



**MADRAS INSTITUTE OF TECHNOLOGY**



**COMPUTER SOCIETY OF MIT**

**CARTE BLANCHE'17**

**IOT- HOME AUTOMATION + CLOUD BOTIX  
WORKSHOP**

**DATE: 17-02-17 & 18-02-17**

**TIME: 9:30am – 4:30 pm**

**COST-1200/PER HEAD**

**MAXIMUM – 5 Per Team**

- + Home automation using internet and Android App, control real time equipments like Laptop charger, Mobile charger using real socket through Relay and Spike guard or extension board.
- + Cloud Robotics, way to control the Robot from any part of the world through cloud.

**COURSE CONTENT:**

**Day 1:**

**Session 1- Introduction:**

- ❖ Introduction to basic of Embedded System
- ❖ Introduction & Explanation Internet of Things and Home Automation concept
- ❖ Explanation of AVR ATmega328 Microcontroller
- ❖ Explanation of Arduino Board & Programming
- ❖ Basic Arduino Based programs for interfacing I/O Devices
- ❖ Introduction to Input & Output Devices

**Session 2: Arduino Interfacing sensors**

- ❖ Introduction to different sensor like IR Proximity Sensor, Sound Sensor, Accelerometer, etc.
- ❖ Introduction to wifi module ESP8266
- ❖ AT commands and programming for ESP8266
- ❖ Controlling electronic devices using webpage
- ❖ Controlling electronic devices using Android app

## Day 2

### Session 1: Home Automation

- ❖ Introduction to android application development
- ❖ Basic structure of an android application and application development
- ❖ Using app inventor for development of android app
- ❖ Interfacing application with arduino
- ❖ Plug in designed spike guard and control the appliances though android app

### Session 2: Cloud Robotics:

- ❖ Making advanced system by using cloud for data transmission and reception
- ❖ Making cloud based robot
- ❖ Connect robot to remote cloud
- ❖ Connecting robot and app to common cloud using cloud networks and wifi
- ❖ Device controlling over cloud on android mobile app
- ❖ Monitoring sensor and different data on mobile phone

#### TAKE AWAY (KITS/STUDY MATERIALS):

Kit to each group of 4-5 students with individual Carte Blanche'17 & Robokart IIT Bombay certificate.

#### KIT CONTENT:

- ARDUINO circuit board—
  - Micro Controller - ATMEL ATmega 328
  - Operating Voltage - 5V
  - Input voltage - 6V-20V
  - Digital I/O pins - 14 out of which 6 provide PWM
  - Analog Input Pins - 6
  - DC Current per I/O pin - 40mA.
  - Flash Memory - 32KB
  - SRAM - 1KB
  - EEPROM - 512Bytes
  - Clock Speed 16 MHz
  - USB-UART converter Proper Indicator LED's
  - USB/ EXT input voltage 5V
  - output supply pins - 3 5V
  - output supply pins - 1 Breadboard Compatibility
- Motor Driver- 1

- DC Motor- 2
- LEDs- 4
- 9 v Battery-2
- A to B USB Cable-1
- ESP8266-1
- ESP8266 breakout board-1
- Battery Snapper(2pin\_Connector)-1
- Normal Battery Snapper(Without 2 pin Connector)-1
- Screw Driver-1
- Female to Female wires-10
- ACRYLIC Customized chassis- 1
- Screw Pouch- 1
- Plastic Spacers -2
- Castor wheel -1
- BP Motor L clamp-2
- 6 V Relay Cube -1

#### **REQUIREMENTS:**

- ❖ LAPTOP
- ❖ Android Smartphone
- ❖ Mobile Data 1GB(Provided only for limited students by CARTE BLANCHE team)

CARTE BLANCHE