INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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IOT Course

Introduction- Concepts And Technologies Behind Internet Of Things (IoT)

- Concepts & Definitions
- Myth with IoT
- Business with IoT
- Carrier in IoT
- IoT Applications
- IoT system overview
- Node, Gateway, Clouds
- Why IoT is essential
- Machine learning
- Artificial Intelligence

IoT Architecture

- IoT Network Architecture
- IoT Device Architecture
- IoT Device Architecture
- Publish-Subscribe architecture

IoT Device Design

- Sensors – Classification & selection criteria based on the nature, frequency and amplitude of the signal
- Embedded Development Boards – Arduino, Raspberry Pi, Intel Galileo, ESP8266

IoT Communication Protocols

- Wired Communication Protocols
- Wireless Communication Protocols
- Application Protocols – MQTT, CoAP, HTTP, AMQP
- Transport layer protocols – TCP vs UDP
- IP- IPv4 vs IPv6

Cloud

- Concept & Architecture of Cloud
- Public cloud vs Private cloud
- Different Services in cloud (IAAS / PAAS / SAAS)
- Importance of Cloud Computing in IoT
- Leveraging different Cloud platforms.

Designing The IoT Product

- Interfacing peripherals & Programming GPIOs – Input/output peripherals, Sensor modules
- Design Considerations – Cost, Performance & Power Consumption tradeoffs

Programming

- Embedded C
- Python

- Arduino

Hands-On Using Raspberry Pi Board

- Setting up board
- Booting up Raspberry Pi
- Running python on Raspberry Pi, GPIO programming
- Interfacing sensors and LED (Input and output devices)
- Making a few projects
- Sending data to cloud 2 using Raspberry Pi board
- Sending data to cloud 3 using Raspberry Pi board
- Making raspberry Pi web server
- Making raspberry PI TCP client and server
- Making raspberry Pi UDP client and server

Use Cases

- A cloud-based temperature monitoring system using Arduino and Node MCU
- Esp8266 WIFI controlled Home automation
- Obstacle detection using IR sensor and Arduino
- Remote controlling with Node MCU
- Temperature monitoring using a Raspberry Pi as local server
- Raspberry Pi controlling Esp8266 using MQTT
- weather monitoring system using Raspberry Pi and Microsoft Azure cloud

Closer

- Existing Product in Market
- Barrier in IoT