



Shri Madhwa Vadiraja Institute of Technology and Management
Bantakal

Newsletter by the Dept. of ECE

CRYPTEX

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SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY & MANAGEMENT

CRYPTEX

Newsletter of the Department of Electronics & Communication Engineering, Vol. 2, Issue 1, 2016-17

EDITORIAL

We are glad to announce that the Department of ECE is bringing out its Second Volume of Departmental Newsletter “CRYPTEX” for the Academic Year 2016–17. It captures the momentous moments of department’s journey. We have tried our best to make sure this memoir of department helps you in recapitulating your eventful journey in SMVITM.

“CRYPTEX” is a compilation of the immense effort put forward by the invincible SMVITians and is also a specimen of their creativity. It mainly focuses on the latest developments in the field of Electronics and Communication, along with highlights of activities and achievements of students and faculty of the department. It tries to bind together each and every aspect of our very own “SMVITM family”. This issue might be termed as a reminiscence of our Alma Mater’s glory.

This was another splendid semester, with our students and faculty members bringing laurels to the institute in all possible spheres. Their achievements were so vivid that all our effort to include their accomplishments in one issue went in vain. Isn’t it rightly said, “A flower makes no garland”. Hence this magazine is not the outcome of the effort put in by an individual, but is the immense effort put forward by our Editorial Board, all faculties, students, all near and dear ones. This is just a small acknowledgment to our Alma Mater. We apologize for shortcomings and hope you will cherish our efforts.

Our editorial team is thankful to two great personalities, Dr. Radhakrishna S Aithal, Honorary Director, who is a source of inspiration to thousands of SMVITMians and Dr. Thirumaleshwar Bhat, Principal, who is the backbone of each and every activity taking place in the institute. We also extend our thanks to Dr. Balachandra Achar H V, HOD, and the faculty members of the department for their support in fullest possible way in upliftment of the department.

Individually and collectively let’s work to serve the cause of education, for the betterment of the coming generation so that they live on a world where “knowledge is free and the head is held high”; where “the world has not been broken up into fragments by narrow domestic walls” and “the clear stream of reasoning has not lost its way”. Let us grow as world class citizens – a generation of eminent thinkers and wise planners contributing to a better world order. That exactly is our wish; and that exactly is our dream.

Editorially Yours
Sachin S Bhat

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DEPARTMENTAL ACTIVITIES

Workshop on the Applications of Raspberry Pi & IOT

The Department of Electronics and Communication Engineering of SMVITM, in association with ISTE Student Chapter organized a one-day workshop on “Applications of Raspberry Pi and IOT”. The workshop was conducted by Mr. Johnson Tellis, Mr. Mayank and Mr. Shrajan Bhandary of DTLabz Pvt. Ltd. Mangaluru, on 10 September 2016. All the students of fifth semester ECE participated in the workshop and enhanced their awareness.

Mr. Johnson highlighted the use of Internet of Things with a live example on its wide applications. He emphasized on IOT being the upcoming highlight in the technology field; uses of IOT, devices, platforms and services available along with real world application of electronics were demonstrated. Usage of App inventor for making Android Application was also covered in the workshop. Apart from this, an introduction to Arduino, its features and interfacing sensors to the Arduino was taught by the team. The task of interfacing IR sensor with Arduino was completed by the enthusiastic students.

Using Raspberry Pi and Internet of things concept,

the students were trained on Node-RED interfacing. Controlling AC circuit via Internet, Setup of node red for Internet connected room, twitter notification was accomplished as a part of concluding mini project wherein students applied their knowledge acquired in the workshop.

Earlier, inaugurating the workshop, the Principal of the college Dr. Thirumaleshwara Bhat, welcomed the resource person Mr. Johnson Tellis. Dr. Balachandra Achar, HOD of ECE department, welcomed the other two resource persons. During the valedictory function, students expressed their views and gave feedback about the workshop. Ms. Laxmi Shetty, Assistant Professor with ECE Department, proposed the vote of thanks. Ms. Krithika Pai, a student of fifth semester ECE, compered the program.



Workshop on the Recent Trends in VLSI and Embedded System design

The department of Electronics & Communication Engineering, in association with ISTE Faculty Chapter of SMVITM, organized a 3-day workshop on the topic “Recent trends in VLSI and Embedded System Design using Xilinx ZYNQ-7000 and Mentor Graphics EDA tools”, from 11 to 13 July 2016 in the college premises. Mr. G Prakash, Technical Support Specialist from CoreEL Technologies Bengaluru was the resource person. Faculties from E&C and E&E Engineering from different engineering colleges and the office bearers of ISTE faculty chapter attended the workshop and enhanced their knowledge.

On the first day, Mr. G Prakash focused on the fundamentals of VLSI chip design methodology along with the concepts of ASIC full-custom and semi-custom design, which was followed by hands-on on Mentor Graphics tool for Simulation and Layout design. On the second day, he briefed the participants about the 7-Series Architecture and the basics of Vivado design flow, which was followed by hands-on on creating HDL and Embedded system design flow and its constraints. On the last day of the workshop, the resource person focused on debugging of system design using Vivado logic analyzer and SDK, and introduced high-level synthesis with Vivado HLS.

Earlier, inaugurating the workshop, Sri Rathnakumar, Secretary of SSVME Trust said that faculty members should regularly participate in such workshops in order to enhance their knowledge, and thereby contribute to the growth of the institution. Dr. Thirumaleshwara Bhat, Principal of SMVITM congratulated the department for organizing such events in the college during every semester. Dr. Balachandra Achar, HOD of ECE department, welcomed the

resource person and the participants. Assistant Professor Mr. Aruna M S, readout the company profile, while Ms. Kalavathi Nayak introduced the resource person to the gathering. The program started with a prayer by Ms. Dhanyashree and ended with the vote of thanks by Mr. Rajesh Nayak. Ms. Sowmya Bhat compered the program, and Mr. Chetan R. coordinated the workshop.



Technical Talk on Lab-View and its Applications in Engineering

The Department of ECE, in association with ISTE Student Chapter organized a Technical Talk on “Lab-View and its Applications in Engineering” by Mr. Sunil Kumar V, Managing Director, VI Solutions, Bengaluru on 20 August 2016. The students of fifth and seventh semesters ECE attended the talk and enhanced their knowledge.

Mr. Sunil Kumar highlighted about Laboratory Virtual Instrumentation Engineering Workbench, how to write a program, execute and debug in Lab-View with interesting examples of Talking Tom, creation of abnormal signals, AM waveforms and animations. He also focused on some academic projects like robotics, how to sort out different color pencils in pencil industry and how to know the strength and structure of music.

Apart from this, Mr. Sunil also created awareness among the students to bridge the gap between industry and academics, and to know about job opportunities in public and private sectors. He suggested the importance of certified course on Lab-View which will be very useful for the students to excel in the field of E&C Engineering and get placed in core companies. The entire session was enthusiastic and knowledgeable with lot of demo examples.



Earlier, Mr. Nagaraja Rao, Associate Professor, welcomed Mr. Sunil Kumar with a flower. Ms. Parvathi Pai of fifth semester ECE, compered the program.

Mini Project Exhibition and Competition

The Department of ECE organized mini-project exhibition and competition for 5th semester ECE students on 12 November 2016, in the department premises. A total of 29 teams, comprising all the students of fifth semester participated in the competition with enthusiasm, and exhibited their works. Each team had worked on unique projects taking the help from faculty members and senior students. All the projects were of good quality and worked satisfactorily as per the design. However, for the sake of giving prizes, three best projects were selected based on certain judgment criteria.

The prize winning projects are as follows:

First Prize: Automatic Street Light and Guard Area Protection, by Puthran Vishakh Balakrishna, Shetty Rakshith Sateesha, Shreyas Rakshitha Karkada, and Sneha S Poojary.

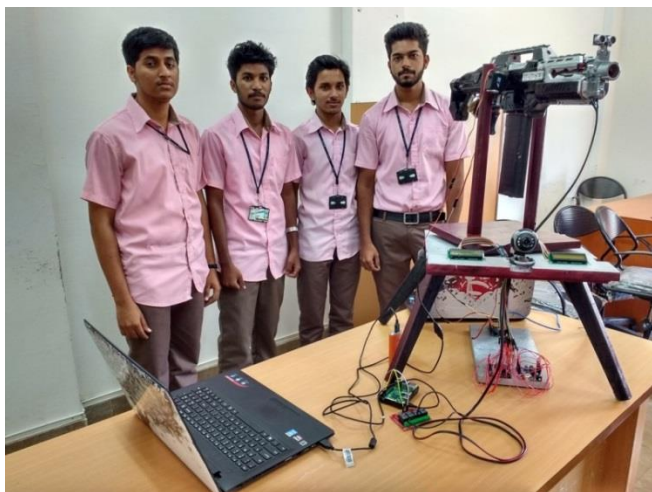
Second Prize: Intruder Detection and Target System, by Prajwal C Rao, Rakshith Acharya, Shubin and Sukumara.

Third Prize: Arduino Controlled Radar System, Ranjitha M, Shemaz Parveen, Shivani and Swathi M Padmashali

Sri Raghavendra Tantry, member of SSVM Education Trust, distributed the certificates and prizes to the winning teams. Dr. Balachandra Achar, HOD, welcomed Sri Tantry, and highlighted the importance of doing mini projects during engineering study. Mr. Chetan R, Ms.

Rajashree Nambiar, Mr. Krishna Kumar, Mr. Sachin Prabhu, Mr. Aruna M S and Mr. Raghavendra Rao helped in evaluating the projects. Mr. Rajesh Nayak and Ms. Kalavathi Nayak coordinated the mini projects throughout the semester, right from the formation of teams, till the prize distribution. All the faculty and staff members of the department helped the students with their timely guidance and support.

The department wishes to congratulate and thank all the students of 5th semester ECE, for actively participating in the execution of mini project, in spite of their tight academic schedule. The department hopes that the students will work more on their project during the vacation and next semester, and try to improve or add more features.



Deepavali Gifts to House-Keeping Staffs

As a special gesture, this year too, the department of ECE presented Deepavali gifts to attendants and house-keeping staffs. All the faculty and staff members of ECE department contributed for the same.



FACULTY ACCOMPLISHMENTS

Ph.D. Registrations

- Mr. Sachin S Bhat registered for Ph.D. in the topic "Enhancement, Segmentation, OCR and Analysis of Inscriptions in Documental Image Processing", under the guidance of Dr. Seshikala, in the Department of E&C Engineering, at REVA University, Bengaluru
- Mr. Arun Upadhyaya registered for Ph.D. program in the topic "Security Enhanced Hybrid Digital Encryption Technique", under the guidance of Dr. Shubha P Bhat, at VTU, Belagavi

Journal Publications

- Mr. Vinaya Kumar S R published a paper titled "Design and Simulation of Compact Multiband Microstrip Fractal Patch Antenna for C-band Applications" in IJIRCCE, Vol. 4, Issue 6, June 2016.
- Ms. Sowmya Bhat, Mr. Aruna M S, Ms. Kusuma Prabhu and Mr. Avinash N J published a paper titled "Design of ARM7 processor core with constraint of power and area consumption using FSM modeling and random logic method" in IJIFR, Vol. 3, Issue 10, June 2016.
- Mr. Sachin S Bhat published a paper titled "Implementation of Collision Avoidance System for Hairpin Bends in Ghats using Proximity Sensors" in IJCESR, Vol. 3, Issue 11, July 2016.
- Mr. Sachin S Bhat published a paper titled "Emergency Vehicle Detection and Traffic

Density Notification System" in IJIFR, Vol. 3, Issue 11, July 2016.

- Mr. Avinash N J and Ms. Sowmya Bhat, published a research paper titled, "A Novel Approach of GSM Based Eco-Friendly Low Energy Consumption Smart Train with Enhanced Features", in International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering, Vol. 4, Issue 8, pp 104-106, August 2016.
- Ms. Sowmya Bhat, Mr. Avinash N J, Ms. Kusuma Prabhu and Ms. Rajashree Nambiar, published a research paper titled, "Design of Area Efficient Binary to Gray Code Converter Using Mentor Graphics", in International Journal of Advanced Computing and Electronics Technology, Vol. 3, Issue 5, September 2016.

Conference Presentations

- Ms. Kusuma Prabhu, Ms. Sowmya Bhat and Mr. Aruna M S, presented their work titled "Secured Health Information Transmission", at the International Conference on Applied Science Engineering and Technology, held at Sri Sairam College of Engineering, Bengaluru, on 6 & 7 June 2016.
- Ms. Sowmya Bhat, Mr. Avinash N J, Ms. Kusuma Prabhu and Ms. Rajashree Nambiar, presented a paper titled, "Design of Area Efficient Binary to Gray Code Converter Using Mentor Graphics", in International Conference on Electrical Electronics Communication Robotics and Instrumentation

Engineering 2016, held in Mysuru on 11 September 2016

- Mr. Vinaya Kumar, Mr. Sachin Prabhu, Mr. Sandesh Kumar and Mr. Aruna M S, presented a paper titled "Review on Battery Data Online Monitoring System for EV", in 22nd International Conference on Electrical Electronics Communication Robotics and Instrumentation Engineering 2016, held in Mysuru on 11 September 2016
- Ms. Rajashree Nambiar, Ms. Kusuma Prabhu, Ms. Shashikala R, Mr. Chetan R and Mr. Ganesh Shetty, presented a paper titled "Analysis of Medical Image Fusion", in 22nd International Conference on Instrumentation, Electrical and Electronics Engineering 2016, held in Bengaluru on 18 Sep 2016
- Mr. Vinaya Kumar and Mr. Arun Upadhyaya presented a paper titled "Online Battery Performance Enhancement and Optimization for EV" in International Conference on Recent Innovation in Engineering -2016 held at Hirasugar Institute of Technology, Nidasoshi, on 8 & 9 October 2016
- Mr. Sachin Prabhu presented a paper titled "Review on Battery Data Online Monitoring System for EV" in International Conference on Recent Innovation in Engineering -2016 held at Hirasugar Institute of Technology, Nidasoshi, on 8 & 9 October 2016
- Ms. Laxmi Shetty, Mr. Raghavendra Rao, Mr. Ranjith Bhat and Ms. Kalavathi Nayak presented their work titled "Electrocardiogram Noise Removal using Advance Least Mean Square", at 25th International Conference on Instrumentation, Electrical and Electronics Engineering in Bengaluru, on 18 December 2016.

Workshop / FDP Participations

- Mr. Ganesh S Shetty participated in the two-day FDP on "Research Avenues in Biometrics and Forensic Science" at SJCE Mysuru, from 24-25 June 2016, organized by Dept of IT and Dept of MCA of SJCE Mysuru
- Mr. Aruna M S participated in the two-week Summer School on Semiconductor Devices during 20 June to 02 July 2016 at IIT Gandhinagar.
- Mr. Aruna M S, Mr. Avinash N J, Mr. Chetan R, Mr. Ganesh Shetty, Mr. Krishna Kumar P, Mr. Raghavendra Rao, Mr. Rajesh Nayak, Mr. Ranjith Bhat, Mr. Sachin Prabhu, Mr. Sandesh Kumar, Mr. Vinaya Kumar SR, Ms. Kalavathi, Ms. Kusuma Prabhu, Ms. Rajashree Nambiar, Ms. Shashikala R and Ms. Sowmya Bhat participated in the three-day workshop on "Recent trends in VLSI and Embedded System Design using Xilinx ZYNQ-7000 and Mentor Graphics EDA tools", at SMVITM Bantakal, from 11 to 13 July 2016
- Mr. Aruna M S participated in the two-day workshop on "VLSI Design using Open Source EDA" at Sahyadri College of Engineering & Management, Mangaluru, from 29 to 30 July 2016
- Mr. Arun Upadhyaya, Ms. Laxmi Shetty and Mr. Ganesh S Shetty participated in the two-week FDP on "Transforming from a Responsible Manager to a Successful Entrepreneur", held at SMVITM Bantakal, from 12 to 24 December 2016.
- Dr. Balachandra Achar, HOD, participated in the two-day workshop on "Physics of Musical Instruments", held at St. Aloysius College Mangaluru, on 16 & 17 Dec 2016.

- Ms. Shashikala R, Ms. Rajashree Nambiar, Ms. Kusuma Prabhu, Ms. Sowmya Bhat, Mr. Sandesh Kumar and Mr. Avinash N J participated in the five-day Faculty Development Program on "PLC SCADA HMI DRIVE ANALOG MODULE", held at MIT Manipal, from 12 to 16 December 2016.

NPTEL Online Courses

- Mr. Krishna Kumar P successfully completed online courses on "Digital Image Processing" and "Introduction to Information Theory" conducted by NPTEL during Jul-Dec 2016
- Mr. Sandesh Kumar and Mr. Sachin Prabhu successfully completed the online course on "Principles of Modern CDMA/MIMO/OFDM Wireless Communications", conducted by NPTEL during Jul-Dec 2016

STUDENT ACCOMPLISHMENTS

- Ms. Sridevi of the 2012-16 batch received gold medal from Shri Vishwavallabha Teertha Swamiji during the 3rd Graduation Day ceremony held in the college premises on 6 Nov 2016, for being the top scorer in ECE branch in the VTU examinations. She has been consistently scoring highest marks in almost every semester. She, along with her parents and HOD of ECE, planted a sapling in front of the department.



- Ms. Shwetha Rathnakar Shetty of 7th semester ECE was selected by Artech Infosystems Pvt. Ltd. Bengaluru, in the pooled campus recruitment drive held on 7 Nov 2016.
- Ms. Anusha V Pai of 7th semester ECE was selected by IBM India Pvt. Ltd. Bengaluru, in the pooled campus recruitment drive held on 18 Nov 2016.
- Ms. Suraksha of 5th semester ECE, has won first prize in individual Kumite, and second prize in Kata events in women's Karate black belt, 50-55 kg weight category, in the 8th Goshin-Ryu National Level Karate Championship held at Kateel, from 26 to 28 Aug 2016.
- Ms. Sapthashree of 5th semester ECE, has won first prize in Kumite and second prize in Kata events in women's Karate black belt below 45 kg category, in the State Level Open Karate Championship, organized by Shorin-Ryu Karate Association (R) Moodubidri, held at Sri Mahaveera College Auditorium Moodubidri, from 2 to 4 Sep 2016.

- Ms. Sapthashree of 5th semester ECE, has won first prize and gold medal in individual Kumite event in women's Karate black belt 45-55 kg category, and won third prize and bronze medal in Kata event for women's black belt above 19 years age category, in the 6th National Level Karate Championship held at Sahana Convention Centre Kundapura, from 18 to 20 Nov 2016.
- Mr. Paritosh of 7th semester, Mr. Arjun Acharya of 5th semester, Mr. Sampath S Shetty & Mr. Matharishwa Bhat of 3rd semester ECE, won Second Place in the VTU Mangaluru Zone Inter-Collegiate Table Tennis (Boys) Tournament, held at Shree Devi Institute of Technology, Mangaluru, on 28 & 29 Sep 2016.
- Ms. Audrey Jenitha Barboza of 5th semester, and Ms. Kavya of 1st semester ECE, won Third Place in the VTU Mangaluru Zone Inter-Collegiate Table Tennis (Girls) Tournament, held at Shree Devi Institute of Technology, Mangaluru, on 28 & 29 Sep 2016.
- Thirty two students from ECE department participated in the State-Level Student Symposium and Competition on Industrial Internet of Things, held at SMVITM Bantakal, on 4 Nov 2016; Ms. Shivani of 5th semester ECE was part of the team which won the First Prize.

INTERNET OF THINGS – by Sachin S Bhat

We have always been fascinated with the gadgets that function on a magnificent scale for decades, but it's only been in the past few years that we have seen the IoT's true potential. The concept gradually developed as the concept of wireless Internet became more popular, embedded sensors grew in sophistication and people began understanding that technology could be a personal tool as well as a professional one.

The term "Internet of Things" was coined in the late 1990s by entrepreneur Kevin Ashton. Ashton, who's one of the founders of the Auto-ID Center at MIT, was part of a team that discovered how to link objects to the Internet through an RFID tag. He was the first to use the phrase "Internet of Things" in 1999 – and the term has stuck around ever since.

Connecting the physical to the digital world can encompass a wide range of objects from vehicles to appliances, health and wellness, manufacturing and food, security systems, wearable devices and many more. These objects are connected through a digital sensor that collects and transmits data to other devices or to a centralized management system. The public Internet or private networks connecting these devices provide the communications between these devices —or "things."

A report recently published highlights the IoT at the top of the "Key Information and Communications Technology Trends for the Research and Education Community" through 2025. According to some estimates, the IoT could create 11.1 trillion dollar in global economic value by 2025, representing 11 percent of GDP. This economic value reflects both the upside revenue potential for IoT-related technology and its efficiencies. This multi-trillion-dollar opportunity not only attracts investments but also requires innovation in technology and business models to be enabled.

The higher education community can lead the development of the technologies, business models, ethics, and leaders of the IoT-enabled world. For example, professors of engineering colleges are directing IoT labs for the improvement of IoT technology and design. They can work with business schools to form IoT clubs to create new business models. Law schools can teach IoT ethics, privacy, and policy. Medical schools can enable the "Internet of Medical Things." Informatics programs can teach how to leverage the volumes of IoT data. Through such efforts, the higher education community can work across disciplines to develop the technologies, business models, and leaders for the IoT-enabled economy of the future.

DEPARTMENT PROFILE

The Department of Electronics and Communication Engineering in SMVITM was established in the year 2010, initially offering an undergraduate program with an intake of 60 students per year. The intake was increased to 120 in the academic year 2012-13. The department has well-qualified 24 faculty members, and 8 lab staff, highly motivated in teaching and guiding the students in exploring newer avenues of E&C. The department regularly organizes seminars, symposiums, workshops and invited talks by eminent faculty from reputed institutions and industry experts, to keep the students abreast of the latest technological developments in related fields. The department has its own library comprising of over 125 text books and technical magazines for quick reference. To nurture creative ideas and provide hands-on training to the students, the department has set up an Innovation/Project laboratory with state-of-the-art equipment and latest versions of software tools, in addition to the regular laboratories.

DEPARTMENT VISION

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

DEPARTMENT MISSION

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

PROGRAMME EDUCATIONAL OBJECTIVES

The graduate of Electronics and Communication Engineering should be able to:

- | | |
|-------|---|
| PEO-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. |
| PEO-2 | Work productively as an Electronics and Communication Engineer, including supportive and leadership roles on multidisciplinary teams. |
| PEO-3 | Inculcate effective communication skills to excel in professional growth. |
| PEO-4 | Take part in lifelong learning in pace with the advancing technological society. |

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