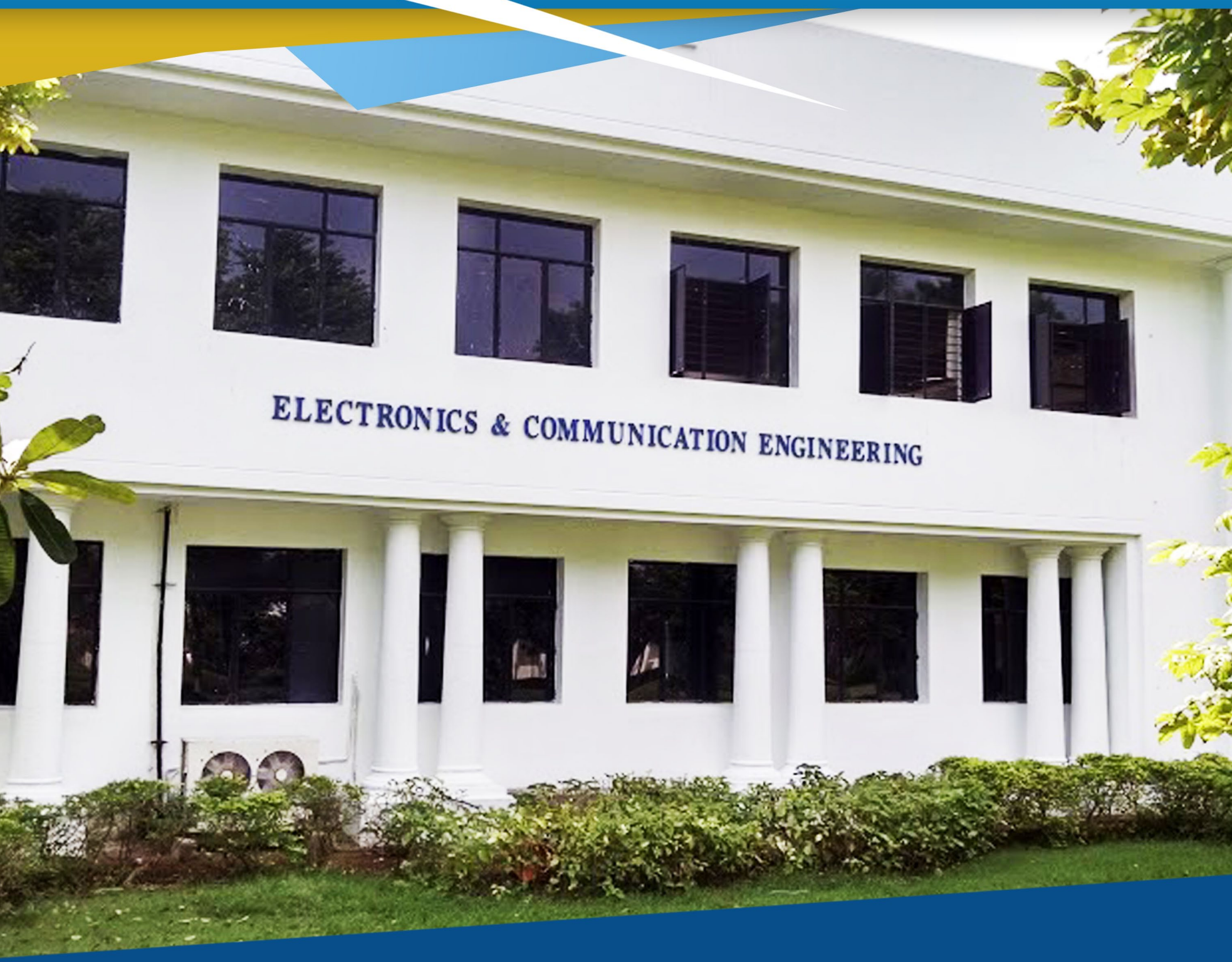
VOLUME
4
ISSUE 1

Impulse

The Half Yearly Newsletter of ECE,July 2015.



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HIGHLIGHTS

FACULTY CORNER

STUDENTS CORNER

A Report on NBA Visit *Jan 09–11, 2015*

The Department of Electronics and Communication Engineering applied for reaccreditation of its B.E. Electronics and Communication Engineering Programme by the National Board of Accreditation (NBA) in March 2014.

The NBA Committee visited the College and the Department during Jan 09, 10 and 11, 2015.

Dr. S. Radha, Professor and Head of the Department gave a presentation about the Department overview and about the B.E., ECE Programme. The Programme evaluators visited all the laboratories, department library, class rooms and seminar halls. The programme evaluators interacted with faculty & staff, students and alumni.

During the exit meeting, the committee highlighted the lush green large campus with residential accommodation to faculty and staff; wide spread departments with very good laboratory space and equipment; dedicated faculty and committed students; excellent faculty retention; and good Wi-Fi facility as the institution's Strengths. Impressive lab facilities with functional equipment; qualified faculty; good success index and academic performance index; good utilization of alumni resource were highlighted as our department's strengths by the programme evaluators.

The Department of CSE, EEE, IT and BME also had NBA Committee visit along with the Department of ECE.

Subsequent to the visit, all the five programmes have been accredited for a period of 5 years from July 2015.

The Department has also applied for reaccreditation of its M.E., Communication Systems and Applied Electronics Programmes, and the committee visit is expected later this year.

SECURE ELECTRONIC TRANSACTION

Dr. R. Kishore, Asso. Prof.

Recent advancement in wireless communications and electronics has enabled a variety of applications and modern computing systems. With internet, most of the computers in the world today are interconnected. Even though we enjoy lot of benefits due to this interconnectivity, it has also created new risks for the users due to threat from hackers and attackers. To achieve a secure system, security must be integrated into every component, since any component designed without security can become a point of attack. Consequently, security and privacy pervade every aspect of system design. If adversaries exist, they can perpetrate a wide variety of attacks in the system. Confidentiality, Integrity and Authentication are the basic security services required to achieve a secure system. Secure Electronic Transactions, one of the network security applications, is discussed in this article to understand these security services as most of us do credit card transactions nowadays.

Secure Electronic Transaction (SET) was a wonderful communication protocol standard for securing credit card transactions over insecure networks. Secure Electronic Transaction was developed by SET consortium, established in 1996 by VISA and MasterCard. Unlike a payment system, SET is a set of security protocols that enables secure transactions over the internet. Like any other security protocol, to meet the requirements SET provides services like Confidentiality, Integrity and Authentication. SET basically provides a secure communication channel between the customer and the merchant involved in the transaction, provides trust by X.509 digital certificates. The important point to be noted here is that a customer's credit card information is exchanged between the customer and the credit card authenticator, with a purchase authorization sent to the merchant that prevents the merchant from knowing the customer's credit card information.

SEQUENCE OF STEPS REQUIRED FOR A SET TRANSACTION

* First the customer obtains a credit card ac count with a bank that supports electronic payment and SET
* The customer then receives X.509 digital certificate signed by the bank
* Merchants will be having their own certificates
* The customer initiates order
* The merchant sends the customer his public key and a copy of his certificate so that the customer can verify that it's a valid store.

Now the customer has to place an order with the merchant. Here the customer wants to send the Order Information (OI) to the merchant and the Payment Information (PI) to the bank. There is no need for the merchant to know about the customer's PI and the bank does not need to know about customer's OI. There must be some provision for the

customer to keep these two items separate but linked in a way that can be used to resolve conflicts if any. For example the link is needed for the customer to prove that this payment is for this particular order and not for some other services. Such a provision is possible with Dual Signature. Customer links OI and PI by constructing a Dual Signature. The steps involved in constructing the Dual Signature are:

* The customer takes the hash of PI and OI by using Secure Hash Algorithm (SHA 1)
* The resulting PI Message Digest (PIMD) and OI Message Digest (OIMD) are concatenated and the hash of the result gives Payment Order Message Digest (POMD)
* POMD is encrypted with customer's private signature PRc key resulting in dual signature
* Customer sends Purchase Request message which includes Purchase related information, Order related information and the customer's certificate
* Purchase related information consists of PI, Dual Signature and OIMD (needed for the payment gateway to verify Dual Signature) which is encrypted with a Temporary symmetric key Ks which will be passed on by the merchant to payment gateway along with the Digital envelope (Ks encrypted with bank's public key PUb)
* Order related information needed by the merchant consists of OI, Dual Signature and PIMD (needed for the merchant to verify Dual Signature)
* Customer's certificate contains his public signature key which is need by merchant as well as payment gateway
* The customer sends the merchant:
* His certificate.
* His order details, unencrypted.
* His bank account details encrypted with the bank's public key.
* Upon receiving the Purchase request message from the customer, the merchant
* Verifies the customer's certificate by means of its CA signatures
* Verifies the Dual Signature using customer's public signature key which ensures that the order is not tampered in transit
* The merchant requests payment authorization by sending the bank, the authorization request message
* The authorization request message consists of (Note that the merchant doesn't know the client's payment and bank account details)
* Purchase related information (The portion of the Purchase request message passed on by the merchant to the payment gateway)
* Authorization related information generated by the merchant that includes the transaction ID signed with merchant's private signature key and encrypted with a temporary symmetric key generated by the merchant and a digital envelope
* Certificates like customer's signature key certificates that is used to verify the Dual Signature, the merchant's signature key certificate that is used to verify the merchant's signature and the merchant's key exchange certificate that is needed in the payment gateway's response
* Upon receiving an authorization request message from the merchant, the payment gateway
* Verifies all certificates
* Decrypts the authorization block and verifies the merchant's signature

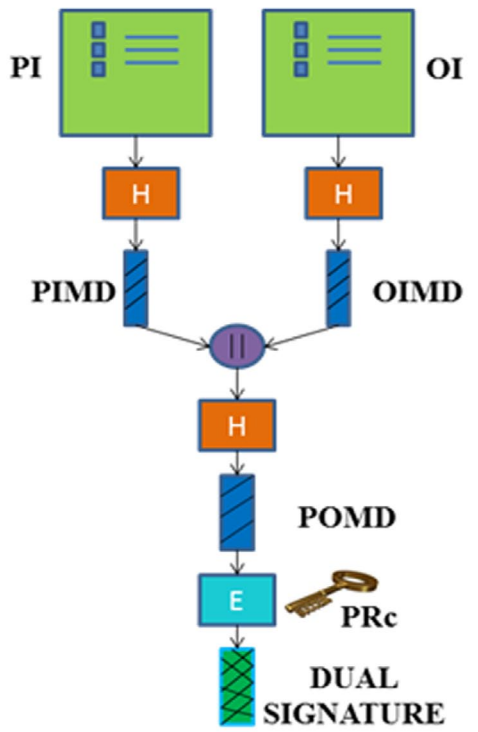


Fig.: Dual signature construction

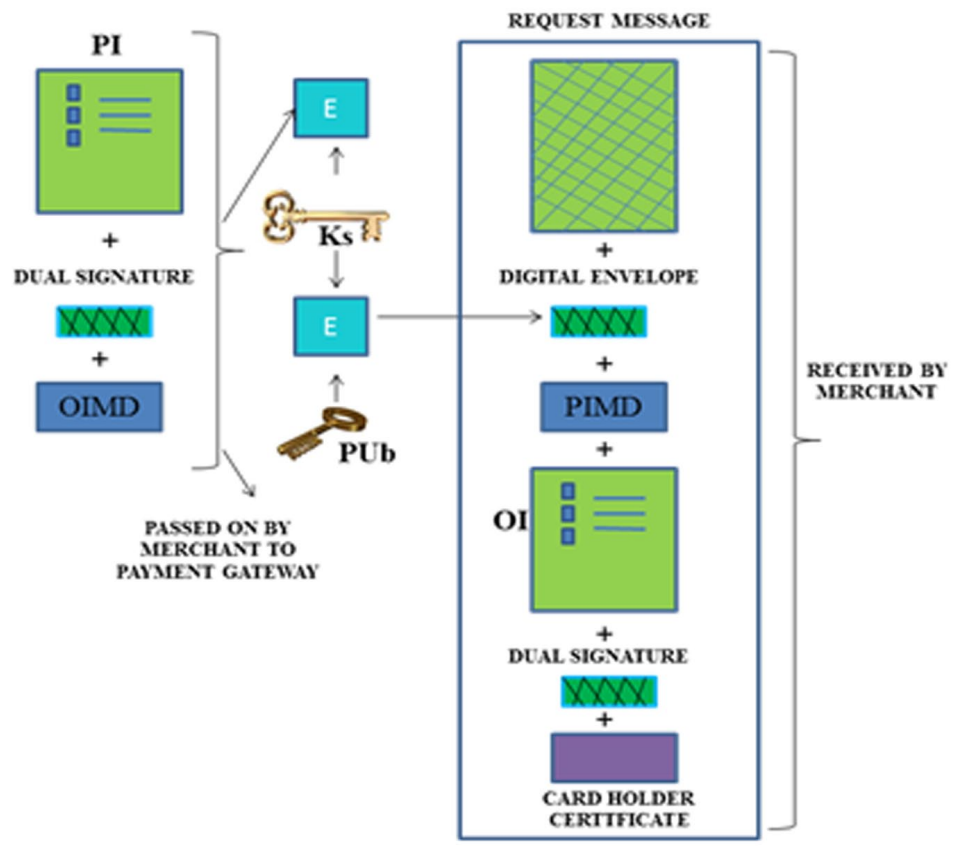


Fig.: Customers' purchase request message

* Decrypts the payment block and verifies the Dual Signature
* Verifies that the transaction ID from the merchant matches with that in the PI received indirectly from the customer
* More importantly verifies the customer's available credit is sufficient for this purchase
* The bank sends the merchant a confirmation encrypted with the merchant's public key, the authorization response
* The merchant confirms the order
* The merchant ships the goods to the customer.
* The merchant sends the bank a transaction request encrypted with the bank's public key.
* The bank transfers the payment to the merchant.

Note: The Dual Signature constructed by the customer is sent to both the merchant and the bank. The protocol is designed in such a way that the merchant sees the MD of the PI without seeing the PI itself, and the bank sees the MD of the OI but not the OI itself. The dual signature can be verified using the MD of the OI or PI. It doesn't require the OI or PI itself. At the same time PIMD and OIMD does not reveal the content of the OI or PI, and thus privacy is preserved.

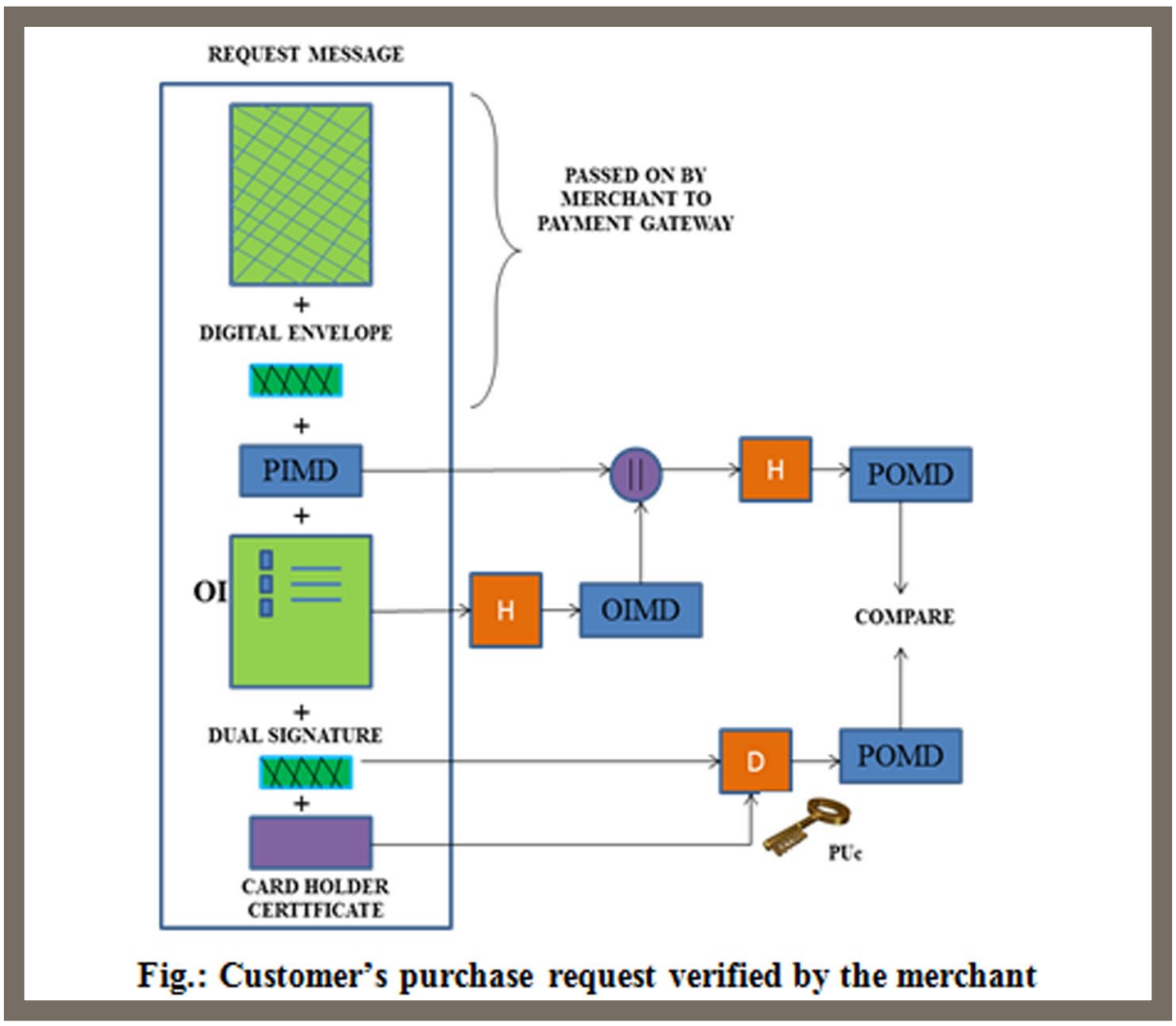


Fig.: Customer's purchase request verified by the merchant

SET was intended to become the de facto standard for secure transactions over the internet between the merchants, the customers, and the credit card companies. Despite heavy publicity it failed to gain widespread use due to simplicity of the existing Secure Sockets Layer (SSL) based alternative. Having discussed about SET, we can now look into how we can provide solutions in terms of security services and mechanisms for the upcoming applications. vinternet between the merchants, the customers, and the credit card companies. Despite heavy publicity it failed to gain widespread use due to simplicity of the existing Secure Sockets Layer (SSL) based alternative. Having discussed about SET, we can now look into how we can provide solutions in terms of security services and mechanisms for the upcoming applications.

Acknowledgement:
The diagrams are reproduced from the text:
Cryptography and Network Security, Principles and Practices by William Stallings, Pearson Education, Inc., 2006.

VISITS AND INTERACTIONS

1. Mr. S. Sakthivel Murugan, AP had a technical discussion with Dr. G. Velayutham, Director (Technical) from Sainergy Fuel Cell India Pvt. Ltd regarding development of a MFC for an underwater application on 13th Jan. 2015.

2. Dr. S. Radha, Prof., Dr. B. S. Sreeja, Asso. Prof., Ms. R. Hemalatha, AP, Ms. S. Kirubaveni, AP had discussions with Dr. Somalatha, Senior Scientist, Materials Department, NAL, Bangalore regarding piezoelectric energy harvesting device manufacturing on 19th Mar. 2015.

3. Dr. R. Rajavel, Asso. Prof. presented his project titled "Sign Language Translator for Speech Impaired Persons Communication" at Indian National Science Academy, New Delhi on 20th Mar. 2015

4. Dr. S. Sakthivel Murugan, Asso. Prof. visited RS Wind Tech Engineering and Pvt. Ltd and met the executive members Mr. Kuppumenan (Ex. AD TNEB), Management Representative, Mr. Muruganantham, D.G.M and Mr. John Samuel, AE TNEB, Muppandal Substation and had exclusive discussion on project funding, industrial visit, continuous support for PG project and MoU with SSNCE on 26th and 27th May 2015.

EXPERT LECTURES

Talks at the Department:

1. Mr. A. Saranraj, Scientist - C, CVRDE, Avadi, delivered a guest lecture on "Technology Progress" for the benefit of I year PG Students on 17th Apr. 2015.

2. Dr. M. Anbarasu, Assistant Professor, IIT Indore delivered a guest lecture on "Nanoscale Memories" for the benefit of PG students on 4th May 2015.

Faculty talks elsewhere

1. Dr. K. T. Selvan, Prof. inaugurated the IEEE Antennas and Propagation Society Student Branch Chapter at Saveetha University and delivered a technical talk on “Radiation from apertures” on 30th Jan. 2015.

2. Dr. R. Kishore, Asso. Prof., “Overview of Communication Systems,” Department of Electronics & Communication Engineering, Velammal Engineering College, Chennai on 9th Feb. 2015.

3. Mr. V. Vaithianathan, AP , “Combinational & Sequential Logic Families,” Kings College of Engineering, Thanjavur on 23rd Feb. 2015.

4. Ms. M. Anbuselvi, AP , “Embedded system design,” Velammal Engineering College on 12th Mar. 2015.

5. Dr. S. Sakthivel Murugan, Asso. Prof. “Fundamentals of Communication Systems,” Velammal Engineering College, Chennai on 17th Apr. 2015.

6. Dr. N. Venkateswaran, Prof. “Image Processing - Trends and future” 7th National Conference on “Recent trends in VLSI Information and Communication” ,Department of ECE, BS Abdur Rahman University, Chennai on 24th Apr. 2015.

EVENTS ORGANIZED

1. The Department of ECE and the Department of EEE jointly conducted a two day workshop on “TI Analog System Design by Using ASLK Pro”.
Date: 12th & 13th Feb. 2015.
Convener: Dr. S. Radha, Prof.
Coordinators: Dr. R. Rajavel, Asso. Prof., Dr. R. Ramaprabha, Asso. Prof./EEE and Mr. S. Joseph Gladwin, AP
Sponsors: Starcom Information Technology Limited and TI India University Program, Bangalore.
Resource Person: Mr. Narendra Babu, Sr. Application Engineer, Starcom Information Technology Limited, Bangalore
Participants: 46 students, faculty and technical staff members attended the workshop.

2. A two day workshop on “Cadence Tool” was organized for 1st year ME - VLSI Design students.
Date: 10th & 11th Mar. 2015
Convener: Dr. S. Radha, Prof.

Coordinators: Dr. Premanand V. Chandramani, Prof ., Mr. C. Thiruvenkatesan, Asso. Prof. Ms. G. Durga, AP and Ms. S. Kirubaveni, AP.
Resource persons: II year ME VLSI students Ms. M. Anusha, Mr. S. Chrisben Gladson, Ms. A. Gowthami, Mr. K. Janakiraman, Ms. D. Lakshmi Priya, Ms. J. L. Lakshmi, Ms. R. Sharmila Devi and Ms. V.A. Sowbana.

3. One day Entrepreneurship seminar for Engineering students
Date: 21st Mar. 2015
Convener: Dr. S. Radha, Prof. &
Dr. K. T. Selvan, Prof.
Coordinators: Mr. K. J. Jegadish Kumar, AP and Mr. S. Ramprabhu, AP
Speakers: Mr. P. Krishnamurthy, Director, Aura Industrial Equipments and Projects; Director Naga, Creative Media Consultant; Dr. K. Sampath Kumar, Prof., SSN School of Management; Mr. Vilva Natarajan, Founder & CEO, Karomi Technologies; and Dr. L.S. Ganesh, Prof./IITM
Participants: 25 participants attended the seminar.

4. Departments of ECE & Physics jointly conducted a 2 day Hands-on "Workshop on Modeling Photonic Devices" using Lumerical Software suite commemorating International ear of Light.
Date: 30th and 31st Mar. 2015
Convener: Dr. S. Radha, Prof.
Coordinators: Dr. Premanand Chandramani, Prof. and Dr. Prita Nair, Asso. Prof./Physics
Speakers: Experts from Sridutt Technologies and Research scholars of SSNCE
Participants: 21external and 20 internal participants attended the program.

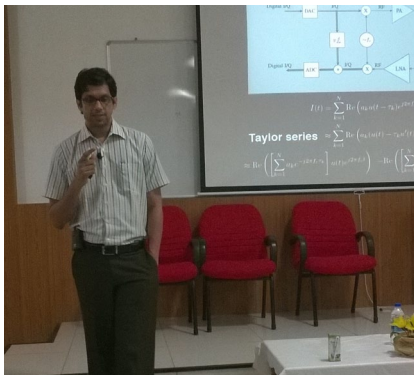
5. The department of ECE organized the 3rd National Conference on Information and Communication Technology (NCICT2k15).
Date: On 9th and 10th Apr. 2015.
Conference Chair: Dr. S. Radha, Prof. & Head
Coordinators: Dr. A. Jawahar, Prof.,
Dr. R. Kishore, Asso. Prof. and Mr. C. Thiruvenkatesan, Asso. Prof.
Keynote Speakers: Ms. Jemimah Ebenezer, Scientific Officer–F, IGCAR, Kalpakkam,
Dr. K. Giridhar, Dr. Radha Krishna Ganti,
Dr. T. Chockalingam and Dr. Sowmya Dutta from IITM.
Participants: Around 200 papers were received, from which 55 were selected for presentation. 24 papers were registered and presented in the conference.

6. The department of ECE & IT jointly organized a two-day workshop on "Technologies for speaker and language recognition".
Date: 29th and 30th Apr. 2015
Convener: Dr. S. Radha, Prof.
Coordinators: Dr. P. Vijayalakshmi, Prof.,
Dr. T. Nagarajan, Prof. & Head/IT and
Ms. B. Ramani, AP .
Speakers: Dr. C. Chandrasekhar, Prof./IITM, Dr. Hema A Murthy, Prof./IITM, Dr. T. Nagarajan, Prof./IT/SSNCE, Dr. P. Vijayalakshmi, Prof./ECE/SSNCE, Dr. B. Bharathi, Asso. Prof./CSE/SSNCE
Hands-on trainers: Ms. B. Ramani, AP and Dr. B. Bharathi, Asso. Prof./CSE
Participants: 51 external and internal participants attended the workshop.

Workshop on Technologies for Speaker and Language Recognition

NCICT2K15

April 09 and 10, 2015



EVENTS ATTENDED

1. Dr. S. Radha, Prof. attended the National Conference on Communications (NCC 2015), at IIT Bombay held between 27th Feb. and 1st Mar. 2015.

2. Mr. Suresh R. Norman Asso. Prof., presented a paper at ICCE 2015 on Jan. 12th, 2015 at the International IEEE conference at Las Vegas, USA .

3. Ms. R. Hemalatha, AP and Dr. K. Muthumeenakshi, Asso. Prof., 'Moodle LMS Usage' on 16th May 2015.

4. Dr. S. Radha, Prof., Ms. R. Hemalatha, AP, Ms. S. Asha Nandhini, JRF, Ms. V. Angayarkanni, JRF, Ms. J. Florence Gnana Poopathy, JRF and Ms. P. Nirmala, JRF attended the demo and training conducted by CDAC - Bangalore, on the equipments purchased under DST - FIST scheme on 29th and 30th May 2015.

5. Dr. S. Radha, Prof., Ms. R. Hemalatha, AP, Ms. Aasha Nandhini, JRF and Ms. Florence Gnanapoovathy, JRF attended one day workshop at CDAC,Bangalore on June 30th 2015.

PROFESSIONAL ROLES AND RECOGNITIONS

1. On 6th Jan. 2015, Mr. S. Joseph Gladwin, AP received Certificate of Appreciation for YRC unit of SSNCE which is honoured as best YRC unit in Kancheepuram District for the year 2013-'14 during the celebrations held at University of Madras, Chennai.

2. Dr. R. Jayaparvathy. Prof. served as an AICTE Expert for AQIS proposal Evaluation held during Jan. and Feb. 2015

3. Dr. R. Rajavel, Asso. Prof. reviewed a research paper for International Journal of Enterprise Network Management.

4. Dr. R. Rajavel, Asso. Prof. nominated as a Technical Review Committee member for International Conference on Advances in Engineering and Applied Sciences (ICAEAS -2015), Noorul Islam University – India.

5. Dr. S. Radha, Prof. nominated as an external expert by Anna University for doctoral research award

6. Dr. K. T. Selvan, Prof. is invited to be a member of Scientific and Advisory Committee for India Antenna Week, to be held from 30th May to 3rd Jun. 2015 in Ajmer, Rajasthan.

7. Dr. Premanand Chandramani, Prof. attended the first DC meeting, as a doctoral committee member of the scholar Ms. S. Poorvasha at VIT, Chennai on 6th Feb. 2015.

8. Dr. R. Kishore, Asso. Prof. acted as a reviewer for the International Conference on Computing and Communication Technologies (ICCCT'15) organized by Sri SaiRam Engineering College on 26th and 27th Feb. 2015. He also acted as a chairperson for a poster presentation session.

9. On 27th Feb. 2015, Dr. K. T. Selvan, Prof. with active support from Mr. Joseph Gladwin, AP organized the first IEEE AP-S Region 10 Distinguished Speaker Programme at PSG College of Technology, Coimbatore.

10. On 13th Mar. 2015, Mr. C. Annadurai, AP acted as a referee for the National Conference on VLSI, Embedded, Nano Devices & Telecommunication (VENT'15) organized by Department of Electronics and communication Engineering, Saveetha School of Engineering, Saveetha University, Chennai.

11. Faculty members of ECE reviewed papers for the conference NCICT2k15, organized by the Dept. of ECE, SSN College of Engineering, Kalavakkam.

12. Mr. M. Gulam Nabi Alsath, AP reviewed journal papers titled "Dual-band EBG Design using Genetic Algorithm" and "Novel UWB Antenna" submitted to Applied Computational Electromagnetics Society Journal, USA. He also reviewed a research article on "Crosstalk mitigation" submitted to Journal of Electrical Engineering and Technology, Korea.

13. Dr. K. T. Selvan, Prof. and member of IEEE AP-S Education Committee reviewed two doctoral research award applications. He also reviewed a proposal submitted to the Board of Research in Fusion Science and Technology, Gujarat, in the area of microwave engineering.

14. Ms. R. Hemalatha, AP reviewed a journal paper titled "A Random Compressive Sensing Method for Airborne Clustering WSNs" for IEEE Sensors journal.

15. Dr. K. T. Selvan, Prof. reviewed 7 papers for Asia Pacific Conference on Antennas and Propagation.

16. Dr. K. T. Selvan, Prof. as Administrator, IEEE AP-S R10 Distinguished Speaker Programme, in association with Mr. S. Joseph Gladwin, AP facilitated the organization of the programme as follows:
(a) 13.04.2015 at NIT Suratkal
(b) 27.04.2015 at Rajagiri School of Engineering & Technology, Cochin
(c) 28.04.2015 at College of Engineering Trivandrum

17. On 24th Apr. 2015, Dr. N. Venkateswaran, Prof. chaired a session in the 7th National Conference on "Recent trends in VLSI Information and Communication" organized by BS Abdur Rahman University, Chennai

18. Dr. K. T. Selvan, Prof. was invited to be on the Technical Committee of INCEMIC 2015, to be held at Visakhapatnam in July.

19. Dr. R. Jayaparvathy. Prof. has been invited to serve as technical program committee member for MobiApps-15, the 2nd International Workshop on Mobile Applications to be held between 24th and 26th Aug. 2015 and WoTBD 2015, International Symposium on Web of Things and Big Data.

20. Dr. R. Jayaparvathy. Prof. & Team Member, Nodal Centre for Robotics Training, SSNCE supported by E-Yantra (IIT Bombay) was awarded the proficiency prize in the Regional E-Yantra Teacher Competition 2015, Mentor, E-Yantra Ideas Competition for student team in National Finals 2015- visited IIT Bombay in April 2015

RESEARCH NEWS

PROPOSALS SUBMITTED:

1. Dr. S. Radha, Prof. & Ms. S. Kirubaveni, AP, "Investigations on the piezoceramics for design and fabrication of energy harvesting devices" worth Rs. 83 Lakhs to DST – SERB

2. Dr. R. Srinivasan, Prof./IT, Mr. K. K. Nagarajan, AP, Dr. Premanand V Chandramani, Prof., "Radiation mitigation topologies for analog/RF front end circuits", worth Rs. 49. 21 Lakhs to ISRO.

3. Dr. S. Radha, Dr. R. Amutha,
Dr. R. Ramaprabha, Dr. R. Kishore, Dr. B. S. Sreeja and Ms. R. Hemalatha, "Design and development of a surveillance system with MEMS based photovoltaic energy harvester for smart system" worth 70 Lakhs to DST under CER 2015

4. Dr. S. Sakthivel Murugan, Asso. Prof., "Geo Acoustic Inversion study at Bay of Bengal using array of hydrophones for underwater acoustic applications" and "Vertical Coherence and directionality study of underwater acoustic ambient noise in Bay of Bengal", worth Rs. 27 and 15.50 Lakhs respectively to Naval Research Board

5. Dr. S. Sundaravadivelu, Prof., Mr. Suresh R. Norman, Asso. Prof., "LIDAR Systems development for fast productive ground based surveys of Dams, Power plants, Chemical plants and Industries, Buildings and Transportation infra-structures", worth Rs. 37.48 Lakhs to Media Lab Asia, Delhi.

JOURNAL ARTICLES:

1. Ms. S. Aasha Nandhini. JRF, Dr. R. Kishore, Dr. S. Radha "A Novel Frequency Hopping Spread Spectrum Technique using Random Pattern Table for WSN," Journal of Ad Hoc and Sensor Wireless Networks, Vol 23.(3-4), pp. 255-275, Dec. 2014.

2. Dr. R. Rajavel, Asso. Prof. and Dr. P. S. Sathidevi "Optimum integration weight for decision fusion Audio-visual speech recognition" International Journal of Computational Science and Engineering, Vol. 10, No. ½, pp. 145-154, Jan 2015.

3. Ms. N. Balasaraswathy and Dr. R. Rajavel, Asso. Prof. "Low-complexity Power Spectral Density Estimation" Springer's Artificial Intelligence and evolutionary Algorithms in Engineering Systems, Advances in intelligent systems and computing, Vol. 325, pp. 273-282, Jan. 2015.

4. Ms. L.Suvasini, Ms. S. Prethivika, Mr. S. Sakthivel Murugan, AP, Dr. V. Natarajan, "Extraction of Binary Sequences in a Frequency shift Keying Modulated signal by Empirical Mode Decomposition algorithm against ambient noises in underwater acoustic channel," Springer's Artificial Intelligence and evolutionary Algorithms in Engineering Systems, Advances in intelligent systems and computing, Vol.325, pp. 371-378, Jan. 2015.

5. Mr. K. J. Jegadish Kumar, AP and Mr. V. Karthick, II year M.E. (CS) "AES S-Box Construction using One Dimensional Cellular Automata Rules" International Journal of Computer Applications, Vol. 110, Issue No.12, pp.35-39, Jan 2015.

6. Ms. Jamlee Ludes, II year M.E (AE) and Mr. Suresh R. Norman, Asso. Prof. "Enhancing the Images from Endoscopic Camera Using TV-Image Decomposition" International Journal of Advances in Engineering, Vol.1, Issue.2, Feb 2015.

7. Mr. S. Manigandan, II year M.E (AE) and Mr. Suresh R. Norman, Asso. Prof. "Fall Detection System for Elderly Person Monitoring using GSM Network" International Journal of Advances in Engineering, Vol.1, Issue.2, Feb 2015.

8. Ms. R. Hemalatha, AP, Dr. R. Ramaprabha, Asso. Prof/EEE, Dr. S. Radha, Prof. "A Comprehensive Analysis on Sizing of Solar Energy Harvester Elements for Wireless Sensor Motes" International Journal of Smart Sensing and Intelligent Systems, Vol. 8, No. 15, pp. 291-315, March 2015.

9. Mr. S. Rathinavelu, (RA) and Mr. K. K. Nagarajan, AP, "Dithering in 45nm-MOSFET based ADC," International Journal of Applied Engineering Research, Vol. 10, No.1, pp. 415-419, 2015.

10. Mr. C. Annadurai, AP, Dr. Velmurugan Nagarajan, "A link selection strategy for cooperative ad-hoc networks," Journal of Computers and Electrical Engineering, Elsevier.

11. Mr. Nelson I, AP, Mr. K. S. Vishvaksenan, Asso. Prof, Dr. V. Rajendran, Prof/Physics, Mr. Saisrinivasan Mohankumar, "Performance analysis of turbo-coded MIMO–OFDM system for underwater communication" Journal of Computers and Electrical Engineering, Elsevier, Vol.43, pp 1-8, 2015.

12. Ms. G. Anushiya Rachel, Project Officer, Ms. V. Sherlin Solomi, Senior Project Officer, Mr. K. Naveenkumar, Project Officer, Dr. P. Vijayalakshmi, Prof. and Dr. T. Nagarajan, Prof./

IT “A low footprint context-independent HMM-based speech synthesizer for Tamil” International Journal of Speech Technology, April 2015.

13. Ms. Indhu R, Ms. Nandhini R, Ms. Binlin Jefry J, II year M.E (VLSI), Ms. S Kirubaveni, AP, Dr. B. S. Sreeja, Asso. Prof, Dr. S. Radha, Prof., “Electrostatic method of Cantilever-Based Electret Energy Harvesters” International Journal of Applied Engineering Research, Vol. 10, No 9, pp. 7206-7209, 2015.

14. Ms. Indhu R, Ms. Nandhini R, Ms. Binlin Jefry J, II year M.E (VLSI), Ms. S Kirubaveni, AP , Dr. B. S. Sreeja, Asso. Prof , Dr. S. Radha, Prof., “Design of Piezoelectric Armed Differential Length Cantilever Based Micro Generator” International Journal of Applied Engineering Research, Vol. 10, No 9, pp. 8433-8438, 2015.

15. Ms. Indhu R, Ms. Nandhini R, Ms. Binlin Jefry J, II year M.E (VLSI), Ms. S Kirubaveni, AP, Dr. B. S. Sreeja, Asso. Prof , Dr. S. Radha, Prof., “Structural Analysis and Design of Interdigitated Electrode Based Vibrational Piezoelectric Energy Harvester,” International Journal of Applied Engineering Research, Vol. 10, No 9, pp. 8535-8541.

16. Mr. P. Saravanan, Ms. M. Anbuselvi, AP , Mr. R. Prashaanth and Ms. S. L. Sindhu “Design and Development of Computation Intelligence for ACC Based on RTOS Using PIC Controller” International Journal of Applied Engineering Research, Vol.10, No.5, pp: 8849-8853, April 2015.

17. Mr. D. Suresh, Mr. K. K. Nagarajan, AP and Dr. R. Srinivasan, Prof./IT “Impact of process variation on Input Impedance and mitigation using circuit technique in FinFET based LNA” Journal of Semiconductors, vol. 36, no. 4, pp. 045002-1 to 045002-6, April 2015.

18. Ms. S. Upasana, Ms. S. Markandan, Dr. N. Venkateswaran, Prof., “Centralised and Decentralised Precoding Framework in Multi User- Mimo Wireless Communication,” Adv. in Nat. Appl. Sci., 9(6): 478-485, 2015.

19. Ms. K. Nirmala and Dr. N. Venkateswaran, Prof., “Adaptive Gamma Correction Enhanced Retinal Image for Automated Detection of Glaucoma”, International Journal of Applied Engineering Research, Vol. 9, No. 24, pp. 26999-27012, 2014

20. Mr. Saranraj and Dr. N. Venkateswaran, Prof., “Efficient Illumination Correction for Camera Captured Image Documents” Adv. in Nat. Appl. Sci., Vol. 9, No.6, pp. 391-396, 2015.

21. Ms. P. Sophia and Dr. N. Venkateswaran, Prof., “Segmentation of Medical Images Based on Probabilistic Markov Random Field Model,” Adv. in Nat. Appl. Sci., Vol. 9, No. 6, pp. 435-440, 2015.

22. Mr. C. Vinoth Kumar, AP, Dr. V. Natarajan and Ms. P. Poonguzhuli, “Secured Patient Information Transmission using Reversible Watermarking and DNA Encryption for Medical Images”, Applied Mathematical Science, Vol. 9, No. 48, pp. 2381 - 2391, Mar. 2015

23. Mr. M. Gulam Nabi Alsath, AP, Ms. Livya Lawrance, Dr. K. Malathi, Asso. Prof/CEG, Mr.

D. B. Rajendran, Mr. B. Moorthy, Ms. Jithila V. George, "Quad-Band Diversity Antenna for Automotive Environment," IEEE Antennas and Wireless Propagation Letters, Vol.14, no., pp.875-878, 2015.

24. Ms. Sangeetha Velan, Ms. Esther Florence, AP, Dr. K. Malathi, Asso. Prof./CEG , Ms. Aswathy K Sarma, Mr. C. Raviteja, Mr. S. Ramprabhu, AP and Mr. K. P. Jayaram, "Dual-Band EBG Integrated Monopole Antenna Deploying Fractal Geometry for Wearable Applications," IEEE Antennas and Wireless Propagation Letters, vol.14, no., pp.249-252, 2015

25. Mr. S. Ramprabhu, AP and Dr. K. Malathi, Asso. Prof./CEG "A Novel Dual-Band Angular Independent FSS with Closely Spaced Frequency Response," IEEE Microwave and Wireless Components Letters, vol.25, no.5, pp.298-300, May 2015.

26. N. S. Aishwarya Lakshmi, Suresh R. Norman, AP, S.Aparna, S. Divya, "Head Movement Based Feeder System for the Physically Challenged Using PSoC", Int. Journal of Multidisciplinary and
Scientific Emerging Research, Vol.3, No2 (December 2014) , pp 998-1002

27. Ms. I Divya, Ms. M. Anbuselvi, AP, "Protograph based design of Non-binary LDPC codes," Springer's Artificial Intelligence and evolutionary Algorithms in Engineering Systems, Advances in intelligent systems and computing, Vol.325, pp. 363-370, 2015

28. Ms. S. Aasha Nandhini, JRF, Dr. S. Radha, Prof., Dr. R. Kishore, Asso. Prof., "Video Compressed Sensing Framework for Wireless Multimedia Sensor Network using Combination of Multiple Matrices" Elsevier's Computer and Electrical Engineering Journal, Vol.44, pp. 51-66, May 2015

29. Ms. R. Hemalatha, AP, Dr. S. Radha, Prof., S. Sudharsan, "Energy-Efficient Image Transmission in Wireless Multimedia Sensor Networks using Block-based Compressive Sensing", Elsevier's Computer and Electrical Engineering, Vol.44, pp. 67-79, May 2015

30. Ms. R. Hemalatha, AP, Dr. Ramaprabha, ASP/EEE and Dr. S. Radha, Prof., "Design and Implementation of PV based Energy Harvester for WSN Node with MAIC Algorithm", Advances in Electrical and Computer Engineering, Vol. 15, no. 2, pp. 109 – 116, 2015.

CONFERENCE PRESENTATIONS:

1. Suresh R. Norman, Asso. Prof., Mr. S. Arunkumar, Mr. S. Baalachandar, Mr. R. Dayanidhi, (2009 passed out UG ECE students), "Microcontroller Based Tabla Tuning System," IEEE International Conference on Consumer Electronics (ICCE), Las Vegas Convention Centre, USA held between 9th and 12th Jan. 2015.

2. Mr. R. Kalidoss, AP, Mr. K. S. Vishvaksenan, Asso. Prof. , Mr. B. Partibane, AP "A study of Elliot wave theory into signal prediction in next generation wireless networks" International Conference on Telecommunication Technology and Management (ICTTM2015) organized by Bharti School of Telecommunication Technology and Management & IIT Delhi on 11th and 12th Apr. 2015

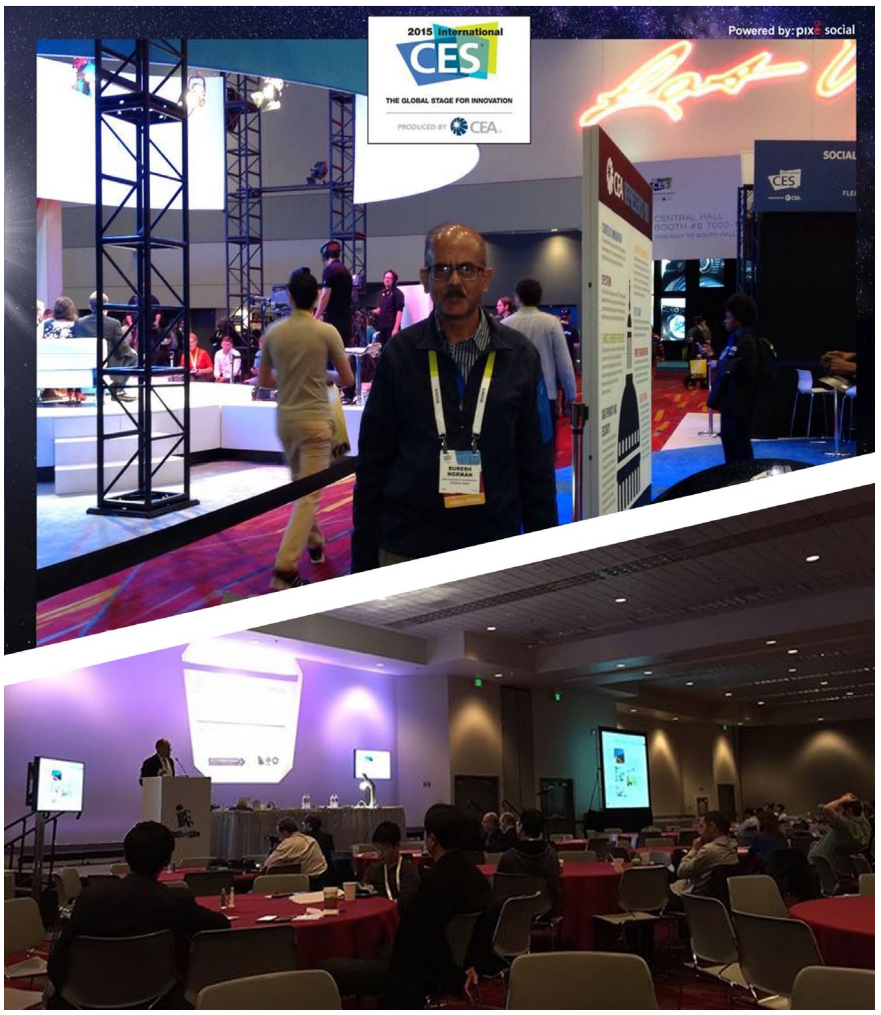
3. Ms. M. Dhanalakshmi, AP/BME and Dr. P. Vijayalakshmi, Prof. “Intelligibility modification on Dysarthric speech using HMM-based adaptive synthesis system” IEEE sponsored International Conference on Biomedical Engineering (ICoBE 2015), Malaysia organized by Universiti Malaysia Perlis, Malaysia during 30th and 31st Mar. 2015.

4. Ms. M. Sindhu Madhuri and Ms. Toshitha Kannan of III year “Virtual DNA-based cryptography for enhanced security” Proc. of 7th International conference on Electrical, Electronics, Computing and Communication Systems (EECCS’15), Bangalore between 8th and 10th Jan. 2015.

5. Ms. S. Aasha Nandhini, JRF, “Framework for secured video compression over WSN” to the RAC members as a SSN-RA to SSN-JRF

6. Ms. V. Keerthika, II year M.E (CS), Mr. S. Sakthivel Murugan, AP , Dr. V. Rajendran, Prof/Physics, Ms. Ann Agnetta Chandru, II year M.E (CS), “Design of Energy Harvesting system from rotational force for low power applications,” Proc. of ISTE Regional Conference on the Role of Technical Education in Energy Conservation, (ROTEC’15), Sona College of Technology and ISTE, Salem, India. She also received the Best Paper award.

7. Ms. T. Thulasi and Ms. Pallavi Ramanujam, IV ECE, “Frequency domain filtering technique of half tonned images,” Proc. of International Conference on Signal Processing and Integrated Networks (SPIN2015), Amity University, Noida between 19th and 20th Feb. 2015.



8. Ms. Aasha Nadhini, JRF “Memory & Energy Efficient measurement matrices for compressed sensing framework in WMSN” in the SSN Doctorate Scholars day held on 25th Feb. 2015. She also received the best presentation award.

9. Ms. V.A. Sowbana, II M.E (VLSI) and Ms. M. Anbuselvi, AP, “Numerical strength reduction on NoX algorithm for stochastic LDPC decoder” Proc. of International conference on Computing, Communication and Electrical technologies 2015, Vivekananda institute of technology on 4th and 5th Mar. 2015.

10. Mr. A. Adithya Bharadwaj, Mr. C. Arun Kumar, Mr. R. Balasubramanian and Mr. P. Gowtham III ECE, “Automatic Toilet Cleaning Robot” Proc. of National Conference on Recent Trends in Engineering (NCRTE’15), AVIT University on 5th Mar. 2015. They also won the Best paper award.

11. Ms. G. Kayalvizhi, II M.E (CS), Ms. K. Muthumeenakshi, AP and Dr. S. Radha, Prof., "Adaptive Cooperative Spectrum Sensing using Welch Periodogram" Proc. of International Conference on Engineering Technology and Science (ICETS'15), Muthayammal College of Engineering, on 5th Mar. 2015.

12. Ms. J. Jersline, II M.E (CS), Ms. K. Muthumeenakshi, AP and Dr. S. Radha, Prof., "Joint Spectrum Sensing and Access using Game Theory in Cognitive Radio Networks" Proc. of International Conference on Engineering Technology and Science (ICETS'15), Muthayammal College of Engineering, on 5th Mar. 2015.

13. Ms. R. Ayeswarya, II M.E (CS), Ms. B. Ramani, AP and Dr. P. Vijayalakshmi, Prof. "Voice conversion using parallel corpora" Proc. of National Conference on Modern Electronics & Signal Processing (NCMESP'15), Department of ECE, Velammal Engineering College, Chennai on 13th Mar. 2015. She also won the Best paper award.

14. Mr. M. Kiran Kumar, II M.E (AE), Ms. B. Ramani, AP and Dr. P. Vijayalakshmi, Prof. "Text-Independent Speaker Identification System" Proc. of National Conference on Modern Electronics & Signal Processing (NCMESP'15), Department of ECE, Velammal Engineering College, Chennai on 13th Mar. 2015.

15. Ms. P. Janani, II M.E (VLSI) and Dr. S. Sakthivel Murugan, Asso. Prof. "Design and development of power management system for underwater applications" Proc. of 2nd IEEE International conference on Innovations in Information, Embedded and Communication systems (ICIIECS'15), Karpagam College of Engineering, Coimbatore, India on 19th and 20th Mar. 2015.

16. Ms. N. Archana, II M.E (VLSI) and Dr. S. Sakthivel Murugan, Asso. Prof. "Best Fit analysis of wind speed using conventional distributions" Proc. of 2nd IEEE International conference on Innovations in Information, Embedded and Communication systems (ICIIECS'15), Karpagam College of Engineering, Coimbatore, India on 19th and 20th Mar. 2015.

17. Ms. P. Janani, II M.E (VLSI), Dr. S. Sakthivel Murugan, Asso. Prof. and Ms. N. Archana, II M.E (VLSI) "Development of Microbial fuel cell based energy harvesting system using marine sediment for underwater applications" Proc. of 4th National Conference of Ocean society of India OSICON 2015, NIO Goa between 22nd and 24th Mar. 2015.

18. Mr. A. Adithya Bharadwaj, Mr. C. Arun Kumar, Mr. R. Balasubramanian and Mr. P. Gowtham, III ECE, "Automatic Toilet Cleaning Robot" Proc. of National Conference on Digital Convergence (NCDC'15), RMK Engineering College, Chennai on 23rd Mar. 2015.

19. Ms. Resiga K V, II M.E (CS), Dr. L. Nandita, Asso. Prof. "Peirce's criteria for Multiple Outlier detection in Cooperative Spectrum Sensing for Cognitive Radio Network" Proc. of International Conference on ICBDM- 2015, Noorul Islam University, Kumaracoil, Nagercoil, Tamilnadu during 27th & 28th Feb. 2015.

20. Ms. P. Nirmala, JRF, Dr. R. Kishore, Asso. Prof., Ms. N. Deepika, Ms. S. Indu Vadhani, Ms. Mrinalini Anand, "An efficient multi trans-

form based fusion for multi focus images" Proc. of International Conference on Communication and Signal Processing (ICCSP'15), Adhi Parasakthi Engineering College between 2nd and 4th Apr. 2015.

21. Ms. P. Prathima, Dr. R. Kishore, Asso. Prof., Ms. G. Shri Ranjani, Ms. Preethi Kurian, Ms. S. Swarupa, "Simple and Flexible Authentication Framework for Vehicular Ad hoc Networks" Proc. of International Conference on Communication and Signal Processing (ICCSP' 15), Adhi Parasakthi Engineering College between 2nd and 4th Apr. 2015.

22. Ms. M. Marutham and Dr. L. Nandita, "Performance improvement of OFDM-Based cognitive radio system" Proc. of International Conference on Communication and Signal Processing (ICCSP' 15), Adhi Parasakthi Engineering College between 2nd and 4th Apr. 2015.

23. Mr. V. R. Gowtham and Ms. G. Durga "VLSI Implementation of Double Precision Decimal Floating point Multiplier Unit" Proc. of International Conference on Science and Innovative Engineering - 2015 Jawahar Engineering College, Chennai on 5th Apr. 2015.

24. Ms. A. Gowthami and Dr. Premanand V. Chandramani, Prof., "Phase Noise Analysis of Fractional-N Frequency Synthesizer with Higher Order Delta-Sigma Modulator" Proc. of 3rd National Conference on Information and Communication Technology, SSN College of Engineering, Chennai between 9th and 10th Apr. 2015.

25. Mr. R. Dhinesh, Mr. T. S. Jaikrishna and Dr. Premanand Chandramani, Prof., "Multi object tracking in a multiple camera environment" Proc. of 3rd National Conference on Information and Communication Technology, SSN College of Engineering, Chennai between 9th and 10th Apr. 2015.

26. Mr. S. Arvindh, Mr. M. Avinash, Mr. V. N. Girish, Mr. S. Karthikeyan and Dr. R. Kishore, Asso. Prof., "Bus Fleet Management and Tracking System" Proc. of 3rd National Conference on Information and Communication Technology, SSN College of Engineering, Chennai between 9th and 10th Apr. 2015.

27. Ms. S. Namitha, Dr. R. Kishore, Asso. Prof. "An Efficient Image Fusion Technique for Multi focus images" Proc. of 3rd National Conference on Information and Communication Technology, SSN College of Engineering, Chennai between 9th and 10th Apr. 2015.

28. Mr. V. Karthick and Mr. K. J. Jegadish Kumar, AP, "Implementation of AES Using Reversible Cellular Automata Based S-Box" Proc. of 3rd National Conference on Information and Communication Technology, SSN College of Engineering, Chennai between 9th and 10th Apr. 2015.

29. Mr. S. Chrisben Gladson and Dr. Premanand V. Chandramani, Prof. "Multi-Phase Injection Locked 3-stage Ring VCO" Proc. of International Conference on Soft Computing Systems (ICSCS 2015), Noorul Islam University, Kumaracoil, Nagercoil, Tamilnadu on 20th Apr. 2015.

30. Ms. B. Jamlee Ludes, II M.E (AE) and Mr. Suresh R. Norman, Asso. Prof/ ECE "Enhancement of Endoscopic Image Using TV- Image Decomposition" Proc. of International Conference on Soft Computing Systems - 2015, Noorul Islam Centre For Higher Education, Noorul Islam University on 21st and 22nd Apr. 2015.

31. Ms. R. Kanimozhi, II M.E (AE), Mr. W. Jino Hans, AP and Dr. N. Venkateswaran, Prof. "Single Image Super-resolution Based on Second Order Regression and Sparse representation Model" Proc. of International Conference on Soft Computing Systems ICSCS-2015, Noorul Islam Centre for Higher Education on 21st and 22nd Apr. 2015.

32. Mr. P. T. Vasanth Raj, II M.E (AE) and Mr. W. Jino Hans, AP, "Sparse Representation Based Single image Dictionary Construction For Image Super-resolution" Proc. of International Conference on Soft Computing Systems ICSCS-2015, Noorul Islam Centre for Higher Education on 21st and 22nd Apr. 2015.

33. Ms. S. Jayasri, II M.E (AE) and Mr. W. Jino Hans, AP , "Image Super-resolution based on Total Variation Decomposition Technique" Proc. of International Conference on Soft Computing Systems ICSCS-2015, Noorul Islam Centre for Higher Education on 21st and 22nd Apr. 2015.

34. Ms. K. Mrinalini, II M.E (CS), Dr. P. Vijayalakshmi, Prof. "Hindi-English Speech-to-Speech translation system for travel expressions" Proc. of IEEE 4th International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2015), Adhiparasakthi Engineering College, Melmaruvathur beteen 22nd and 23rd Apr. 2015.

35. Ms. T. A. Mariya Celin, II M.E (CS) and Dr. P. Vijayalakshmi, Prof. "Intelligibility modification in dysarthric speech" Proc. of IEEE 4th International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2015), Adhiparasakthi Engineering College, Melmaruvathur beteen 22nd and 23rd Apr. 2015.

36. Ms. I. Janani Chellam, II M.E (CS), Ms. G. Anushiya Rachel, Project Officer, Dr. P. Vijayalakshmi, Prof. and Dr. T. Nagarajan, Prof./ IT, "Prosodic Modification of Speech to Incorporate Happy and Sad Emotions" Proc. of IEEE 4th International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2015), Adhiparasakthi Engineering College, Melmaruvathur between 22nd and 23rd Apr. 2015.

37. Ms. J. L. Lakshmi and Dr. Premanand V. Chandramani, Prof. "A Two Stage 0.18um CMOS Differential Low Noise Amplifier with Integrated LC Balun for 2.4GHz Applications" Proc. of Joint International Conference on Communication, Computing and Power Technologies (ICCCPT 2015) and Artificial Intelligence and Evolutionary Computations in Engineering Systems (ICAIECES 2015), Velammal Engineering College, Chennai between 22nd and 23rd Apr. 2015.

38. Ms. Methini Raa and Dr. Premanand V. Chandramani, Prof. "Design and Analysis of High Linearity Double Balanced RF Active Mixer in 90nm CMOS Technology for 2.4GHz

Applications" Proc. of Joint International Conference on Communication, Computing and Power Technologies (ICCCPT 2015) and Artificial Intelligence and Evolutionary Computations in Engineering Systems (ICAIECES 2015), Velammal Engineering College, Chennai between 22nd and 23rd Apr. 2015.

39. Mr. C. Ganesh Kumar, Ms. S. Januja Josephine and Dr. Premanand V. Chandramani, Prof. "Mining Based Device Control for Home Automation" Proc. of Joint International Conference on Communication, Computing and Power Technologies (ICCCPT 2015) and Artificial Intelligence and Evolutionary Computations in Engineering Systems (ICAIECES 2015), Velammal Engineering College, Chennai between 22nd and 23rd Apr. 2015.

40. Ms. S. V. Arthi, II M.E (AE) and Mr. Suresh R. Norman, Asso. Prof. "Interface & Control of Appliances by the Analysis of Electrooculography Signals" Proc. of Joint International Conference on Communication, Computing and Power Technologies (ICCCPT 2015) and Artificial Intelligence and Evolutionary Computations in Engineering Systems (ICAIECES 2015), Velammal Engineering College, Chennai between 22nd and 23rd Apr. 2015.

41. Ms. D. Gracia, II M.E (VLSI), Mr. K. K. Nagarajan, AP and Mr. N. Vinodh Kumar, "TCAD Simulation Study of Bulk Planar Junctionless FET-based LC Oscillator" Proc. of National Conference on Signal Processing, Communication and VLSI Design (NCSCV'15) Anna University Coimbatore, Coimbatore on 24th and 25th Apr. 2015.

42. Ms. P. Sophia, II ME (CS) and Dr. N. Venkateswaran, Prof., ''Efficient Image Segmentation Method Based on Probabilistic Markov Random Field Model," Proc. of Int Conf. Communication and Network Technologies (ICCNT), Dec. 2014, pp. 95-99.

43. Mr. S. Saranraj, II ME (CS) and Dr. N. Venkateswaran, Prof., "Enhancement of mobile camera captured document image with phase preservation," Proc. of Conf. Communication and Network Technologies (ICCNT'14), Dec. 2014, pp. 68-73.

44. Ms. Upasana S, II ME (CS) and Dr. N. Venkateswaran, Prof., "Performance Analysis of Block Wise Lattice Reduction Aided Precoder for MIMO Systems" Proc. of 5th National Conference on Computational Intelligence, Security and Systems (NAC- CISS'15), 2015, pp. 131-135.

45. Mr. Saran raj S, II ME (CS) and Dr. N. Venkateswaran, Prof., "An Improved Pre-processing Technique for Enhancement of Non-uniformly Illuminated Document Images" Proc. of 5th National Conference on Computational Intelligence, Security and Systems (NAC-CISS'15), 2015, pp. 74-77.

46. Ms. Sophia P, II ME (CS) and Dr. N. Venkateswaran, Prof., "Analysis of Image Restoration Algorithm Based on Probabilistic Markov Random Fields" Proc. of 5th National Conference on Computational Intelligence, Security and Systems (NAC- CISS'15), 2015, pp. 78-81.

47. On March 15, 2015, Ms. M. Suganya Devi, II ME(CS) and Mr. C. Vinoth Kumar, AP, "Wavelet Feature based SVM Classification of Glaucomatous Image with Removal of Blood Vessels using PCA and Gabor Filter", Proc. of International Conference on Contemporary Engineering and Technology (ICCET – 2015), pp.1-9,.

48. Ms. Malarvizhi K, II ME (VLSI) and Dr. R. Jayaparvathy, Prof., "An Evolutionary Game Theoretic Scheduling Scheme for Smart Grid", Proc. of National Conference on Smart Grid and Renewable Energy Sources, NCSGRES-2015, 19-20 March 2015, Anna University, Chennai, pp 18-23.

49. Mr. B. Prasannanjaneyulua, II ME (VLSI) and Mr. K. K. Nagarajan, AP, "Performance Enhancement of SegFET Using High-k Materials and Halo Implantation" Proc. of International Conference on Technological convergence for Information, health, food, Energy 2015 (TCIFES 2015), CSIR-CLRI, Adyar, Chennai on 1st and 2nd May 2015.

50. Mr. V. R. Gowtham, II ME (VLSI) and Mrs. G. Durga, AP, "Design and Implementation of Double Precision Decimal Floating Point Arithmetic Unit", Proc. of International Conference on Technological convergence for Information, health, food, Energy 2015 (TCIFES 2015), CSIR-CLRI, Adyar, Chennai on 1st and 2nd May 2015.

51. Mr. J. Abdul Rahumaan, II ME (VLSI) and Mrs. G. Durga, AP, "Design and Implementation of Residue Adder and BCD Adder using Multi Output Domino Logic Based CLA", Proc. of International Conference on Technological convergence for Information, health, food, Energy 2015 (TCIFES 2015), CSIR-CLRI, Adyar, Chennai on 1st and 2nd May 2015.

CONSULTANCY

1. Dr. S. Radha, Prof., Ms. S. Esther Florence, AP, Mr. M. Gulam Nabi Alsath, AP and Mr. S. Ramprabhu, AP carried out RF measurements as a part of consultancy work. The service was extended to the students of Panimalar Engineering College, M.N.M. Jain Engineering College, Madha Engineering College, Adhiparasakthi Engineering College and research scholars of Pondicherry Engineering College. A sum of Rs.50000/- was generated as revenue.

FACULTY UPDATES

1. Mr. K. K. Nagarajan joined us on Jan. 2015. He was earlier with the Department of MCA and recently transferred to the Department of ECE. Mr. K.K. Nagarajan has 15 years of teaching experience and 2 years of industry experience. He received his B.E (EEE) degree from Madurai Kamaraj University, M.E. Electronics from Madras Institute of Technology, Anna University, Chennai. Currently he is pursuing his Ph.D in the area of Nanoelectronics. Prior to joining SSN, he was a member of the Electrical Engineering faculty at Bannari Amman Institute of Technology, Sathyamangalam for two and half years. He has coordinated several national conferences and FDPs. He is the Co-Investigator of the DRDO funded project under extramural research grant scheme (2012-2015) for a grant of Rs.30.6 lakhs. His research interests are novel nanoscale devices, radiation tolerant circuit design, RF MEMS.

Mr. K. K. Nagarajan

Assistant Professor

2. Mr. S. Sakthivel Murugan, AP under the guidance of Dr. V. Natarajan, Instrumentation Department, MIT Campus, Anna University, Chennai defended his Ph.D thesis on 4th Mar. 2015.

Mr. S. Sakthivel Murugan

Assistant Professor

Abstract:

Underwater acoustic communication plays a vital role in underwater applications, like underwater sensor networks, interaction between un-tetherd underwater vehicles, disaster warning systems, deep water positioning systems to track Autonomous Underwater Vehicles, Manned submersibles, etc. In order to overcome the limitations of acoustic communication systems to improve the SNR, the study of denoising techniques becomes an important research activity. Hence, in his work concentrated on collection of real time ambient noise data for analysis and validation using a self designed fixture and data acquisition system at two locations in Chennai at Bay of Bengal, India. Various adaptive algorithms were analysed with respect to SNR improvement. The KLMS adaptive algorithm was im-

plemented in hardware for real time application for the first time on underwater acoustic wireless communication. A new FFT based EMD system was analysed with thresholding for underwater acoustic signal enhancement. The technique is implemented for extraction of composite signals also in underwater channel.

3. Ms. K. Muthumeenakshi, AP under the guidance of Dr. S. Radha, HoD defended her Ph.D thesis on 18th Mar. 2015.

Ms. K. Muthumeenakshi

Assistant Professor

Abstract:

Tremendous growth in wireless communication technology leads to bandwidth scarcity and demands the need for wireless spectrum. Most of the spectrum bands have been allocated by regulatory agencies, but measurements show significant spectrum underutilization in the allocated bands. Cognitive radio is a smart and promising technology envisaged to increase spectrum utilization through sharing of spectrum with the licensed users. The focus of this research is to develop effective spectrum sensing algorithms and dynamic spectrum access techniques for cognitive radio networks. Two implementation alternatives are proposed for single user and cooperative spectrum sensing based on energy detection techniques. Further, a dynamic spectrum access algorithm is proposed using continuous time Markov chain model which is suitable for both centralized and distributed cognitive radio architectures.

FUNDED LAB

1. The Wireless Sensor Network Laboratory and Antenna measurement laboratory have been actively set up using the grant received from DST-FIST. Dr. S. Radha, Prof. & Head and Dr. K. T. Selvan, Prof. coordinates the same

2. Dr. S. Sakthivel Murugan, Asso. Prof. established the Underwater Acoustic Research lab with equipments worth Rs.7 lakhs comprising a 6 array hydrophone for data collection, one acoustic transmitter for signal pumping and analysis in sea, two DAS systems, hydrophone mounting, Amplifiers, UPS etc. The lab has been funded by SSN Trust. The lab at present is fully equipped with equipment's necessary for data collection and analysis. The lab also provides space for consultancy work in the underwater acoustic signal, image processing and underwater sensor network.

STUDENTS' CORNER

STUDENT CO-CURRICULAR ACTIVITIES

TECH CLUB

1. On 22nd Jan. 2015, Orientation programme for II and III Year students was conducted at new seminar hall between 2.00 PM and 3.30 PM.

2. A session on Arduino boards for ECE students was delivered at new seminar hall between 2.40 PM and 3.40 PM on 29th Jan. 2015.

I-CELL

On 12th Feb. 2015, Mr. R. Dinesh, IV ECE delivered a lecture on "Arduino Basics" to the III ECE students and a total of 42 students attended the same

INTERNSHIPS & INPLANT TRAINING

1. Mr. S. Praveen and Mr. B. Ruthiran III year ECE attended in plant training at Doordarshan Kendra, Chennai between 29th Dec. 2014 – 02nd Jan. 2015.

2. Ms. S. Nivetha, III year ECE attended internship on Telecom at BSNL-RTTC, Chennai between 29th Dec. 2014 – 02nd Jan. 2015.

3. 29 students from II ECE and 19 students from III ECE attended one week internship programme at BSNL under SSN CE – BSNL RTTC Chennai Telecom District MoU Programme.

4. Ms. S. Varsha and Mr. N. Srinath, IV ECE attending the Summer Fellowship Programme (SFP-2015) at IITM since 18th May 2015.

5. Mr. Shoban Narayan, Ms. T. N. Varshini, IV ECE and Mr. Harshvardhan Raju, III ECE attending the internship HTIC at IITM since 26th May 2015.

6. Students of M.E (AE) and M.E (CS) along with Prof. Dr. N. Venkateswaran, and Prof. Dr. A .Jawahar, visited National Atmospheric Research Laboratory (NARL), Tirupathi, on 27th Feb. 2015. The students visited the entire lab facilities of NARL including, VHF (MST) Radar Control room, L-band radar, LIDAR (Laser Radar) and MST Radar.

7. 60 students from III ECE & I M.E (CS) attended the written test conducted by Tata Elxsi for their final year industry project. Ms. P. Yasasvini, Mr. B. Ruthiran, Mr. M. S. Karthik of III ECE got shortlisted for the same.

SYMPOSIUM & WORKSHOPS

1. Mr. A. Adithya Bharadwaj, Mr. E. Aravind Kumar, Mr. C. Arun Kumar, Mr. R. Balasubramanian and Mr. P. Gowtham, III ECE "Wireless motion control workshop" organized by IIT, Madras during Shaastra 2015 held on 5th Jan. 2015.

2. Ms. S. Aishwarya, Ms. T. Keerthi Priya, Ms. R. Sripriya, Ms. N. Srividya and Ms. E. Lavanya of III ECE "Hovercraft workshop" organized by IIT, Madras during Shaastra 2015 held on 5th Jan. 2015.

3. Mr. R. Shoban Narayan, Ms. G. Sreenidhi, Ms. T. N. Varshini and Ms. R. K. Vinotha of III ECE "Android App Development Workshop" organized by CSI student chapter of SSNCE on 20th Jan. 2015.

4. Mr. R. Sarath Kumar, Mr. B. Sunder Raghavan and Mr. C. Veera III ECE, participated in the National Level Technical Symposium Striderz 2015 organized by Jeppiaar Institute of Technology and won first prize in the event Mind Busterz on 22nd Jan. 2015.

5. On 28th Jan. 2015, Mr. N. Srinath, III ECE participated in the National Level Technical Symposium Crestech 2015 organized by B. S. Abdur Rahman University, Impulse 2k15 and won first prize in the event Tech Buzz.

6. Mr. Ramesh Aswath, Mr. R. Shoban Narayan and Ms. T. N. Varshini, III ECE participated the Circuit Design contest Embedtronix in the symposium Probe'15 organized by NIT, Trichy and secured first place on 6th Feb. 2015.

7. Mr. G. M. Jagan, Mr. G. Kamalesh and Mr. N. Arun Palani Kumar, III ECE "Sixth Sense Technology" Technophilia Systems in association with Robotics & Computer Applications Institute of USA at NIT, Trichy held on 7th and 8th Feb. 2015. Mr. G. M. Jagan secured third position in the zonal round of the International Challenge for Sixth Sense Technology.

8. Mr.K.Karthikeyen, Mr.Gowthaman Sibi , Mr.Antony Christen Varun Miranda and Mr.G.M.Jagan,3rd ECE,exhibited their project titled Dual Co-ordination Robot at the e-Yantra Symposium held on April 10-11,2015 at IIT Bombay.They were one of the 11 finalist teams out of 92 teams.
Mentor:R.Jayaparvathy,Prof..

TECH CLUB 2014-15

SIGNAL PROCESSING

EMBEDDED SYSTEMS

CAREER GUIDANCE

STUDENT EXTRACURRICULAR ACTIVITIES

SPORTS ACHIEVEMENTS

1. P.Likhitta dugar (II ECE), P.D.Subhatra (IV EEE), Manisha V Bachpai (II EEE), E.Karthik (IV CSE), P.Praveen Kumar (III ECE) and G.E.Arvind (III Mech) have represented the Anna University squash team in the All India Inter University Squash tournament organized by Anna University on 16th and 19th Feb. 2015.

2. R.Bharathi (IV ECE) has participated in the National women team chess championship representing Airport Authority of India on 20th and 26th Feb. 2015 and secured third position

3. R.Sharmila (II IT) and K. Devi Rajalakshmi (I ECE) have participated in the South zone senior nationals basketball championship held at Ananthpur, Andra Pradesh between 1st and 6th Mar. 2015.

4. I. Gohulalakshmi (III ECE) part of the Women badminton team won in REVELS CUP-2015 organized by MIT, Manipal, RIVIERA-2015 organized by VIT University, Vellore.

CULTURALS & OTHERS

1. Ms. S. Varsha, III ECE participated in the classical solo dance event at Saarang cultural fest organized by IIT, Madras held on 8th and 9th Jan. 2015. Ms. Varsha secured second place.

2. On 19th Jan. 2015, Ms. S. Varsha, III ECE participated in the classical dance solo competition organized by Vyshnavie Natya Center, AP at Hyderabad and secured first place .

3. On 13th Frb. 2015, Mr. Jerry George Thomas, III ECE attended the Model United Nations Conference'15 organized by SRM University. In the same event, he was awarded the Best Delegate in the council UNSC.

4. Mr. Jerry George Thomas, III ECE, Ms. S. Sanjana Smruthi and Ms. C. Sreenithy, II ECE attended the Model United Nations Conference'15 held at VIT University, Chennai Campus on 20th and 22nd Mar. 2015. Mr. Jerry George Thomas was awarded the Best Delegate, Ms. S. Sanjana Smruthi was awarded the Special mention-II and Ms. C. Sreenithy was awarded the High Commendation.

SERVICE TO SOCIETY

1. A total of 10 students from ECE participated in the YRC Camp organized by SSN-YRC at Government Middle School, Alathur Village between 4th and 6th Feb. 2015.

2. A total of 5 students from ECE participated in the NSS Camp organized by SSN-NSS at Illalur Village between 13th and 24th Feb. 2015.

3. Ms. P. Kaythry, AP attended one day orientation programme conducted for NSS Programme Officers at Anna Univeristy, Chennai held on 6th Mar. 2015.

ENTERTAINMENT TECHNOLOGY FUTURE AND BEYOND

- Prithvi Shankar.S, IV ECE 'B'

GAMING

Long gone are the days when one used to be hooked on to Mario and Tetris. There came the array of gaming consoles from Sony, Microsoft and Nintendo. All these consoles had to be operated by a controller or a handheld device. The most advanced commercially available gaming device in the market can track 3D movement based on remote sensors to give a virtual feeling to the user. For example, Wii Sports is a game developed for Nintendo Wii which mimics the actions of the sport in order to give a larger than life experience.

The thirst for innovation is never quenched, and that is what is going to give rise to Virtual Reality headsets, set to roll out in the first quarter of 2016. Virtual reality (VR) has not only been the stuff of science fiction novels and movies for decades but it's also been an actual thing -- sort of. The first VR headsets were produced in the 1960s. At the time, the technology took up a lot of room and cost massive amounts of money. The frontrunner of these headsets is Oculus Rift developed by Oculus VR. Oculus VR was purchased by Facebook last year for an amount more than $400 million. The Rift is set to fight it out with fellow competitors like Project Morpheus(Samsung), Vive(HTC). Mark Zuckerburg, founder of Facebook, can be seen below trying out the Rift while Oculus VR co-founder Brendan Iribe looks upon.

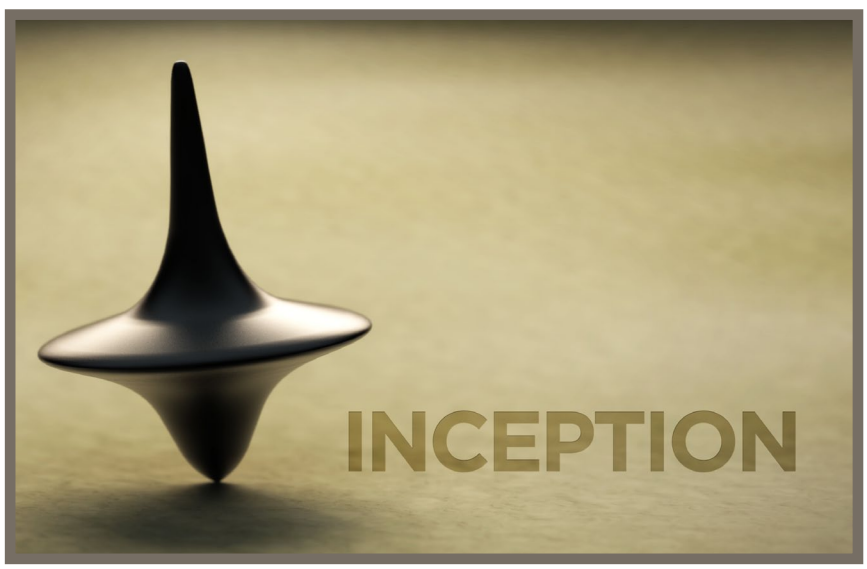
So , how do these work? The developer headset allows for head-tracking with 3 degrees of freedom (DOF), ultra-low latency and a field of view (FOV) of 110 degrees diagonally and 90 degrees horizontally for convincing immersion. The device has a custom-built motion and orientation sensor unit with a sampling rate of up to 1000 Hz. The sensor unit includes a gyroscope, an accelerometer and a magnetometer, along with an ARM Cortex-M3 microcontroller. The data from all three sensors is combined through a process called sensor fusion to enable fast and accurate tracking of your head orientation and synchronization with what you are viewing. This allows you to turn your head in any direction and look around the virtual environment in real-time, but it doesn't allow for positional tracking. A new prototype, dubbed Crystal Cove can also track position, rather than just orientation, with the help of IR LEDs (which look like little square white dots) all over the headset which are monitored by an external camera, giving you 6 degrees of freedom rather than just 3,thus enabling motion tracking.

So, only time will tell us if we are going to need a totem to distinguish between the real and the virtual world!

MOVIE

All of you know about 3D, but have you experienced 4D? 4D is not 4th Dimensional movie per se, as the 4th dimension is widely acknowledged as time. 4D film is a marketing term for an entertainment presentation system combining a 3D film with physical effects that occur in the theatre in synchronization with the film. Effects simulated in a 4D film may include rain, wind, strobe lights, and vibration. Seats in 4D venues may vibrate or move a few inches during the presentations. Other common chair effects include air jets, water sprays, and leg and back ticklers. Hall effects may include smoke, rain, lightning, air bubbles, and smell. Shown below is a typical 4D theatre. Till date, a few films have been released worldwide in 4D including the Avatar, Prometheus, Iron Man 3 etc. Depending on the various effects produced a theatre can fall into the categories 4D, 5D, 6D etc. So the moviemaker would be able to code the sequence along with the movie to let know which effect to run at which part of the movie.

Theatres usually show only 2D movies and until now, 4D screens have been installed only in amusement parks which feature a short 20 minute to 30 minute adaptation instead of a full length feature film. The primary reason for this is that the cost of setting up and proper maintenance is too high to make a profit out of this system. One can only hope the future will give rise to cheaper 4D systems and greater movie experiences. A 4D theatre would enhance the "theatre experience" and attract more crowd.
Imagine, the earth beneath you trembling while an earthquake occurs on the screen.



SCIENCE AND THE APPLE

- *ASHWATH RAMESH* , IV ECE 'B'

The sun shone sullen on his head,
As he picked his way with legs of lead,
Through the snow, shining white,
With late winter's lazing light…

Thin and sallow, with a shock of hair;
To his cape black, a contrasting fair;
He trudged along, eyes downcast,
Hunched and tired and not very fast…

N' then he found a great green tree,
Away from its fellows, somewhat free,
A place to sit, rest and repose…
But then he looked up, n' rubbed his nose…

His stomach started to squeak,
Eyes turned wistful and bleak…
For there he saw, red, round and juicy,
Apples, that made his lips go oozy…

Oh! How he yearned for one to fall…
He was a hungry man after all!
He'd walked up and marched down,
N' toiled his mind till it went brown!

Bingo! A juicy one obliged his call,
And bounced on his head, wig and all…
He caught it up, and fell to it,
So elated he could barely sit!

But never forget the bounce, soft as it was,
Nor the tiny bruise it did cause…
For they set his big brain in motion,
Ere the fruit vanished in his ocean!

Then came the queries, by and by…
How, what, when, where and why!
"Why did the fruit stay not?"
"Why had it the ground sought?"

So did he and his neurons fight,
On a query that'd make his might;
Thus did his mind prove its creed,
As the Law of Gravity it decreed…

"Every body encounters a force,
By another, with mass as source…
It rises with rise in masses,
And distance squared it surpasses…"

And so then did master men ogle,
And till today, do students struggle,
With the effects of what he said,
Years since he's proven quite dead…
The greatest mind under the sun,
The man Sir Isaac Newton!

Was Mathematics Discovered or Invented?

D. Joseph Suganthan
IV Year, ECE 'A'

As I glanced through the pages of my DSP book, moments before the exam, I stumbled upon an equation of 7th degree and wondered, "God! Do I have to memorize this? Do such signals exist in nature in the first place?" I stood there doubting the reality of Math, knowing that Mathematics is simply the application of human cognition to predict the outcome of an event, based on patterns observed prior to the event. Mathematics in itself is an all pervasive language universal to all disciplines of study. But did mathematics exist even before humans or did human idiosyncrasy lead to the invention of mathematics?

The second law of Thermodynamics which introduces the concept of Entropy suggests that all natural phenomena move from an orderly state to a disorderly state. How then can we use observed patterns to predict the outcome of an event, in an environment characterized by a single constant-"change"?

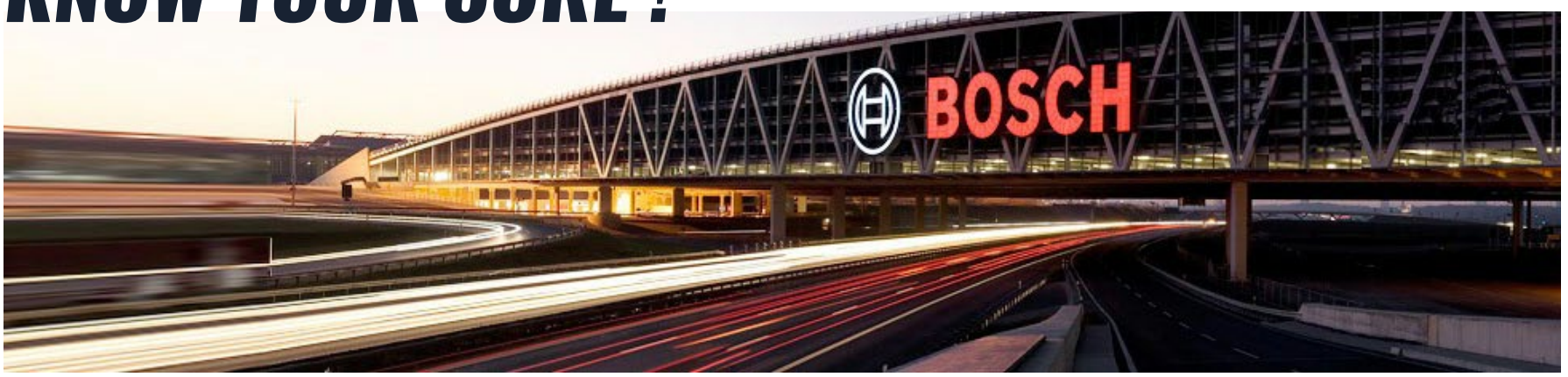
The above is the main limitation of Mathematics in solving many of the scientific conundrums. Though we may be able to represent various phenomena through Mathematics, the representation is far from being precise or absolute. We may, for instance, be able to specify the position of a man mathematically, by using the three dimensional coordinate system. However, this set of numbers and expressions cannot substitute the reality of the man actually standing at that position. For example, we might not be able to predict his hairstyle from this mathematical expression. Thus we see that there is always a gap between reality and the part of reality we can represent mathematically.

To make this point clearer, let us suppose that we have Michael Jordan ready to try a three pointer. His counterpart- a highly skilled mathematician, is involved in the same endeavor. While the mathematician worked out dozens of paper the previous night, trying to figure out the correct angle, force to throw the ball taking into account the air friction, wind direction, wind speed, parabolic arcs, distance from the basket etc., Michael Jordan had a good night's sleep. However, nine out of ten times, Michael Jackson is going to score while the mathematician is nowhere near scoring.
In the illustration above, Michael Jordan has in his mind previous patterns he has observed while throwing the ball through experience, though he does not try to mathematically express them. The same can be said about an experienced car driver who knows the angle to which the steering is to be turned or the correct gear for the current speed without requiring pen, paper or mathematical skills.
In all the above cases, we observe that mathematics is the language of nature, though we may not be able to express or replicate it on paper perfectly. The Earth will continue to spin at the same speed, "E" will be equal to

"mc^2", and light will travel at the same speed, whether or not we measure or represent them. Thus, we see that mathematics would exist even if humans didn't.

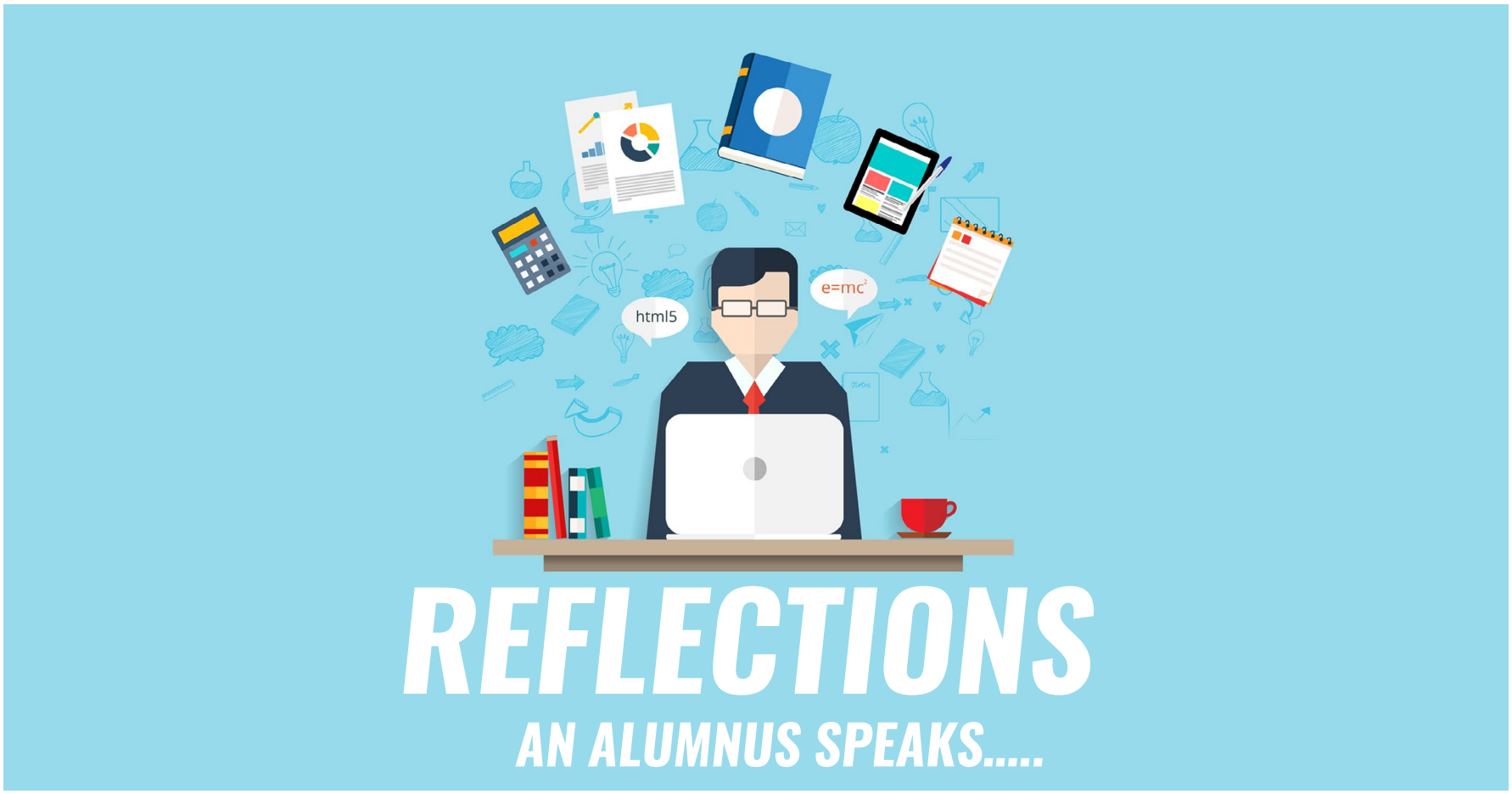
However, the number of trees in the garden might be "12" to a human while it might be "1100" to a computer. Thus, the value assigned to a mathematical quantity was designed by humans, keeping in mind their convenience. It may hence be safe to state that, while Mathematics exists naturally, the units of measurements were formulated by men, despite most of them being based on a naturally occurring phenomenon.
Since Mathematics combines both the value and the unit associated with the value, it was both discovered as well as invented. However, the subjectivity of this question is going to continue to make philosophers and scientists debate each other in a vicious circle. Humans will arrive at a conclusion once they conclude which came first: the chicken or the egg!

KNOW YOUR CORE !



Robert Bosch GmbH or Bosch, is a German multinational engineering and electronics company headquartered in Gerlingen, near Stuttgart, Germany. It is the world's largest supplier of automotive components measured by 2011 revenues.The company was founded by Robert Bosch in Stuttgart in 1886.

Bosch's core products are automotive components (including brakes, controls, electrical drives, electronics, fuel systems, generators, starter motors and steering systems), industrial products (including drives and controls, packaging technology and consumer goods) and building products (including household appliances, power tools, security systems and thermotechnology).



The way in which we get mature and find out what we want in life are something that we can't achieve without going to college. SSN – a name that always gives me goose bumps. A place where there is no need to search for motivation from the outside. I would say it is the best thing that has happened to me till date. As many of our parents think they've made everything possible from their side and prepared us for what is ahead by getting admission in a reputed institution, the truth is, there is only one way to learn, and that is by experience. SSN and the Department of ECE gave me more than just a degree in Electronics and Communication. SSN gave me a lot of responsibilities apart from studies which in turn taught me lessons of life. Unlike other colleges, no one will be at our back always and keep pestering about our exams or assignments. We were taught to be dependent on ourselves and no one else. Thinking about the sleepless nights during Orbitce and Instincts, the late night walks inside the campus, playing counter-strike in hostel, senior-junior clashes and the loud roar when the auditorium screen is raised on the first day of Instincts always brings a smile to my face. The experiences we gained from those years will stick with us for life. Thanks to all my friends and staff members for being with me during all the ups and downs. Thank you – for all that I am and I am not.

"Those were the best days of my life..."

- Sivagnanam N (2009-2013)
Vice President of AECE,2012
Core member , SSN Unite

ALUMNI POWWOW

- *Yogeshwaran S (2011-2015)*

Taking the time machine a few years back, a small school kid was trying to reach the top of a tree with the sole aim of reaching up there, without knowing what to do after reaching there. One fine day he reached the top and was jumping in delight with the excitement of achieving something. Then the kid fell into a place which was the so-called “heaven on Earth”, SSN. Most of us were like this kid back then.

I would first like to thank our HOD for her constant encouragement and our faculty for their academic support. They were not only teachers but also our mentors who deserve all the credit and accolades for their students’ success. Starting from the first year, experienced faculty members and lab technicians were not only constrained to syllabus but also exposed us to current research field and motivated us to learn further and to know further. I would also like to thank our college and department for providing us with many facilities such as Wi-Fi, evergreen campus, e-learning, well equipped laboratories etc. Last but not the least, a college life would be incomplete without fun, happiness, smiles, lunch time chats, loving care and guidance of seniors and the ever charming friendship which doesn’t need words to thank.

Each one of us would have a dream to achieve big - to get placed in a dream company, a core job in campus placements or to pursue higher studies in top universities; I too had one. I should thank our Placement Office for providing me with such golden opportunities and my Placement Coordinators for their efficient work and constant efforts towards our bright future. Few things which I thought would be helpful in placements are

- Prepare a resume separately for each company highlighting your interest and achievements towards that field since using same resume for both management companies and core companies may make your situation complex in interviews. Our college has also provided a format for the resume which could be used.
- Clearing the first round needs constant practice which can’t be learnt the night before placements. We have many sources such as the Internet, aptitude books and Vista Mind classes for it. Each question would have a single answer but many ways to find it. As this round is time limited, go the shortest way. “Slow Fast and steady wins the race here”. A trick to follow is ELIMINATION method to strike out impossible options. Be logical since it is not an inky-pinky-ponky method too.
- “What to revise before placement day?” - A question which comes to every one of us. Brush up the basics related to the company (E.g. C, C++ for IT companies; DE, LIC, MPMC for Core companies). Be clear in your academic projects and area of interests too.

- "Tell me about yourself." – Not a replica of your resume again. Few things to be mentioned are you, your family and achievements (papers/internships/awards).
- Interview time: Be bold! Don't panic! Always have a small smile on your face. Even though we have that strange fear and tension within, it shouldn't be exposed.
- Finally, not getting selected by one company doesn't imply an end. You have numerous companies yet to come. Prepare for the next. Learn from your mistakes. When I didn't get through the interview for Ascendant Technologies, I was worried. One of our faculty members who passed by gave me confidence by saying, "Companies come and go. For them, it's the only company but not for you. Get ready for the next."

Hard work and interest are two pedals of a bicycle on the road to success. Without either one, reaching the destination is difficult. Hope you guys come out with flying colors and reach your destination. All the best! Thank you all.

Yogeshwaran S

Microchip Employee

FORTH COMING EVENTS

1. IEEE International Conference on Wireless Communications, Signal Processing and Networking - WiSPNET 2016 during Mar. 2016.

2. Two day workshop on Software Defined Radio using NI USRP and Internet of Things, First week of Aug. 2015 to be sponsored by Trident tech Labs, Banglore.

3. Corona, 2k15 – An Intra-collegiate Tech fest, organized by Tech Club, ECE in the first week of Jul. 2015