

# Introduction to IoT

## Requirements:

- Basic programming knowledge, preferably C or C++.
- Basic knowledge in electricity

## Materials:

- Personal computer
- Operating system: Any
- Internet connection
- Dev board: Wemos D1 Mini
- Micro-USB to USB-A cable
- Breadboard
- Jumper wires
- Sensors:
  - sensor 1
  - sensor 2
  - sensor x
- Actuator:
  - actuator 1
  - actuator x

## 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
  - Sensor reading?

### Day 2: Sensor and Communication:

- Just analog (Capacity sensor)
- Onewire (temperature sensor)
- I2C (ToF sensor)

### Day 3: IoT Communication:

- MQTT

### Day 4: NIG stack:

- Setup docker

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- Node-RED
- Influx
- Grafana

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