

Introduction to IoT Serie of Workshops

Requirements

- Basic programming knowledge, preferably C or C++.
- Basic knowledge in electricity,
- Foundations in digital and analog electronics

Materials

- Personal computer
- Operating system: Any
- Internet connection
- Dev board: WeMos D1 Mini
- Mico-USB to USB-A cable
- Breadboard
- Jumper wires
- Sensors:
 - DS18B20 (temperature sensor)
 - Capacitive soil moisture sensor
 - VL53L0X (ToF)
- Actuator:
 - LED

Session Outline

Day 1: Introduction to IoT:

- Introduction to IoT
- Setup development environment
 - Install Arduino IDE
 - Install libraries
 - Drivers
- Hardware review
- Coding Warm-up
 - LED Blink

Day 2: Sensor and Communication:

- Just analog (Capacity sensor)
- PWM
- 1-Wire (temperature sensor)
- I2C (ToF sensor)

Day 3: IoT Communication:

- MQTT

Day 4: NIG stack:

- Setup docker
- Node-RED
- Influx
- Grafana

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