Workshop on Arduino-Device Interfacing

Conducted on 22nd & 23rd February 2017

For II B. Tech ECE Students Under IETE Student Forum (ISF)

Embedded Systems have become an integral part of our daily lives with which we can perform our regular activities with utmost ease. For example, washing machines, air conditioners etc. A washing machine basically is integrated of a motor that rotates the drum, a flow sensor, a solenoid valve etc. An air conditioner consists of a temperature sensor, compressor motor, blower motor etc. The main motto of this workshop is to give a better understanding of the tech around us.

In this module, you'll be able to learn how to interface different sensors with arduino and process those signals to drive various display devices and motors.

Schedule

Day-1

Session-1

1. Introduction to Embedded Systems & its applications
2. Introduction to Micro-controllers
3. Differences between MicroProcessor & MicroController
4. Micro Controller Architecture
5. Arduino Development Board, its architecture & Pinouts
6. Introduction to open source platform (Arduino)
7. Installation Procedure for Arduino
8. Program Structure of Arduino

Session-2

1. Introduction to Interfacing concepts
2. Working principle of sensors, push buttons,IR module, motors, buzzer, display devices
3. Introduction to Fritzing software

Day-2

Session-1 (Hands-On)

1. Push button controlled LEDs
2. Person counter with IR sensors &-segments and Piezo buzzer
3. Obstacle detection ROBOT working principle using IR and DC motors
4. Facebook Like Circuit

Session-2

1. RADAR designing using ultrasonic and servo motor
2. Walking stick for blind, using ultrasonic sensor and piezo buzzer
3. Ultrasonic based object range estimation
4. Demo projects
   i) Obstacle avoidance robot
   ii) Sense and react bin

iii) Processing Arduino RADAR

5. Competition
6. Prize and merit certificate distribution for winners
7. Certificate distribution for participants

Hardware Kit**

Arduino Uno R3 Dev Board - 1

Push buttons - 4

IR Module - 1

Ultrasonic Sensor - 1

Monochrome LEDs - 4

7-segment LEDs - 2

16X2 LCD - 1

DC motor fitted with wheel - 1

Servo Motor - 1

Motor Driver IC (L293D) - 1

Piezo Buzzer - 1

Mini Bread Board - 1

Jumper Wires

****One kit will be provided for one team**

Additional kit will be provided on extra charge

**** Folder,Scribbling Pad,Pen will also be provided for individual student**

Size of the Team & Fee

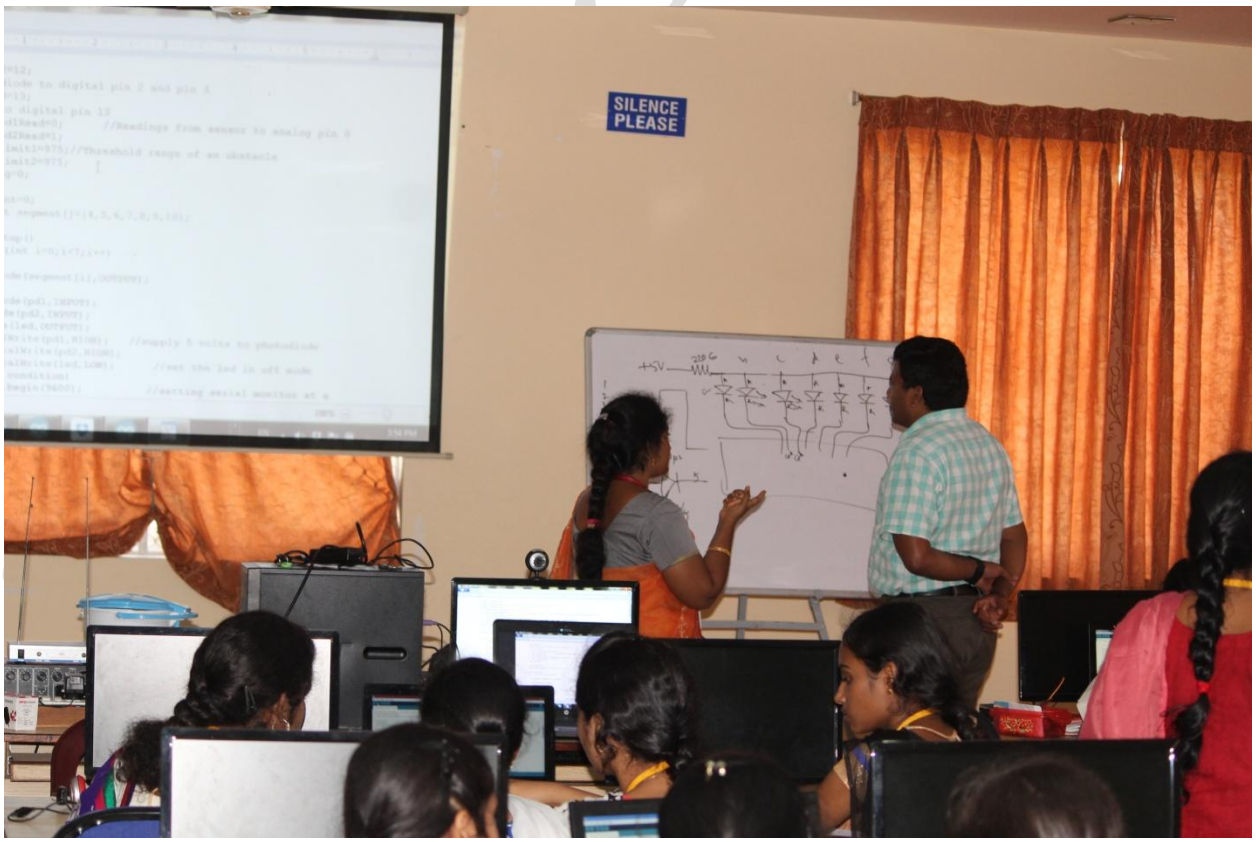
No. of Participants per team: 4
Fee per participant : Rs.700/-

(non-refundable)


TADEPALLIGUD
Interfacing
February 2017
SPACE CENTRE
forum (ISF)
Engineering


Controlling motors using analog
L293D
Two Day Hands-on Workshop on
Arduino - Device Interfacing
Org. by ISAAC ASIMOV SPACE CENTRE
under IETE Students forum (ISF)


College, TADEPALLIGUDEM
Interfacing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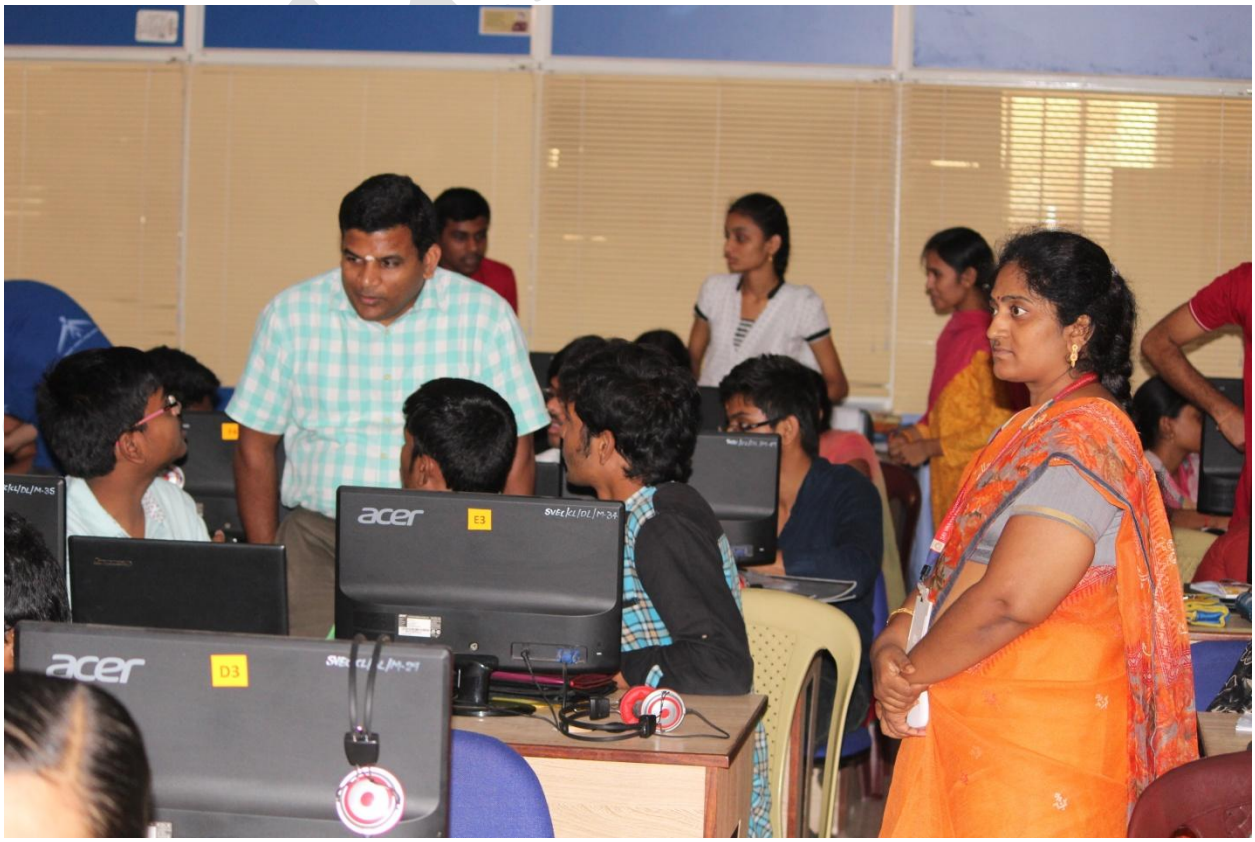
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