IOT WORKSHOP

INTRODUCTION TO IOT:

The Internet of Things (IoT) is a technology that connects physical devices, sensors, and systems to the internet, enabling them to collect, exchange, and process data automatically. It turns everyday objects, like appliances and vehicles, into "smart" devices that communicate with each other. IoT is transforming industries such as healthcare, agriculture, and transportation by improving efficiency, automation, and decision-making. By connecting the digital and physical worlds, IoT offers innovative solutions to a wide range of real-world challenges.

ABSTRACT:

This IoT workshop offers a 120-minute immersive introduction to the fundamentals of the Internet of Things. Participants will explore popular IoT boards such as ESP32, Arduino, and Raspberry Pi, along with key concepts like sensors, actuators, and communication protocols (I2C, UART, SPI). The session includes hands-on projects: a Firebase-integrated Weather Station for real-time environmental monitoring and a Universal Knob Interface for controlling multiple devices. Designed to blend theory with practical application, this workshop equips attendees with the foundational skills to implement IoT solutions effectively.

DISCUSSION IN WORKSHOP

Title: IOT and Project Implementation

Duration: 120 Minutes

Software Required: Arduino IDE

TOPIC	DETAILS
1. Introduction to IoT	i. Overview ii. Fundamentals iii. Boards: ESP32, Arduino, Raspberry Pi, STM32
2. Sensors & Actuators	i. Types & Definitions ii. Mini Project Implementation
3. Communication Protocols	i. I2C ii. UART, iii. Wireless, iv. SPI
4. Project Explanation	i. Weather Station (Firebase Integration) ii. Universal Knob Interface

PREREQUISITES:

This workshop is open to all! A basic understanding of C/C++ programming and electronics is helpful, but not required.
Bring your laptops for an engaging hands-on experience!