



IoT in Home Automation Training Program

Overview

The IoT in Home Automation Training Program is designed to teach participants how to develop smart, connected home systems using Internet of Things (IoT) technologies. This course integrates basic electronics, sensor interfacing, wireless communication, and cloud computing to build automated and remotely controlled home environments.

Objectives

The program aims to equip learners with the skills to design and implement smart devices that control lighting, temperature, appliances, and security via mobile apps or web dashboards. It is ideal for students, engineers, electronics enthusiasts, and professionals interested in smart home innovation.

Key Modules

- IoT fundamentals and architecture
- Microcontrollers: AVR, PIC, ESP8266, Arduino, and etc.
- Sensor integration: motion, light, temperature, gas
- Programming in C/C++ or Python
- Wireless protocols: Wi-Fi, Bluetooth, MQTT
- Cloud platforms: thingSpeak ,Blynk and Developing Dashboard using Grafana to Monitor Smart Home

Outcomes

1. Understand IoT and home automation systems
2. Integrate sensors and actuators
3. Enable cloud-based remote control
4. Build real-time dashboards and Alexa-enabled controls
5. Prepare for careers in IoT and smart home technology



Curriculum:

- 1) Introduction to IOT and Home Automation.
- 2) Introduction to Embedded system.
- 3) Embedded C.
- 4) Working on Different type of microcontrollers such as 8Mega8, Pic microcontrollers.
- 5) Interfacing of sensors and create Cloud platforms.
- 6) Software and Hardware design.
- 7) Working on Arduino and Raspberry Pi.
- 8) Introduction to ESP32, Esp82, RTOS and etc.
- 9) Smart Home Hardware & Circuit Design
- 10) Connect Sensor and Relay with openHAB iot and Voice chatbots
- 11) Developing Dashboard using Grafana to Monitor Smart Home and IOT Devices and integrated with Alexa and etc.....

Project Work :

*Also include Introduction to Python when needed.