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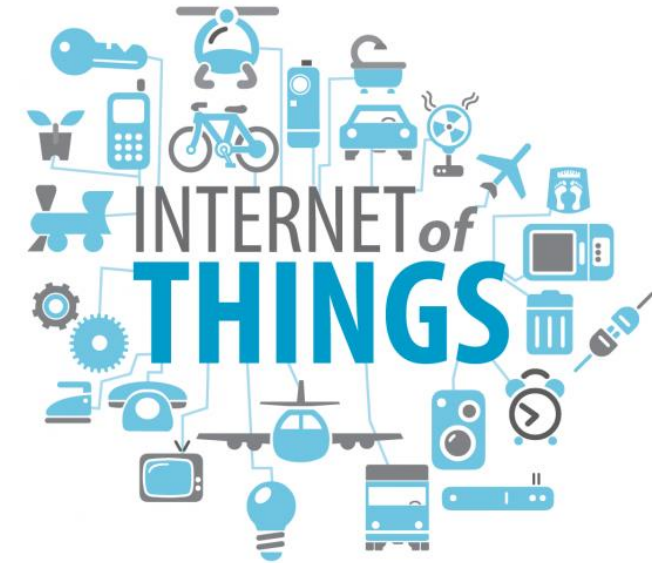
IoT



Internet of Things (Raspberry pi3)

Course Guide

The Internet of things (IoT) is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and network connectivity which enables these objects to connect and exchange data.



Introduction to the Internet of Things (IoT)

Installations

- Required micro-controller
- Install Raspberry pi firmware
- USB to Serial
- Download a driver software for your development board
- Install board packages and Drivers (Libraries)

Create and Test Run Your First Project

- Led on off
- Blink
- How does the program work?
- Explore the Raspberry pi 3 IDE

Basic Components and Digital Output

- General Purpose Input Output
- Basic tools and electronic components
- Digital Output -- "my Blink"
- Basic Sketch Programming
- GPIO configuration
- Working with breadboard and circuit configuration

Using Serial Monitor to Debug Your Sketch

- Debugging Your Sketch Using Serial Monitor
- View Graph/waveforms using Serial Plotter
- Send data using Serial monitor

Digital Input

- Digital Input
- Monitoring input from digital sensors
- Using built-in pull-up resistors

Analog Input Output

- Analog Input
- Adjustable Blink

Pulse-width Modulation (PWM) and Analog Output

- Pulse-width Modulation: PWM
- Generating an analog signal from pulse-width modulation
- Dimming an LED with PWM

Connect sensors to your IoT

- Temperature sensor: LM35
- Temperature & Humidity sensor: DHT series

Webserver Connection

- Configure Web Server on Raspberry pi 3
- Configure apache and MySQL

IoT Connectivity with live API's

- Message Queuing Telemetry Transport (MQTT)
- Play around with MQTT
- Publish and Subscribe using Mobile Devices
- Publish and Subscribe using Micro-controller (MCU)

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