AI-IoT Integrated Training Program

Overview

The AI-IoT Integrated Training Program is designed to equip participants with the knowledge and hands-on skills to develop intelligent, connected systems that integrate data sensing, AI-based processing, and autonomous decision-making. This combination is revolutionizing industries such as smart homes, healthcare, agriculture, manufacturing, and transportation.

Objectives

Participants learn how IoT devices gather real-world data and how AI models analyze it to enable smart automation, prediction, and control. The program is ideal for students, engineers, data enthusiasts, and professionals seeking expertise in cross-disciplinary technologies.

Key Modules

- IoT architecture, components, and applications
- Microcontrollers (ESP32, Raspberry Pi) and sensor interfacing
- Wireless protocols: Wi-Fi, MQTT, Bluetooth, HTTP
- Cloud platforms: ThingSpeak , Blynk
- Introduction to AI/ML: supervised & unsupervised learning
- Data preprocessing and analysis
- Edge AI: deploying models on microcontrollers

Outcomes

1. Combine AI and IoT for smart systems
2. Build and deploy ML models on IoT data
3. Interface sensors with cloud and AI platforms
4. Enable real-time intelligent automation
5. Prepare for roles in AI IoT development and smart tech innovation

Curriculum:

1) Introduction to C.
2) Introduction to Embedded system.
3) Embedded C.
4) Working on Different type of microcontroller such as 8Mega8, Pic microcontroller.
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)
Wireless Communication Protocols such as Bluetooth,RFID,Wifi….

10)AI & Machine Learning in IoT Robotics.

- Introduction to AI in Robotics
- Machine Learning for Sensor Data Processing
- Object Detection and Autonomous Navigation

*Also include Introduction to Python when needed.