

# 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: Sensors 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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