Introduction to IoT

1. Whirlwind Tour Of IoT

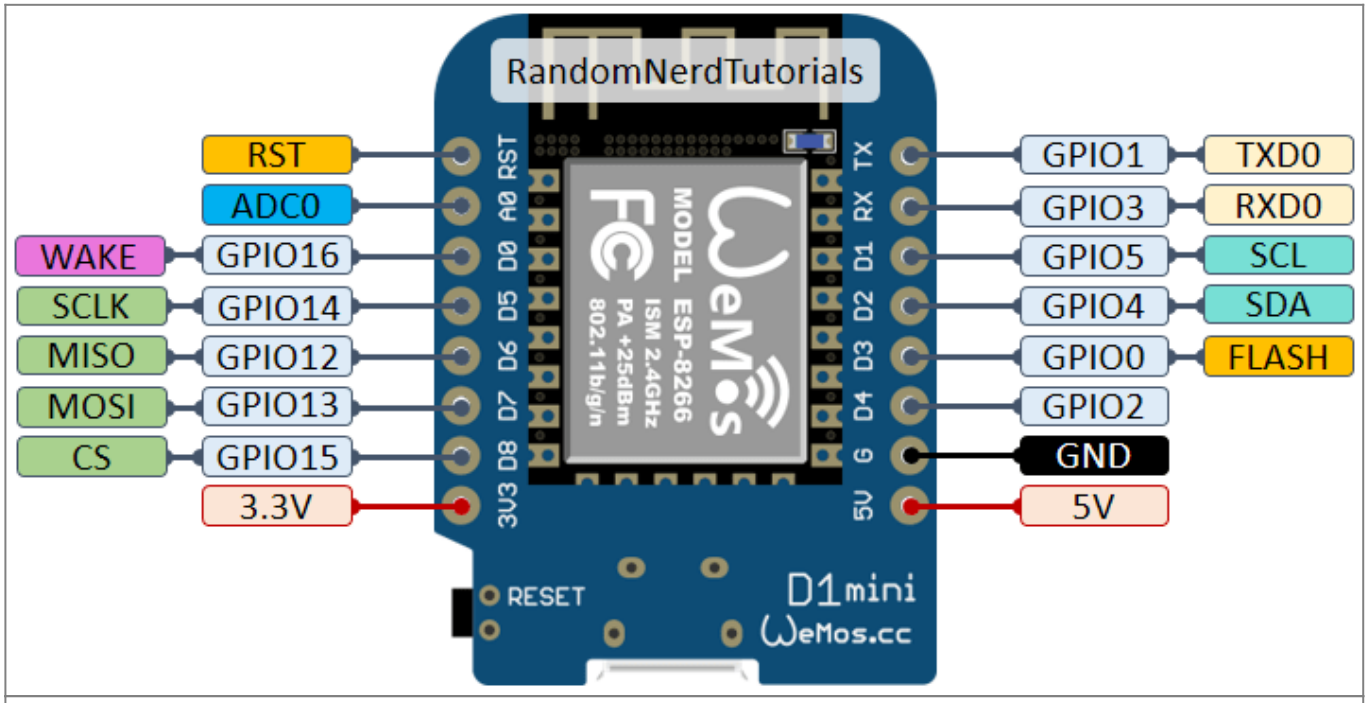
2. Setup Development Environment

1. Download and Install Arduino IDE from the Download Page of Arduino and follow the official Installation instructions.
2. Our board is the WEMOS D1 Mini and it is based on the **ESP8266** microcontroller from Espressif. Since the board is not produced by Arduino (company) it is not pre-installed in the Arduino IDE (software), however it is possible to install the add-on that allows us to program it using the entire Arduino ecosystem. To do so follow the instruction on the section "Install ESP8266 NodeMCU Add-on in Arduino IDE 2"
3. How to install CH340 driver - Driver Download Section

```
http://arduino.esp8266.com/stable/package_esp8266com_index.json,
https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json
```

3. Hardware Review

- Dev-Kit: WEMOS D1 Mini
- Microcontroller: ESP8266 12-E Chip. For more details of the microcontroller and board check the link ESP8266 hardware review



Source from Random Nerd Tutorials

4. Soldering

Here it gets practical! You need to solder the microcontroller and some of the sensors, which you will need in the next session.

Fig. 1: In Action at UNICAES

5. Coding Warm-up

Now let's check if your Microcontroller works. Also, you will learn how to upload your first sketch. Basic Blink example:

Blink.ino

```
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);  // turn the LED on (HIGH is the
voltage level)
  delay(1000);                      // wait for a second
  digitalWrite(LED_BUILTIN, LOW);   // turn the LED off by making the
voltage LOW
  delay(1000);                      // wait for a second
}
```