BLUEMARK ACADEMY

IOT - Introduction to Internet of Things

Duration: 2 Days · **Training format:** Virtual Classroom / Online

Description

The Internet of Things (Internet of Things, IoT for short) is a communication network in which physical objects are connected with each other or with larger systems. It is envisaged that objects can be marked with a unique identifier so that they can work together over the Internet infrastructure, thus creating values greater than the sum of the small parts. In this training, we aim to communicate relatively small software and large software that can send and receive meaningful data to these devices when the internet begins to reach all devices, small and large. MQTT, HTTP, TCP, Serial etc. We will enter the Internet of Things with the problems that we may encounter in daily life on protocols

Delegates will learn

Knowledge of the Internet of Things

Gained knowledge of devices and some sensors

It is aimed to have learned how to move devices to the internet environment with different protocols.

Audience

Developers who are interested in new technologies, aiming to manage things themselves and collect real sensor data about the environment.

Outline

Introduction to the Internet of Things

IoT Technology Architecture

Overview of the Components That Make Up the Internet of Things

Examining the Relationships Between IoT and Similar Technologies

IoT Use Cases

Technical Challenges in IoT

Examining Technologies Used in IoT Application Development (Trend)

Hardware Preferences

Software Preferences (Programming Languages, IDE, etc.)

Messaging Protocols Preferences

Overview of the Components That Make Up the Internet of Things

Assistive Technologies (WiFi, Bluetooth, BLE, RFID, NFC, GSM, GPRS, 3G/4.5G, GPS, etc.)

Application Layer Messaging Protocols

Cloud Platforms

Basic Level Application Development

NodeMCU Board Introduction (Arduino Programming Overview)

Hardware Control with Wi-Fi (ESP8266) Module with Blynk Mobile IoT Cloud Platform

Mobile App and Firebase Cloud Platform Communication with MIT App Inventor 2

The Impact of Change on IoT's Business Models

Internet of Things Application Layer Messaging/Communication Protocols

The Trend in Messaging Protocols

Presentational State Transfer (REST)

Constrained Application Protocol (CoAP)

Message Queue Telemetry Transport (Messega Queue Telemetry Transport (MQTT)

Advanced Message Queuing Protocol (AMQP)

WebSocket

Comparison of IoT Application Layer Messaging Protocols

Application Examples Using IoT Application Layer Messaging Protocols

ThingSpeak IoT Cloud Platform Application with REST protocol

Adafruit IoT Cloud Platform Application with MQTT protocol

WebSocket Application

Internet of Things and Big Data

- Big Data Overview
- The Big Data and IoT Relationship
- IoT Big Data Sources
- Overview of IoT Big Data Technologies and Tools (Apache Kafka, Spark, Hadoop, NoSQL Database, etc.)
- Big Data Application Development with IoT Architectural Approach

Security in the Internet of Things

- The Importance and Challenges of Security in IoT Applications
- Threats to components in IoT applications
- Security Principles and Solutions

Prerequisites

Basic Electrical & Electronics and Programming Knowledge is expected.