



Introduction

Internet of Things workshop is specially designed for Students/Professionals from Electronics, Electrical, Computer Science and IT who have keen interest in learning Internet of Things, The workshop starts from basics of IoT, to working on hardware, interfacing various types of sensors, working with communication modules like Bluetooth and Wi-Fi, serial communication, connecting to IoT Cloud services like ThingSpeak, Twitter, IBM Watson IoT Platform etc.

TOPICS TO BE COVERED

Day 1: Session 1

Introduction to basic of Embedded System
Introduction & Explanation of Microcontrollers
Explanation of AVR ATmega328 Microcontroller
Explanation of Arduino Board & Programming
Project 1: "Simple Blink program Using Arduino on board Led
Project 2: Control DC Motor and Buzzer using Arduino

Day 1: Session 2

Project 3: Read sensor values and control multiple electronic devices
Collecting reading from LM35 temperature sensor
Vary potentiometer value and control DC Motors
Vary LDR sensor values and control Buzzer
Project 4: Controlling electronic devices using webpage
Connecting Arduino to Wifi module
Establish Local host connection between web page and WiFi module
Send data from HTML Webpage and control various electronic devices

Day 2: Session 3

Project 5: Upload sensor data on Cloud based Service
Establishing connection between WiFi module and Cloud Services
Connecting electronic devices to Internet
Plot and read sensor data anywhere in the World
Project 6: Control electronic devices using Android Smartphone
Connecting Android Smartphone to Internet
Sending data from Android Smartphone to Internet
Receiving data and controlling devices and sending acknowledgement
Designing Application for mobile

Day 2: Session 4

Project 7: Integration of Social Media
Connect Electronic devices to Internet and post updates on Twitter
Send sensor values to Twitter
Update cloud based services by sending tweets using twitter
Competition



Hardware Kit: To be taken in a group of 5 students.

Hardware Kit Non - Takeaway:

NodeMCU
USB Cable
DHT 11 Sensor/ Temperature sensor
Relay Module
LDR
LEDs
Breadboard
Ultrasonic Sensor
Bulb Holder
IR Sensor
Connecting wire
Potentiometer
Buzzer
Screw Driver

Essentials from student's side

A laptop which should have at least 1GB RAM with Windows OS. The USB ports of the laptop should be in working condition and each participant should have Smart phone (preferably Android) with Internet connection.

Benefits

- Participants will learn the basic concepts and features of the Internet of Things and will be able to build projects using the ESP8266 NodeMCU platform.
- Participants will discover fundamental concepts of cloud computing, sensor reading, connecting the ESP8266 to the Internet, wireless interfaces and controlling devices with Android phones.
- Participants will be able use the most popular open platforms for managing sensor data from the ESP8266, how to trigger actuators remotely, and how to read information on Android Smart Phones.
- Participation Certificate from Wissenaire, IIT Bhubaneswar and Organizing Partner.



IIT Bhubaneswar

The Annual Techno Management Fest

WISSENAIRE

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