IoT Robotics Training Program

Overview

The IoT Robotics Training Program combines the power of Internet of Things (IoT) and robotics to help participants design intelligent, connected robotic systems. This course enables learners to build robots capable of sensing, communicating, and decision-making through internet-connected components.

Objectives

The program provides hands-on experience in developing smart robots using microcontrollers, sensors, actuators, and wireless technologies. It is ideal for students, hobbyists, engineers, and professionals interested in robotics, automation, and IoT innovations.

Key Modules

- Basics of robotics: mechanical design, sensors, and motor control
- Building mobile robots with DC motors, servo motors, IR/ultrasonic sensors
- Microcontroller programming using Arduino, ESP32, or Raspberry Pi
- Wireless communication: Wi-Fi, Bluetooth, MQTT
- Remote monitoring and control via mobile apps

Outcomes

1. Design autonomous and semi-autonomous robots
2. Enable remote control through IoT
3. Process sensor data using microcontrollers
4. Create real-time monitoring systems
5. Prepare for careers in robotics, automation, and IoT development

Curriculum:

1) Introduction to C
2) Introduction to Embedded system.
3) Embedded C.
4) Working on Different type of microcontrollers such as 8Mega8, Pic microcontrollers
5) Software and Hardware design.
6) Working on Arduino.
7) Introduction to ESP32,Esp82,RTOS and etc.
8) Robot Design & Hardware Components

- Basics of Robot Kinematics
- Motors, Drivers, and Power Supply
- Assembly of a Basic IoT-enabled Robot

9) Serial communication protocols (UART, SPI, I2C)
10) Wireless Communication Protocols such as Bluetooth,RFID,Wifi….

*Also include Introduction to Python when needed.