to Wireless and Telecommunication

Telecommunication these days is mostly wireless. It involves transmission of information without wires, cables or any other electrical conductors within a shorter distance or across the globe. Wireless communications are growing to new heights because of its huge business benefits. Wireless technology offers speed, flexibility, and network efficiency. It has become a powerful tool for tech-savvy generation as it facilitates easy information sharing and boosts productivity. One gets the freedom to roam around freely without worrying about the internet connection and still stay connected.

Infrared (IR) wireless communication:

This type of communication is mainly used for short and medium-range communication where information between devices or systems are transferred through infrared (IR) radiation, which is an electromagnetic energy that has a longer wavelength. You must select a system that must operate as a transmitter (source) and a receiver (destination). Note that there must be no obstruction between the source and the destination. Examples of source and destination include mobile phones, televisions, security systems etc.

Advantages of Wireless Communication

- Wireless networks are cheaper to install and maintain.
- Data is transmitted faster and at a high speed.
- Reduced maintenance and installation cost compared to other form of networks.
- Wireless network can be accessed from anywhere, anytime.
- Working professionals these days can access Internet anywhere and anytime without carrying cables or wires. This also permits professionals complete their work from remote locations.
- Medical professionals working in remote areas can be in touch with medical center located elsewhere through wireless communication.
- Through wireless communication, emergency situations get immediate help and support.

Network Security

Abstraction

The security of computer networks plays a strategic role in modern computer systems. In order to enforce high protection levels against malicious attack, a number of software tools have been currently developed. Intrusion Detection System has recently become a heated research topic due to its capability of detecting and preventing the attacks from malicious network users.

A pattern matching IDS for network security has been proposed in this paper. Many network security applications rely on pattern matching to extract the threat from network traffic. The increase in network speed and traffic may make existing algorithms to become a performance bottleneck. Therefore it is very necessary to develop faster and more efficient pattern matching algorithm in order to overcome the troubles on performance.

The elements of a complete, multilayered security architecture that implements network security across an organization fall into two general categories: access control and threat control.

Access Control

Network security starts with access control. If bad actors gain access to a network, they can surveil traffic and map infrastructure. Once they have mapped infrastructure and applications, they can launch a DDoS attack or insert malware. Access control restricts the movement of bad actors throughout the network.

Threat Control

Even with access control in place, problems can arise. For instance, a bad actor may compromise an employee's credentials to gain entry. Thus the need for threat control, which operates on traffic that is already permitted. Threat control prevents the actions of bad actors from doing damage within the network.

Threat control technologies begin with the firewall and load balancer. These devices protect the network from DoS/DDoS attacks. Next, IDS/IPS counters known attacks traveling through the network. Finally, unknown malware objects traveling through the network are captured with sandbox technologies, while anomalies in network traffic that may be symptoms of a threat are caught with NTA/NDR.

LIFI Technology

Abstraction

A bidirectional wireless system that transmits data via LED or infrared light. It was first unveiled in 2011 and, unlike wifi, which uses radio frequency, LiFi technology only needs a light source with a chip to transmit an internet signal through light waves.
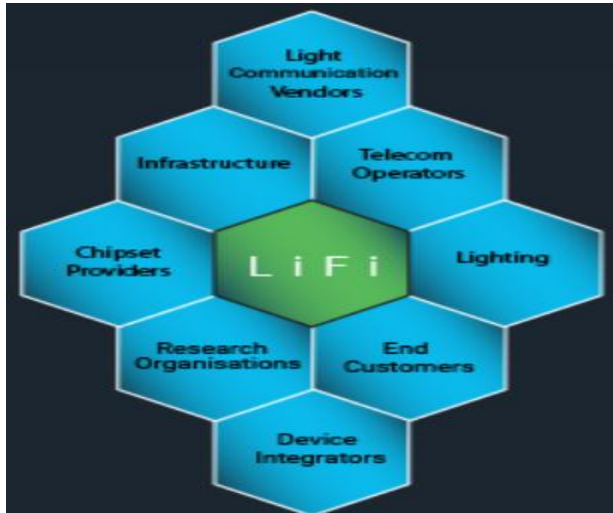
Speed & Bandwidth

LiFi can deliver multiple Gbps speeds in mobile devices.
This next generation technology will drive wireless beyond any current capability, opening up unprecedented bandwidth.

Reliability

LiFi provides enhanced reliability enabling interference-free communications and 1000 times the data density, dramatically improving the user experience.

Low Latency

LiFi currently offers latency by a factor of three times lower than Wi-Fi and can radically enable innovation, automation, and applications such as AR and VR.

WI – MAX

Abstraction

WiMax stands for **Worldwide Inter-operability for Microwave Access**. This technology is based on IEEE 802.16. It is used to provide higher data rates with increased coverage. It is based on MAN (Metropolitan Area Network) technology. Its range is upto 50 Km. It may provide speed upto 70 Mbps and it can operate in Non-Line-of-Sight. This technology is fast, convenient and cost effective.

Physical Layer:

This layer is responsible for encoding and decoding of signals and manages bit transmission and reception. It converts MAC layer frames into signals to be transmitted. Modulation schemes which are used on this layer includes: QPSK, QAM-16 and QAM-64.

Convergence Layer:

This layer provides the information of the external network. It accepts higher layer protocol data unit (PDU) and converts it to lower layer PDU. It provides functions depending upon the service being used.

Applications:

- Video streaming
- VoIP
- Video Conference
- E-Learning