

**BMS COLLEGE OF ENGINEERING**

**REPORT BY DEPARTMENT OF ELECTRONICS AND COMMUNICATION**

**23<sup>RD</sup> AND 24<sup>TH</sup> SEPTEMBER 2016**



**COORDINATORS:**

**FACULTY:** Dr. G Poornima  
Dr. A Meera  
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**STUDENT:** Prajwal Prabhu, V Sem  
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Vinod Raj, VII Sem  
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**BMSCE phase shift 2016**, National Annual Technical Symposium was held on 23<sup>rd</sup> and 24<sup>th</sup> of September, with most trending topic **IOT** as the theme. This year phase shift was sponsored by TEQUIP and 60+ companies that made the event a grand success and gained more publicity.

The Department of Electronics and Communication proposed 6 events and 1 workshop based on the theme of Internet of things for the two day National Annual Technical Symposium Phase Shift- 2016 held on 23<sup>rd</sup> and 24<sup>th</sup> of September 2016. The events hosted on 23<sup>rd</sup> Sep 16 are **Mega mind**, **Escape if you can** and **Short Movie Making**. The events held on 24<sup>th</sup> Sep 16 are **Electro blitz**-designed exclusively for BMSCE participants, **online questionnaire**-the only

online event that was planned and hosted in Phase Shift- 2016 and **Fury Road V2** the department flag ship event. On the same day **Workshop on Wireless Sensor Networks and IoT** was also held, all designed on the concept of IoT.

The focus of National Annual Technical Symposium Phase Shift is to connect with the industries in order to upsurge industry participation along with the institute. The entire event hosted was in collaboration with industries like Robert Bosch, CoreEL Technologies, Nihon Communication Private Limited, Anthea Consultancy, Mythri Movie Makers, Silverline Electronics, PRLightCOM Broadband Solutions etc. The response for the events and workshop was overwhelming and enticed students from other institutes like RVCE, PESIT, Dayanada Sagar College of Engg, BIT, RRCE and MSRIT.

The events were thoroughly designed and planned such that there is scope to encourage participants of 1<sup>st</sup> year (open for interdisciplinary students also) in the Round-1 and complexity level of the Round 2-3 were built and maintained to test the skills acquired by 2<sup>nd</sup>- 4<sup>th</sup> year student. Each event registrations invited a team of 25-45 teams (each team consisting of 2-4 members) that gathered a crowd of approximately 75-135 participants for each event. The events were designed to test the theoretical, practical and logical understanding of electronics and knowledge on the IoT, Wireless Communication and cloud computing, also to exhibit their ability to design and analyze System, identify the working of the circuit, and then optimize it by removing dispensable components without affecting the circuit's functioning to make use of latest technologies.

In Workshop, the resource person from CoreEl Technology highlighted on SOC using Xilinx platform, students were introduced to the concepts of Wireless Sensor Networks, uses of Sensors in IoT, also learnt Interfacing Bluemix Cloud Platform, Cloud storage and analytics by Nihon Communications. Applications of IoT and security issues were deliberated by speakers from Infineon and Robert Bosch.

Robert Bosch, CoreEL Technologies, Byju's-Learning Apps displayed their products at the stalls. The department stall also exhibited motivating student project like 3D printer, 3D printer extruder for plastic recycling, Data acquisition for multiple sensors and imaging robot.

## **DETAILS OF THE EVENTS HELD DURING PHASE SHIFT- 2016**

### **1. ELECTROBLITZ**

**Faculty coordinator:** Prof. K. S. Siddappaji

**Student coordinators:** Nikitha Nimbalkar, Nisarga M V

**Jury:** Mr Prakash shastry CEO and founder of Anthea consultancy

**Sponsored by:** Anthea consultancy (prize money 3k and 1.5k respectively)

**Number of teams registered -25**

Event Electroblitz had 3 rounds :

### **Round 1: WORDS WORTH**

This round mainly had two parts **scramble letters** and **word search**. Though IoT words were new to 1<sup>st</sup> years they learnt through ordering it and searching over grid. This round tested speed of the participants. The time limit given for this round was 5 minutes for scrambled letters and 10 minutes for two word search grid .This round turned more interesting as competition between the teams increased. Among 25 teams, 10 team qualified to next round.

### **Round 2: KNOW THE UNKNOWN**

Round 2 mainly tested the aptitude of the participants.

This round contained logical coding n decoding. The participants had to decode an encrypted code to obtain block names. The obtained block names must be arranged in order to get complete system block diagram. In this round 4 out of 10 teams were qualified to the third round .

### **Round 3: TAG YOUR PARTNER**

Round 3 tested participants knowledge about electronic circuits.

This round is basically played as a relay. Each person is given a specific task which he/she should complete tag the next person. First person named the blocks of circuit looking at input and output waveforms. Second person designed the circuit diagram for each block with the provided blocks name. Third person rigged up the circuit designed by his/her partner to get output.

## **2: SHORT MOVIE MAKING**

**Faculty Coordinator:** Prof. Harshitha B.

**Student Coordinators:** Kushal N .Faraz Khan .

**Sponsored by :** MYTHRI MOVIE MAKERS.

**Jury Internal:** Prof. Kiran Bailey, Prof. Shaila V Hegde.

**Jury External:** Kousik Ramasubramaniam S. - Cisco Video Technologies.

**Sponsorship amount:** 5000/-

**Registration Fee:** Rs. 150( max Teams of 6)

**Prize Money:** 1<sup>st</sup> – Rs. 3000 | 2<sup>nd</sup> – Rs. 2000

**No. of teams Participated:** 11

**No. of teams Participated from other college:** 3

**No. of teams Participated from BMS:** 8

**Description:** Like to make a difference in society? Capture the importance of technology in a short video and make it happen!

### **Round 1: Remakedaaa!**

In this round, all participating team will be given a reference video, of which they need to remake it. Remake should be based on the theme IoT. All videos will be screened on day 1 and 5 teams will be selected for 2<sup>nd</sup> round.

### **Round 2: Off the Spectrum**

After round 1, selected teams will have to shoot another video inside the campus itself. One of their choice can be selected and the video needs to be prepared on the theme IoT. They can edit the video overnight and submit it for screening on next day.

**Event objectives :**

- Gaining basic Information about IoT.
- Opportunity to enhance team work and interpersonal skills.
- Test their creativity, time management.
- Test their movie making skills.

**Summary:**

The event was well received from students of all branches. The event went on smoothly both the days. The Jury members both internal and external enjoyed vivid videos presented by all the participants.

**Summary of Feedback received:**

- Creative and Fun event to learn new things.
- Good exposure for peers who are new to movie making.
- Good theme adopted.

**3. ESCAPE IF YOU CAN**

**Faculty coordinator:** Prof. H R Archana

**Student coordinators:** Anjana Niranjana, Ramya M A

**Jury:** Prof. Suma H N (Carmel college), Prof. Geetishree Mishra, Prof. Jayagowri

**Sponsored by :** Robert Bosch Engineering India (25,000)

**Registration fee:** 150 per team of 3

**Number of registrations:** 45

**Number of teams from BMS:** 20

**Number of teams from other colleges:** 25

**Prize money:** 3000(winners), 1500(runners)

**Logistics expenditure:** 600

**Event objectives:** time management, team work, application of their IoT knowledge and testing their basic electronics skills.

**Round 1 – The road not taken**

In this round, teams were given 3 mazes and 2 crosswords each. The objective of the mazes was to find the routes to collect components which gave them maximum scores. Based on scores of the three mazes and number of words they got right in the crosswords, 18 teams progressed to round 2.

**Round 2 – Do you have it all?**

The objective of this round was to come up with meaningful block diagrams for IoT applications. Descriptions for applications were given, from which teams identified their

particular application and came up with block diagrams. Progression to the next round was based on the decision of the jury. 6 teams progressed to round 3.

### **Round 3 – Prison break**

In this round, teams were locked in a room filled with clues. Each clue had two parts to it, a question on IoT and a problem on basic electronics. Based on time taken and correct answers to all answers, two teams were declared as winners and runners.

**Feedback received:** It was taken well by most teams, and said would love to come back next year!

## **4. MEGAMIND:**

**Faculty coordinator:** Prof. S Akhila

**Student coordinator:** Srinivas S, Supradeep N S

**Jury:** Mr. Shashidhar, Prof. R.C. Radha, Prof Veena M.B

**Sponsor:** PRLightCOM Broadband Solutions Pvt Ltd

**Registration Fee:** ₹150 (per team of 3)

**Total number of registrations:** 27

**Number of teams from other colleges:** 3

**Prize money:** Winner - ₹3000 Runner-up - ₹1500

**Sponsored Amount:** ₹4500

**Logistics expenditure:** ₹1000

### **Round1: Roll And Don't Stroll:**

Questions of varying difficulty levels were distributed into different sets. The teams rolled a die and the number decided their question set. The teams were given a maximum of 20 minutes to answer the set. 25 teams took part in this round, of which the top 10 teams qualified to the next round.

### **Round 2: Ready Set Glow:**

Each team was be given a set of 10 questions each of which had four options. Each question involved a circuit, corresponding to a question, in which a block that completes the circuit was missing. The task was to choose the correct option which would answer the question and complete the circuit. 10 teams took part in this round, of which the top 4 teams qualified to the next round.

### **Round 3: Rectifier:**

Each team was given pre-constructed circuits(Analog and Digital) which contained unwanted and redundant components. The teams had to trace the circuit, identify the functioning of the circuit, and then optimize it(if applicable) by identifying and removing dispensable components without affecting the circuit's functioning. 24 teams took part in this round, of which the top 2 teams were declared as the Winner and Runner-up respectively..

### **Summary of Feedback:**

The feedback from the participants was that they enjoyed the event. Some participants felt that the questions in Round 1 could have been less complicated. Round 2 was welcomed by the participants with great enthusiasm. Judges gave positive feedback on the way the event was organized. They appreciated that innovative ideas were used in the conduction of the event and also that the event tested the technical skills of the participants. Overall, the feedback was positive.

## **5. FURY ROAD V2.0**

**Faculty Coordinator:** Prof. K Sujatha

**Student Coordinators:** Heethesh Vhavle, Suhas G

**Jury:** Prof. Nagabhushana B S, Prof. Ashwini V, Balachander H (Core El)

**Sponsor:** Silverline Electronics - Prize money Rs. 6000

**Registration Fee:** Rs. 150 (per team of 3-4)

**Total No. of registrations:** 30

**Teams participated:** 24

**Total participants attended:** 90

**Different college teams:** 17

**Prize Money:** 1<sup>st</sup> Place - Rs. 4000, 2<sup>nd</sup> Place – Rs. 2000

**Logistics Expenditure:** Rs. 2000 (for building arenas)

### **Event Objectives:**

The aim of the event was to encourage designing and building a single remote controlled car that could compete in various challenges. Thus improving their technical knowledge about microcontrollers as well as motion mechanics.

### **Description:**

The event, featured teams who brought self-built remote controlled cars, which were tested in various scenarios, namely, Maze, Football and Obstacle course. The design specifications of the car were described beforehand along with rules to be followed during the rounds of the event. The event consisted of 3 rounds.

### **Round 1: Temple Run**

Teams were required to traverse a given maze and collect maximum number of coins within a given time period, without being caught by our chaser bot. The scoring for this round was based on both time taken and the number of coins collected. Top 14 teams were selected for the second round.

### **Round 2: Football Knockouts**

Teams were made to score goals in a one on one match of football. The arena specifications were told beforehand so that participants could accordingly modify their bot for football. Top 6 teams from a series of matches were sent to the final round.

### **Round 3: Death Race**

This round was an obstacle course with obstacles such as ramps, stones, sharp turns and tunnels. The top 6 qualifying teams were made to race in the obstacle course 2 at a time in 3 semi-final matches. Then 3 qualifying teams were made to race in the same track and the team finishing first was declared the winner of the competition.

**Summary:**

The event was well received from students of all branches and different colleges. Registrations had to be closed because of time restrictions. The overall feedback was positive and most are willing to participate in the next edition of the event.

**6. NLINE QUESTIONNAIRE:**

**Faculty coordinators:** Prof. Prerana Gupta Poddar

**Student coordinators:** Vijaya Lakshmi C, Rishab M

**Registration fee:**50 (individual)

**Total No of Registrations:**77

**No of registrations from other college:**7

**Prize Money:** Winner 1k and Runner up 500

Winner: varsha S Runner up: Deeksha S

**Description:**

Online Questionnaire was the only online quiz event. The event consisted of questions under the following domains .

- 1) Digital Signal Processing & Microcontrollers
- 2) RF / Microwaves / Antennas / Waveguides
- 3) Analog, Digital and Computer Communication
- 4) Analog and Digital electronics / Digital IC?s

All the questions were of MCQ type. The duration allotted was 90 minutes for 65 questions. The event was hosted online on a portal which was made available to the participants by mail. The portal was opened at 7pm and closed at 11pm.

**Summary of the feedback received:** Overall, the event ran smoothly with 2 clear winners emerging without a tie. There were a few minor issues with participants logging in to the online portal, but these were quickly sorted out.

**7. WIRELESS SENSOR NETWORKS WORKSHOP**

**Faculty coordinator:** Prof. Lakshmi K P (Dept. of ECE)

**Student coordinators:** Bharath R, Akshay U Hegde

**Sponsored by:** NIHON COMMUNICATIONS

**Date:** 24/09/2016

**Time:** 9:00 am

**Venue:** Digital Signal Processing lab, 2<sup>nd</sup> floor, Dept. of ECE

**Registration fee:** Rs.200 (for a team of 3)

**Number of Participants Registered:** 45

## **Objectives of workshop:**

- Introduction to IoT and its applications
- Introduction to the latest products of Robert Bosch
- Interfacing the sensors to a control unit
- Communication of real time data from sensors to control unit
- VM ware applications
- Introduction to Blue mix cloud platform
- IoT application demo
- Tools required for WSN deployment
- Introduction to Cloud storage and analytics

## **Outcomes OF Workshop:**

- Exposure to emerging VLSI and FPGA technology by Core-El Technologies.
- Informed about new generation Network Security devices and implementations in IoT
- Dissipated several project ideas, combining social issues and IoT solutions.
- Video Demonstrations of foray into IoT devices by Bosch Technologies.
- Introduction to working with Conticki Ubuntu, navigating the Linux terminal and basic command operations.
- Hands-on experience with the Zolertia IoT device, including loading programs onto the device, inter-device communication, cloud syncing of temperature and accelerometer data.
- Assimilated concepts of Virtual Machine and cloud computing on the IBM Bluemix Platform.
- Worked with uploading sensor data from generated mobile ID onto the cloud and manipulating the data to send back feedback, using IBM software packages.
- Distributed a starter kit for further research into IoT and Wireless Sensor Networks.

## **Speaker details:**

### **1. Mr. Balachander H**

**Bio:** Application manager in Core El technologies, 20 years of experience in the field of VLSI

**Topic of discussion:** current developments and importance of Xilinx, Exposure to emerging VLSI and FPGA technology.

### **2. Mr. Avinash Kalmani**

**Bio:** 18 years of experience in Software development, 5 years of experience in embedded security software, currently developing security product for IoT in Infineon technologies

**Topic of discussion:**

Introduction to IoT and the security issues faced by IoT, Informed about new generation Network Security devices and implementations in IoT

### **3. Mr. Bhargava Raman S**



**Bio:** master of technology, BITS – Pilani, Rajasthan, 6+ years of experience, currently working as application engineer in Nihon communications

**Topic of discussion:**

Dissipated several project ideas, combining social issues and IoT solutions.

4. **Mr. Arun K**

**Bio:** Application engineer at Nihon Communications with 1+ years of experience.

**Topic of discussion:** Introduction to working with Conticki Ubuntu, navigating the Linux terminal and basic command operations, Hands-on experience with the Zolertia IoT device, including loading programs onto the device, inter-device communication, cloud syncing of temperature and accelerometer data.

5. **Mr. Praveen V**

**Bio:** 4+ years of experience in Pre-Sales, Project Management (Planning & Implementation), Customer Relationship Management, Product Demos, POCs and Implementation, Solution Architect.

**Topic of discussion:** Assimilated concepts of Virtual Machine and cloud computing on the IBM Bluemix Platform.

Worked with uploading sensor data from generated mobile ID onto the cloud and manipulating the data to send back feedback, using IBM software packages.

**REPORT ON STALLS :**

**Faculty coordinators:** Surandra H H

**Student coordinators:** MEGHANA K N, REKHA G, SHRUTIKA SAWANT

Department of Electronics and communication was given stall numbers 10 and 11. Also Stalls sponsored by CorEl Technologies and Byju's through ECE department were given stall number 9 and 12 respectively. The stalls were inaugurated on 23-09-2016 at around 10.30AM. The stall showcased few projects carried out by students and staff of our department such as 3D printer, 3D printer extruder for plastic recycling, Data acquisition for multiple sensors and imaging robot. Student coordinator Yashunandan Sureka demonstrated the projects to the participants during the visit. The demonstration was well appreciated by the visitors.

## WORKSHOP PHOTOGRAPHS:



