**ACTIVITY: WORKSHOP 1.2**

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| **Department Name:** | **MECHATRONICS ENGINEERING** | **HOD NAME :** | **Dr. Harjot Singh Gill** |
| **Name of Event:** | **3 Days' Workshop on IoT and Robotics under Texas Instruments University Program** | | |
| **Date of Event:** | **25-2-2020 to 27-2-2020** | | |
| **Place of Event:** | **Robotics and Automation LAB, Block-3A, 305** | | |
| **No. of Participants:** | **Boys : 70 Girls : 3 Faculty : 2** | | |
| **Coordinator Name :** | **Dr. Gurmeet Singh** | | |
| **Email of Coordinator :** | [**gurmeet.mech@cumail.in**](mailto:gurmeet.mech@cumail.in) | | |

**REPORT**

A three days' workshop series 1.1 on **“IoT and Robotics”** was organized under **Texas Instruments University Program** for Mechatronics Engineering 2nd and 3rd year students from 25-2-2020 to 27-2-2020 in TEXAS Instrumentations & Innovation Lab, Block-3A, 307. This workshop gave students' knowledge about following:

**DAY1**

Students learnt about:

1. Basics of ARM architecture of TI-Microcontroller Boards like CC3200 and TIVA Boards
2. Basic knowledge of required hardware connections i.e. jumpers on CC3200 board and about selection procedure of various booster packs for different development boards of TI
3. Basics of programming on Energia IDE Software.
4. Hands’on experience of interfacing
5. Onboard LED with CC3200 dev. board and carried out LED Blinking program
6. Potentiometer with CC3200 board for controlling intensity of LED

**DAY 2**

Students learnt about:

1. Basics of IoT its architecture and applications
2. Basic knowledge about IP addresses their classes and IFTTT Protocol.
3. Use of Blynk App for controlling electronic appliances from anywhere in the world using IoT alongwith the calling procedure of API (Application Programming Interfaces) in the code.
4. Understanding the process of downloading and installing Libraries for Blynk App and the entire communication flow of data transfer using WiFi.
5. Hands’on experience of:
6. Designing a simple GUI consisting of simple ON-OFF buttons on Blynk App
7. Controlling LED on CC3200 dev. board using IoT (Blynk App)

**DAY 3**

1. Basics of all Texas development boards (CC3220, MSP432P, TIVA LaunchPad), their interfacing with various booster packs (Wifi and Bluetooth).
2. Detailed process of unlocking CC3200 boards from beta mode to developers mode online before burning the code into emulator and hence the controllers on-board.
3. Basic knowledge about Robotics, use and interfacing process of related components and instruments like Senz Band with Mind Sync and Memory App.
4. Hands’on experience of:
5. Assembling Robotics Kit for simple robot movement control
6. Compiling and executing simple programs for speed control of dc motors for robotic buggy control.
7. Student groups were formed and they were asked to write a simple line following code for robotics buggy control.

Lastly queries were resolved and student's feedback was recorded.

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| **IMG-20200305-WA0011**  **Expert discussing regarding Basics of IP Addresses their classes and IFTTT Protocol**  **IMG-20200305-WA0009**  **Hands on experience with Arduino Uno Programming**  **Expert explaining about the architecture of CC3200 and TIVA Microcontroller Boards of Texas Instriuments**  **IMG-20200305-WA0023**  **Expert Discussing the Coding basics required to programm Energia IDE for IoT based LED appliance control** |