Cryptex

Newsletter by the Department of Electronics & Communication Engineering

Vol 4, Issue 2, July 2019

Newsletter of the Department of
Electronics & Communication Engineering, SMVITM, Bantakal
Vol. 4, Issue 2, July 2019

EDITORIAL

Another remarkable academic year has come to an end with a lot of achievements to the credit of our own SMVITM. In this semester, the institute was accredited with 'A' grade by NAAC, and ranked No.1 among the Engineering colleges of Mysuru region. It is indeed overwhelming to see that the enthusiasm with which the year started has sustained throughout and left us all craving for more in the coming year.

I am pleased to introduce 'Cryptex' – the Departmental Newsletter, Volume 4, Issue 2, Jan-June 2019, before you. It covers the key developments in the department spanning across the last six months both within and beyond academics which kept the campus life abuzz with enthusiasm. The last semester of the year 2018-19 was a great phase for academic give and take. It is delighting to see the participation of our faculties and students of ECE department in various events like FDPs, workshops, conferences, technical fests and many more. Such sharing can expand the horizons not only of the individual but of the whole community. Our department too arranged such programs and many participants benefitted from them. Lucky 48 of our proud final year students got placed in different reputed companies in this semester. With the help of industrial visits the students got an exposure to what the future holds for them. Many other events like workshops and guest lectures were organized, and it is good to see our students shining at various levels and activities.

Technology is changing by leaps and bounds. And the Dept. of ECE is moving in a majestic way with notable swift, catering all-round needs of the students, keeping them at par to combat challenges and transforming them. Our editorial team expresses its heartfelt thanks to HOD Dr. Balachandra Achar H V, the faculty & staff members and the students of the department for their support in fullest possible way. I wish all of you will continue to work enthusiastically in the next academic year too.

Editorially yours
Sachin S Bhat

DEPARTMENTAL ACTIVITIES

1. Internship by ALS

Ten students of 2nd year participated in the 5-day internship training program, at Advanced Electronic Systems (ALS) Bengaluru, from 16 to 21 January 2019. Mr. Sunil Shambhatnavar and other officials of ALS trained the students on various aspects such as electronic circuit design, analysis, debugging, soldering and related software. ISTE coordinator Mr. Vinay Kumar coordinated the program. Participated students are Aditya K, Prashanth, Pratham S Kanchan, Preetham Kumar, Shamith, Sharat Karanth, Shashank G Kolle, Shrirama K Acharya, Supreetha S Rao, and Suraj Jayaram.

2. PCB Design workshop

Department of ECE in association with Department of Chemistry and ISTE Student Chapter conducted a 2-day workshop titled 'Joy of PCB Design' on 16 & 17 Feb 2019. Forty three students from 1st and 2nd year B.E. E&C

participated in the hands-on workshop. Research scholar from NITK Surathkal Mr. Basti Bharath Shenoy was the resource person.

Inaugurating the workshop, Principal Dr. Thirumaleshwara Bhat congratulated the students and said that every student should update their knowledge and skill by participating in such workshops and seminars in every semester. Earlier, HOD Dr. Balachandra Achar welcomed the resource person and advised the students to enjoy the workshop rather than doing it for the sake of doing.

Research scholar Ms. Shilpa Kamath, workshop coordinator Dr. Asha C S, faculty & staff members of E&C Engineering department, and participating students were present on the occasion. Ms. Namana of 4th semester compered the inaugural session and proposed the vote of thanks.

From this 2-day workshop, students gained knowledge about analog circuit design, PCB layout design and PCB printing.

3. Guest Lecture on SS & CS

Department of ECE in association with ISTE Student Chapter organized guest lectures by Prof. Narayana Iyer on the topics of Signals & Systems and Control Systems, on 19 and 21 Feb 2019 respectively. The students of 2nd year ECE attended the lectures and increased their knowledge about the topics.

Dr. Iyer with his vast teaching experience at NIT Durgapur and NMAMIT Nitte taught the basics of Signals & Systems and Control Systems to the students in very effective manner.

Faculty members Mr. Nagaraja Rao, Mr. Raghavendra Rao, Ms. Shareen Noronha and

Ms. Rajashree Nambiar also attended the lectures. Mr. Nidish Suvarna introduced the guest speaker to the audience and welcomed him. HOD Dr. Balachandra Achar thanked and presented a memento to Professor.

4. Industrial Tour to Kaiga Nuclear Power Plant

Department of ECE in association with ED Cell of SMVITM, organized an industrial tour to Kaiga Nuclear Power Plant on 29 & 30 March 2019. Forty two students of final year ECE along with 5 faculty & staff members participated in the tour and enriched their knowledge.

During the visit, the Kaiga authorities escorted the students around the plant and explained the various sections of the power plant and the theory behind nuclear power generation. On the way to Kaiga, and while returning, the students and faculty visited Murudeshwara Temple, Mirjan Fort, Karwar Beach and Kadra dam. Sr. Assistant Professor Mr. Sachin Prabhu coordinated the tour.

5. Value Added Course on Control System & Communication System

Department of ECE organized a Value Added Certification Course on "Introduction to Control Systems & Communication Systems using MATLAB/SIMULINK" for the benefit of 2nd year ECE students. Fifty students participated in this course which was conducted by faculty members Mr. Nagaraja Rao, Mr. Arun

Upadhyaya, Ms. Shashikala, Mr. Ganesh Shetty and Mr. Raghavendra Rao.

Inaugurating the program, HOD Dr. Balachandra Achar congratulated the faculties for starting the course and advised the students to make the best use out of it. The first part of the course was conducted on 2, 3 & 4 March, and the second part will be on 23 March and 13 April 2019. Topics such as the Basics of MATLAB, Application of MATLAB to Control Systems, Designing control systems and Communication systems using SIMULINK were covered in the course.

6. Value Added Course on Power Electronics

The department of ECE conducted a 30-hour value-added course titled "Introduction to Power Electronics using Hardware and Pspice" during the months of March & April 2019. Faculty members Mr. Sandesh Kumar, Mr. Sachin Prabhu, Ms. Shareen Noronha, Ms. Laxmi Shetty, Mr. Ranjith Bhat and Ms. Renita Pinto were the resource persons.

Students of 4th year E&C Engineering participated in the course and enriched their theoretical and practical knowledge about the subject. Power electronic devices such as DIAC, TRIAC, SCR, MOSFET, IGBT, design of converters, triggering circuits, inverters, rectifiers, choppers, etc., laboratory experiments and simulation experiments were conducted during the course.

7. Introduction to Computer Networking Tools

Department of ECE conducted a 30-hour value added course titled "Introduction to Computer Networking Tools – Packet Tracer and Wireshark" in the month of April and May 2019. Twenty Six students from 3rd year B.E. E&C participated in the hands-on course. Assistant Professors Mr. Krishna Kumar and Mrs. Kusuma Prabhu were the resource persons.

From this course students gathered knowledge on routing algorithms, Cables, topologies, devices, Wireless router, ARP, NAT, IOT basics, DHCP and other routing protocols by visualizing the packet content and moments by using these tools. Students enjoyed virtually connecting the networks and analyzing the flow of packets. They visited the college server room understood the networking requirements in real-time.

8. Arduino Workshop

Department of ECE in association with Innovation Club, SMVITM conducted a 2-day workshop titled "Arduino and Mobile Application Development" on 11 & 12 April 2019. 86 students of different Engineering streams participated in this hands-on workshop. Third year ECE student Suhas Kumar was the resource person.

Inaugurating the workshop, Dr. Asha C S, Associate Professor, Dept. of ECE, congratulated the students and said that every student should update their knowledge and skill by participating in such hands-on workshops in every semester. Earlier, Sachin Bhat, welcomed the gathering and briefed the participants regarding the importance of Aruino in real time Engineering project development.

Resource persons Mr. Suhas Kumar and team, staff members of E&C Engineering department, and participating students were present on the occasion. Mr. Sachin Bhat compered the inaugural.

From this 2-day workshop, students gained knowledge about Arduino Microcontroller board, Arduino programming and Mobile App development using MIT app inventor.

9. Farewell to Mr. Vinay and Ms. Sukanya

10. Farewell to Ms. Vidya

Mr. Vinay Kumar, Ms. Sukanya Devadiga and Ms. Vidya left SMVITM after serving for more than 6 years. Dr. Asha C. S. too left SMVITM in search of better prospects, after serving for a short duration of one year.

PLACED STARS OF E&C ENGINEERING

Sl.No.	Name of Student	Name of Company
1	ABHINAYA S	Access6 Technologies Tata Consultancy Services Ltd.
2	ADITHI RAJU POOJARI	Diya Systems Pvt Ltd.
3	ANEESHA R SANIL	Access6 Technologies
4	ARAVINDA UPADHYA K	Tayana Software Solutions
5	ASHLESH P K	Tata Consultancy Services Ltd.
6	ASHRITHA	Diya Systems Pvt Ltd. Qspiders Software Testing Center MindTree
7	ASHWINI	Usha Armour Pvt Ltd
8	B M SHIKHA	Access6 Technologies Infosys Ltd.
9	CHAITRA BHAT	iWave Systems Technologies Pvt Ltd. Infosys Ltd.
10	CHANDANA	Usha Armour Pvt Ltd
11	CHITRALEKHA	Usha Armour Pvt Ltd
12	DEEPA	Ethnus Consultancy Services P Ltd.
13	HARISHRAJ M N	Tantragyan Solutions
14	K GIRISH RAO	Tata Consultancy Services Ltd. Infosys Ltd.
15	KARTHIK KAMATH	Access6 Technologies Tekcel Automation, Bengaluru
16	KAVYA K SHETTY	ExtraMarks Education
17	KAVYA KARKERA	Diya Systems Pvt Ltd. Qspiders Software Testing Center
18	KEERTHI KAMATH	Qspiders Software Testing Center
19	KIRAN	Tessolve Semiconductor Pvt. Ltd. KARMIC Design Pvt. Ltd.
20	MATHARISHWA BHAT	Kreatio Software Pvt. Ltd.
21	MOHANRAJ J. SUVARNA	Qspiders Software Testing Center Tekcel Automation, Bengaluru
22	MYNAH MENDONCA	Infosys Ltd.
23	NAGENDRA UDUPA	Diya Systems Pvt Ltd.
24	NAJMA	Diya Systems Pvt Ltd.
25	NAYAK PRAFUL PRAKASH	Tantragyan Solutions
26	NEHA CHINNAYA SHERIGAR	IBM India Pvt Ltd
27	NIKHILA RANI K	Usha Armour Pvt Ltd
28	PAVAN AITHALA P N	Robosoft Technologies Pvt Ltd. Infosys Ltd.
29	PRITHVI	Tantragyan Solutions
30	POOJA R	Aradhya's Briliance Center

31	POOJA K R	Access6 Technologies Wipro Ltd.
32	PUNEETH S KUMAR	iWave Systems Technologies Pvt Ltd.
33	RAJESH	KARMIC Design Pvt. Ltd.
34	RAKESH K. KULAL	Tekcel Automation, Bengaluru
35	RANJITHA	Qspiders Software Testing Center
36	RASHMI K H	PathFront
37	SAHANA KINI K.	Qspiders Software Testing Center
38	SAHANA SHETTY	Aradhya's Briliance Center
39	SAMPATH S SHETTY	Ethnus Consultancy Services P Ltd.
40	SHETTY NIKITHA NARENDRA	Tessolve Semiconductor Pvt. Ltd.
41	SHREEDEVI B NATEKAR	IDBI Federal Life Insurance
42	SHWETHA NAYAK	Diya Systems Pvt Ltd.
43	SUMAN KANOJ	IDBI Federal Life Insurance
44	SUPREETH G RAO P	Access6 Technologies
45	SWATI SHRIPAD KULKARNI	Infosys Ltd.
46	V K RADHEYA	Aradhya's Briliance Center Qspiders Software Testing Center
47	VAISHAKH	Accord Global Tech Solutions Pvt. Ltd.
48	ATHMASHREE A. T.	Qspiders Software Testing Center

FACULTY ACCOMPLISHMENTS

Journal Publications

- Sachin Bhat & Seshikala G, "Preprocessing of historical manuscripts using phase congruency and gaussian mixture model", Far East Journal of Electronics and Communication, Vol. 19, Issue 1, pp 47-67, 2019

- Sachin Bhat & Seshikala G, "Restoration of Characters in Degraded Inscriptions using Phase Based Binarization and Geodesic Morphology", International Journal of Recent Technology, Elsevier, Vol. 7, Issue 6, pp 1070-1075, 2019

- Sachin Bhat & Seshikala G, "Text extraction and a deep CNN based model for character classification in Kannada documents", Journal of Innovative Technology and Exploring Engineering, ELsevier, Vol. 8, Issue 8, pp 2957-2963, 2019

- Sridevi Rao, Sushmitha N.G, Sushma Nayak, Sowmya Poojary & Nagaraja Rao, "Agri Robo", International Journal of Engineering Research in Electronics and Communication Engineering(IJERECE), Vol. 6, Issue 5, pp 37-40, May 2019

- K Padmavathi, C S Asha & V K Maya, "A novel medical image fusion by combining TV-L1 textures based on adaptive weighting scheme", International Journal of Engineering Science and Technology, April 2019

- Asha C S, Lal S, Gurupur V P & Saxena P P, "Multi-modal Medical Image Fusion With

Adaptive Weighted Combination of NSST Bands Using Chaotic Grey Wolf Optimization", IEEE Access, Vol. 7, pp 40782-40796, 2019

- Asha C S, Deepa Nayak & Chaithra Bhat, "Auto Removal of Bright Spot from Images Captured Against Flashing Light Source", IEEE Discover, 2019

- Shareen Noronha, Ranjith Bhat, Raghavendra Rao, Rajashree Nambair & Laxmi Shetty, "DC-DC Buck converter using sliding mode control", JETIR, Vol. 6, Issue 5, pp 15-20, 2019

- Sowmya Bhat, Sandesh Kumar, Avinash N J, Kusuma Prabhu & Renita Pinto, "Design and Analysis of 8-T and 5-T based XOR and XNOR gates using Soft Computing Tools", IJERT, Vol. 7, Issue 8, 2019

Conference Presentations

- Sachin Bhat, "Character recognition of Tulu script using Convolutional Neural Network", Springer International Conference on Artificial Intelligence and Data Engineering, NMAMIT, Nitte, 23-24 May 2019

- Kusuma Prabhu, B M Shikha, Nikhila Rani, Janish Dayola & Kavya K shetty, "Implementation of smart Tyre Killer", Recent trends in electrical science and information, YIT Moodubidre, 29-30 April 2019

- Laxmi Shetty, "A silent verbal interface system for speech disabled person using ICT", National conference on emerging trends in science & engineering, SMVITM, 26-27 April 2019

- Shareen Noronha, Ranjith Bhat, Raghavendra Rao, Rajashree Nambiar & Laxmi Shetty, "DC-DC Buck Converter using Sliding Mode Control", International conference on applied science, engineering and technology, Sri Sairam College of Engineering, Anekal, 2-3 May 2019

- Sridevi Rao, Sushmitha N.G, Sushma Nayak, Sowmya Poojary & Nagaraja Rao, "Agri Robo", International conference on applied science, engineering and technology, Sri Sairam College of Engineering, Anekal, 2-3 May 2019

- Chetan, Shwetha, Sharanya, Sampath & Shriraksha, "32Bit RISC Microprocessor design with 5 stage pipeline", National conference on emerging trends in science & engineering, SMVITM, 26-27 April 2019

- Aneesha R Sanil, Adithi Raju Poojari, Ashritha, Pooja Moolya & Raghavendra Rao P, "Intelligent Traffic Management using wired sensor networks", National conference on emerging trends in science & engineering, SMVITM, 26-27 April 2019

Workshops & FDPs Participated

- Renita Pinto, "Aspects of LTE 4G (VTU sponsored)", Sahyadri college, Mangaluru, 22-24 March 2019

- Shareen Noronha, Ranjith Bhat & Rajashree Nambiar, "Fundamentals of Network Simulations using NS-3", NMAMIT Nitte, 11-13 Feb 2019

STUDENT ACCOMPLISHMENTS

- Meghana and Shreeshadasa of 2nd year ECE, teaming with other students, won 2nd place in Bhajan competition held at NMAMIT Nitte, as part of Incridea-19, during 13-16 Feb 2019

- Vasundhara of 3rd year ECE, won 2nd place in Duet dance competition held at NMAMIT Nitte, as part of Incridea-19, during 13-16 Feb 2019

- Wasim Akram, Prajyoth Bhat, Supreeth Kumar, Pranav K R, Nidish Suvarna, Chethana, Akhila K V and Niveditha P Nayak of 2nd year ECE, won 2nd place in short movie competition held at NMAMIT Nitte, as part of Incridea-19, during 13-16 Feb 2019

- Prajna of 3rd year ECE and Preema Dsouza & Niveditha Hebbar of 2nd year ECE won 2nd place in the Fashion show competition held at NMAMIT Nitte, as part of Incridea-19, during 13-16 Feb 2019

- Adith Holla and Jeevan Achari of 2nd year ECE won 2nd prize in Circuitronics at AJ Institute of Engineering & Technology, on 9 & 10 March 2019.

- Swaroop Shetty and Matharishwa Bhat of 4th year ECE were part of the team which won the Runner's up trophy of the VTU Mangaluru Zone Inter-collegiate Handball Tournament (Men) which was held in the college on 02 April 2019.

- Wasim Akram, Prajyoth Bhat, Nidish Suvarna, Niveditha Hebbar, Niveditha Nayak of 2nd year, and Bhoomika J S of 1st year ECE, won 2nd place in short video film making competition held at MITE Moodubidre, as part of Sentia-19, on 27 & 28 March 2019

- Vasundhara of 3rd year, teaming with another student, won second prize in the Eastern Duet Dance competition held at MITE Moodubidre, as part of Sentia-19, on 27 & 28 March 2019

- Adith Holla and Jeevan Achari of 2nd year ECE won First Prize in Restotricks event conducted as part of Sambhram 2019 at SDIT Mangaluru, on 25 & 26 April 2019

- Adithya K and Pranav K R of 2nd year ECE won Second Prize in Restotricks event conducted as part of Sambhram 2019 at SDIT Mangaluru, on 25 & 26 April 2019

Soft Robotic Glove for Hand Rehabilitation

The final year ECE students have developed a Robotic Hand Glove which can be used for hand rehabilitation. Robotic hand exoskeleton system is a wearable intelligent glove intended for augmenting or enhancing the abilities of human hands. It aims to recover and restore the hand movements of paralyzed patients who are unable to move their fingers.

Soft robotic glove consists of actuators placed on the dorsal side of the hand. They act like virtual fingers. The bending of actuators requires air to be supplied through air injectors. These air injectors are controlled by the rotation of Johnson motors. The rotation of the motor is controlled by a microcontroller. By manipulating the rotation of motor, any type of rehabilitation exercises can be performed by the actuators. This system has a facility of implementing different rehabilitation exercises through the use of smart phones. The working of glove is managed through a user interface that is connected to the microcontroller via Bluetooth module. This application has different buttons, and each of these buttons indicate specific rehabilitation exercise. Whenever a button is pressed it performs the desired exercise.

The project was undertaken by the students Mr. Ashlesh P K, Mr. Girish Rao K, Mr. Nikhil and Mr. Pavan Aithal, under the guidance of Assistant Professor Mr. Krishna Kumar.

Automatic Headlight Switching and Object Recognition

Driving at night with existing conventional headlight system is particularly unsafe because it does not provide illumination of the road in the right direction. To overcome this constraint the final year ECE students have developed a system which has automatic headlight switching and object recognition. This is expected to improve the visibility of road for driver during night time. Further, for autonomous vehicles, knowing the obstacles on the road is very important. To this effect this system recognizes obstacles such as vehicles, pedestrians, animals, etc. on the road and notifies the driver.

In the system developed by the students, a sensor is connected to the steering axis. It gives signal to the controller whenever the steering wheel is rotated, and accordingly the controller rotates the headlight reflectors in the same curve direction. This helps the driver while driving on curved roads and sharp turns. Further, the system is equipped with a dimmer system which automatically switches the headlight from high to low beam and vice versa whenever a vehicle is being approached from behind or from the opposite direction. When the vehicle is moving up or down the hill, the headlight illumination will not be focused in the required area of the road. So, depending on the inclination of the vehicle, this system automatically switches the headlight for better vision of the driver.

The system is also fitted with a webcam which captures the video of the road, and processes the data to identify the type of obstacle on the road. In case there is any obstacle on the road which hinders the movement of the vehicle, the system automatically notifies the driver.

This project effectively reduces the need for manual intervention by automatically switching the headlight to high or low beam depending on the road conditions and

approaching vehicles. It also helps the driver in recognizing the obstacles well in advance, thereby avoiding accidents, and improving the safety of driver. The project work was carried out by Aravinda Upadhya, Nagendra Udupa, Shetty Nikitha and Supreeth G Rao under the guidance of Assistant Professor Mrs. Rajashree Nambiar

VISION OF THE DEPARTMENT

To emerge as an excellent technical education center and be an integral part in the development of advancing technologies and global challenges, in the field of Electronics and Communication Engineering.

MISSION OF THE DEPARTMENT

1. To facilitate an ambience conducive to the excellence in technical education.
2. To provide a platform that will ensure the exchange of ideas and dissemination of knowledge.
3. To establish a research oriented center by having rapport with industries.
4. To foster ethical and value based education with credibility by promoting activities that have societal impact.

PROGRAM EDUCATIONAL OBJECTIVES

The graduate of Electronics and Communication Engineering should be able to:
1. Exhibit essential knowledge of applied sciences, mathematical modeling, logical interpretation and virtual realization to resolve real-time problems in the field of Electronics and Communication Engineering.
2. Work productively as an Electronics and Communication Engineer, including supportive and leadership roles on multidisciplinary teams.
3. Inculcate effective communication skills to excel in professional growth.
4. Take part in lifelong learning in pace with the advancing technological society.