



HEADSTAR TECHNOLOGIES

Internet of Things (IOT)

Ø **Introduction of Internet of Things and Understanding IoT Architecture**

Ø **Internet of thing history and future**

Ø **Why Internet of Things?**

Ø **Complete Hardware and Software infrastructure**

Ø **Activity - Group Discussion**

Ø **Introduction to IOT Kit**

Ø **Introduction to Arduino Software and Hardware.**

Ø **Understanding Sensors.**

Ø **Interfacing sensors with Arduino and applications in IOT.**

EMBEDDED SYSTEMS:-

- Introduction of Embedded System
- Evolution in Microcontroller technology
- Past, Present & Future of Embedded System

INTRODUCTION OF EMBEDDED C:-

- Introduction to Embedded C
- Different between C & Embedded C
- Data type of Embedded C
- Operators of Embedded C
- Statements & loops of Embedded C

PROGRAMMING EMBEDDED SYSTEMS IN C:-

- Introduction
- What is an embedded System?
- Which processor should you use?
- Which programming language should you use?
- Which operating system should you use?
- How do you develop embedded software?

INTRODUCTION TO MICROCONTROLLER ARCHITECTURE:-

Classification of Von-Neumann and Harvard Architecture

Difference between RISC and CISC

Memory Classification (Primary & Secondary)

ELECTRONICS IC's:-

Voltage regulator (7805)

LM358

555 Timer IC

HT 12 E

HT 12 D

Introduction to Sensing Devices:-

- IR sensor
- Circuitry and Functioning of IR Sensor
- Interfacing of IR Sensor with AT mega 8 Microcontroller
- Complete understanding of sensors
- Light, Temperature, Humidity, Sound, Hall Effect, Relays
- Interfacing sensors with Arduino and applications in IOT

Communication system and Cloud:-

- **Bluetooth Hardware Interfacing or Wifi Module interfacing with Arduino.**
- Store data and sending data on IoT Cloud Platform.
- Cloud interfacing with Arduino.
- 4-5 Minor projects applications in IOT.

Projects will cover:-

- LED Blinking
- Running LEDs
- De-bouncing
- Making Rain Drop Pattern
- Making counter using IR sensor
- Understanding I/P& O/P using IR Sensors.
- led or motor control using Ir sensor
- Reading ADC value from microcontroller
- Reading the value of temperature sensor from ADC.
- Controlling electronics devices using internet
- Interfacing of wifi module to send wireless data
- Store Data on cloud.
- Sharing sensor data on internet