SYNERGY

An International Technical Symposium

In association with SENSE-VIT

23rd February 2018– 25th February 2018

VOICE CONTROLLED ROBOTICS WORKSHOP

DESCRIPTION

IETE-ISF, in association with roboVITics welcomes you to our Voice-Controlled Robotics workshop. Robotics is fundamentally a branch of technology that deals with the design, construction, operation, and application of robots. It is a powerful tool to understand the basic concepts of Computer Science, Mechanical engineering, and Electronics engineering. In this workshop a simplified version of C++ language for programming our Robot using the Arduino IDE.

This course is designed for students interested in controlling Robots with Bluetooth. No coding experience is required; all you need is an Arduino, Bluetooth, some low cost hardware and electronics component for building the Robot. The workshop will start from basics of Arduino programming and then move to higher topics. In this workshop spanning 2 days, participants will be brushed up with the basics of robotics and the Arduino software. They will be taught how to handle the L293D IC and constructing a robot using it.

Hardware kits will be provided.

COURSE STRUCTURE

Day 1

Session 1

- Introduction to Robotics
- Different types of Robot
- Applications of Robot
- Introduction to Arduino
- Introduction to Microcontroller
- Understanding the difference between Microcontroller and Microprocessor
- Installation of Arduino IDE
- Setting up Arduino IDE
- Introduction to different parts of Robots
- Interfacing DC Motors and Motor Driver on Robotic chassis
- Construction & Building of Robot

Session 2

- Understanding of Motor Driver
- Introduction to L293D Motor Driver IC
- Understanding the Motor Driver circuit.
- Interfacing Motor Driver with Arduino
- Blink the LED
- Wiring Connections between Arduino and Motor Driver
- Controlling DC Motors with an Arduino sketch
- Arduino Programs to move the Robot in Forward and Backward direction
- Understanding the concept of Axial and Radial turns in Robotics
- Program for taking axial turns
- Program for taking Radial turns PC Control Robot
- Intro to Serial Communication in Embedded System
- Intro to Serial Monitor inside Arduino IDE
- Reading and Writing data on Serial Monitor
- Sending data from PC or Laptop to control Arduino Robot

Day 2

Session 3 : Bluetooth Technology

• What is a Bluetooth?
• Understanding the different Bluetooth Protocols
• Understanding the working of different Bluetooth pins
• Connection of Bluetooth to Robot
• Smartphone Control LED
• Introduction to AppInventor2 Graphical Programming Platform
• Understanding the Basic user Interface components inside AI2
• Designing the ON / OFF UI Buttons for controlling LED attached to
  Arduino
• Developing a programming to Connect and Disconnect Smartphone's
  Bluetooth with HC – 05 Bluetooth
• Writing an Arduino script to take input from Smartphone Voice Recognition
  Android Application
• Students will develop a Voice recognition Android Application which will
  listen to their voice, convert it to Text and display it on Android smartphone.

Session 4 : Voice Control Robot

• Designing a Voice Recognition Button
• Using the Android Smartphone inbuilt voice recognition feature
• Recognizing a Human voice and sending suitable data to Robot
• Writing the Arduino programming to move the Robot Forward, Backward,
Left, Right and stop
• Writing the Arduino sketch to receive the Smartphone data and move the
  Robot.

DATE

23rd and 24th February 2018

CERTIFICATION

All the participants will be provided with the certificate from IETE-ISF as well as roboVITics.

RECOMMENDATION

It is strongly recommended to bring your own LAPTOP during the training on which you can install and run programs if you would like to do the optional, hands-on experiments/exercises after the trainings/ workshops.

REGISTRATION FEE

900 Rs – non-IETE members
700 Rs – IETE members

CONTACT FOR FURTHER DETAILS

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