

Androbot

Bluetooth is a widely used wireless technology, you may even find Bluetooth in a washing machine. Thus by interfacing Bluetooth with a microcontroller you can build small beautiful things like smart gadgets, home automation, industrial applications, and the list goes on.

Introduction to Robotics

Basics of Robot Electronics:

- Sensors
- Operational Amplifier
- Integrating Circuit
- Interfacing of Sensors
- Motors and Controlling Circuit
- Interfacing of Motors

Introduction to Microcontrollers

This session would deal with the basics of Microcontroller. The focus will be on the AVR series microcontroller- ATmega8, which is one of the most powerful and widely used 8 bit micro controller.

- What is Microcontroller?
- Difference between Microcontroller and Microprocessor.
- Microcontroller Architecture and Interfacing.
- How can we use Microcontroller in our Own Circuits?

Introduction to Programming Languages

- Programming Languages- Assembly vs Embedded C.
- Microcontroller Programming using 'Embedded C'.

Introduction to Wireless System

- What is Wireless System
- Working of Wireless System
- Different Wireless Modules
- Merits and Demerits of using Wireless Technology
- Introduction to Bluetooth Technology
- Working with Bluetooth Module (HC-05 / HC-06)
- Application of Bluetooth Technology in Robotics

Introduction to Serial Communication

- Difference between Serial and Parallel Communication
- Mode of Communication
- RS232 Standard
- Use of USART Protocol
- Interfacing of Bluetooth Module with Microcontroller

Discussion on Different Algorithms

- Line Following Robot Algorithms
- Edge Avoiding Robot Algorithm
- Obstacle Avoider Robot Algorithm
- Wall Following Robot Algorithm
- Bluetooth Controlled Robot Algorithm

Installation of Software and Debugging

- Writing your First 'Embedded C' Program in AVR Studio.
- Program Compilation and Debugging.
- Loading Compiled 'C' Program into Microcontroller.

Assembling of ANROBOT Kit

Assembling plays a major role that deals with the mechanical section of Robotics including mounting of components and mechanical stability.

Generating different LED Patterns**Development of Line Following Robot**

As the name suggests, Line Follower Robot is well programmed mobile machine that can follow a path visible like Black Line on White Surface or vice versa. A simple fuzzy logic will do the job of maneuvering the robot according to the Line Following Algorithm discussed in session 2.

Development of Bluetooth Controlled Robot using HC-05 / HC-06

Bluetooth Controlled Robot is a mobile machine that is controlled using the Bluetooth Technology of the Android Phone and the Bluetooth Module (HC-05 / HC-06).

Query Session

After completing workshop there will be a query session which will help students to clear all their doubts.

Competition

After the hand on theory and practical experience from the workshop, Competition will be conducted for the participants.

Certificate Distribution

Participants will get Participation Certificate and winners will get winning Certificates.