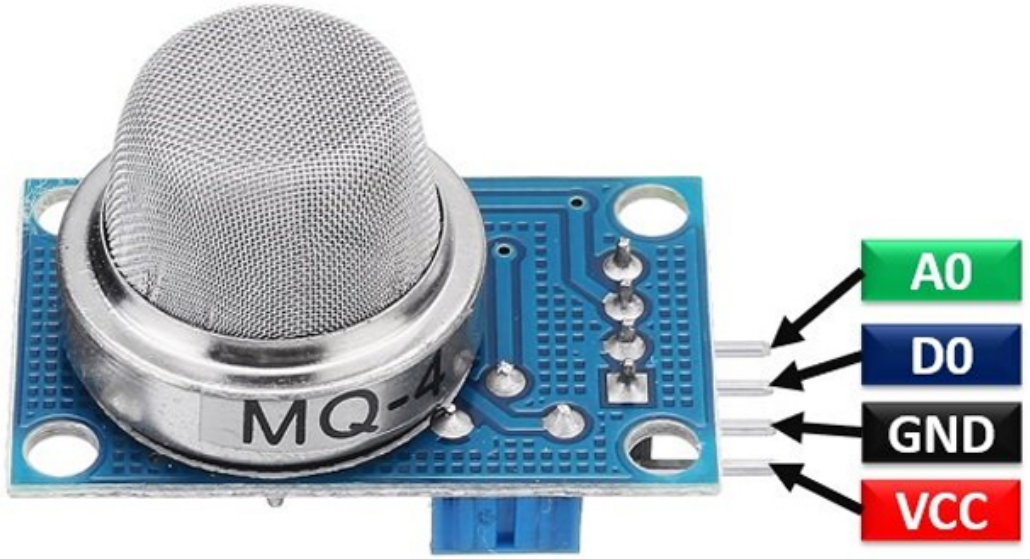
Total duration
20 mins

MQ-2 Gas Sensor

Interfacing MQ-2 Gas Sensor with ESP32 using Arduino IDE

Overview



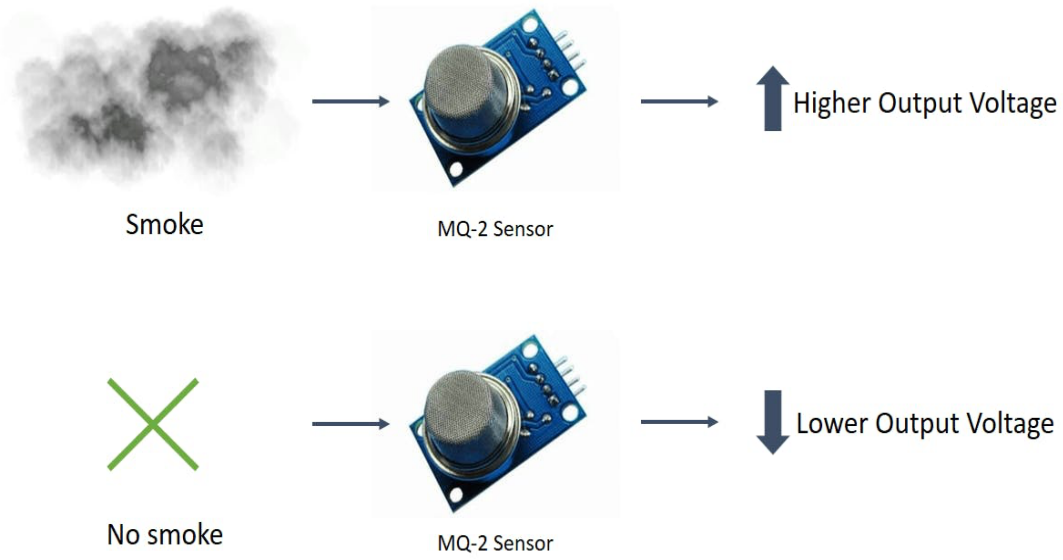
MQ-2 can detect flammable gas in a range of 300 - 10000ppm. It's most common use is domestic gas leakage alarms and detectors with a high sensitivity to propane and smoke.

What is PPM in a Gas Sensor?

Parts-per-million, or “ppm”, is commonly used as a fractional unit of measure for concentration. As an example, a methane (molecular) concentration of 2% means that 2 out of every 100 air molecules is methane. Similarly, a methane concentration of 2 ppm means that 2 out of every 1 million air molecules is methane.

What is the function of the gas Sensor?

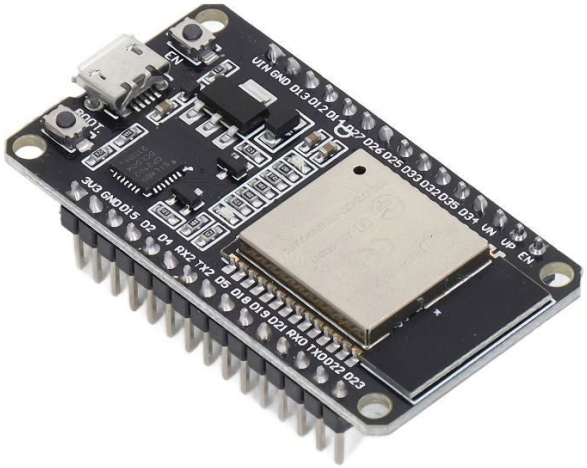
Gas sensors are devices that help us understand the amount of gas in the environment and the natural state of its movement. Gas sensors reveal the amount of gas in the environment and the nature of the gas composition with electrical signals and can provide its change



What are gases that MQ-2 can detect?

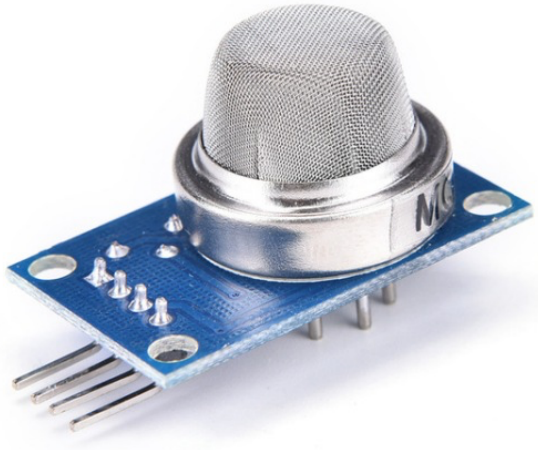
The MQ2 gas sensor can easily detect ***smoke***, ***liquefied natural gas*** (LNG), ***butane***, ***propane***, ***methane***, ***alcohol***, and ***hydrogen*** in the air.

Hardware Required



ESP32 - MCU

MQ-2 Gas Sensor



Micro USB Cable

Jumper wires

Connection Diagram of MQ-2 Gas Sensor with ESP32

1. Wiring without LED setup

ESP32 PIN	MQ-2 PIN
VCC	Vin
GPIO 4	Aout
GND	GND

Connection Chart 1

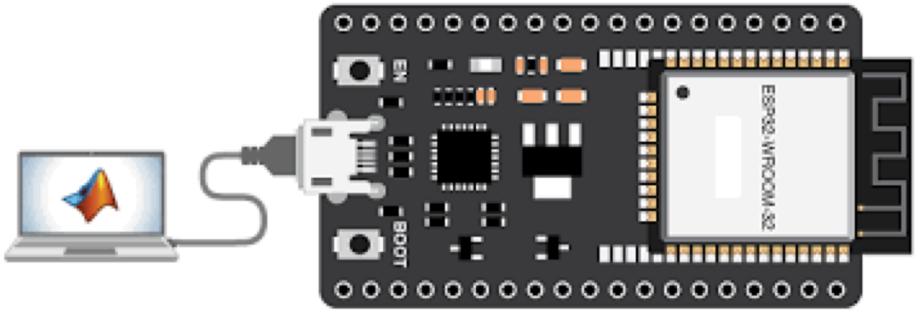
2. Wiring with LED setup

ESP32 PIN	MQ-2 PIN
GPIO 32	Vcc
GND	GND

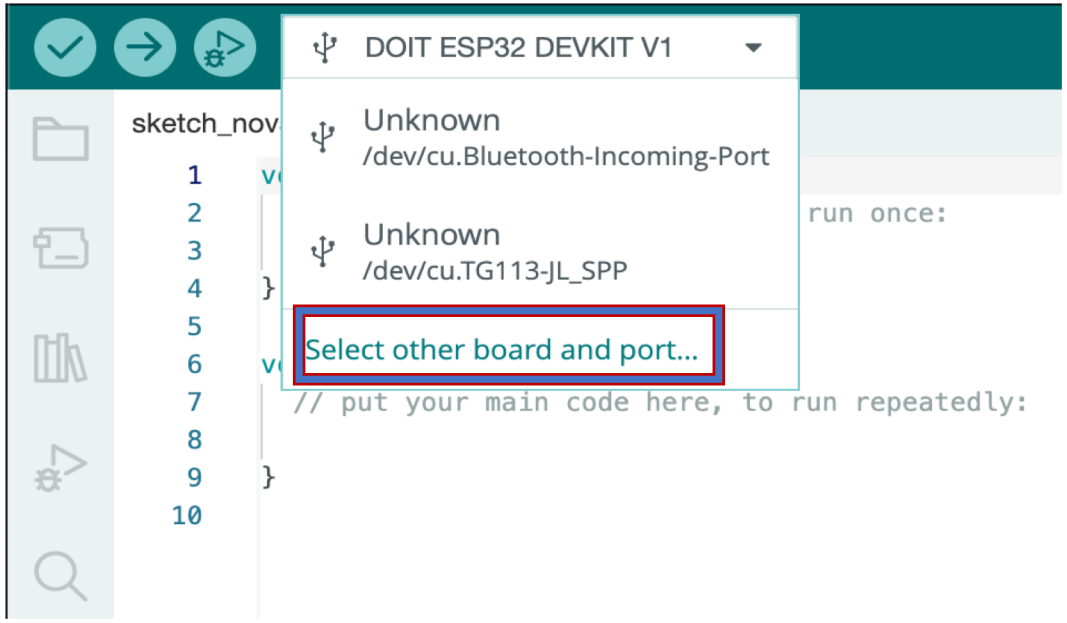
Connection Chart 2

Now, the follow the instructions to complete assignment

1 **Connect ESP32 board with MicroUSB cable**

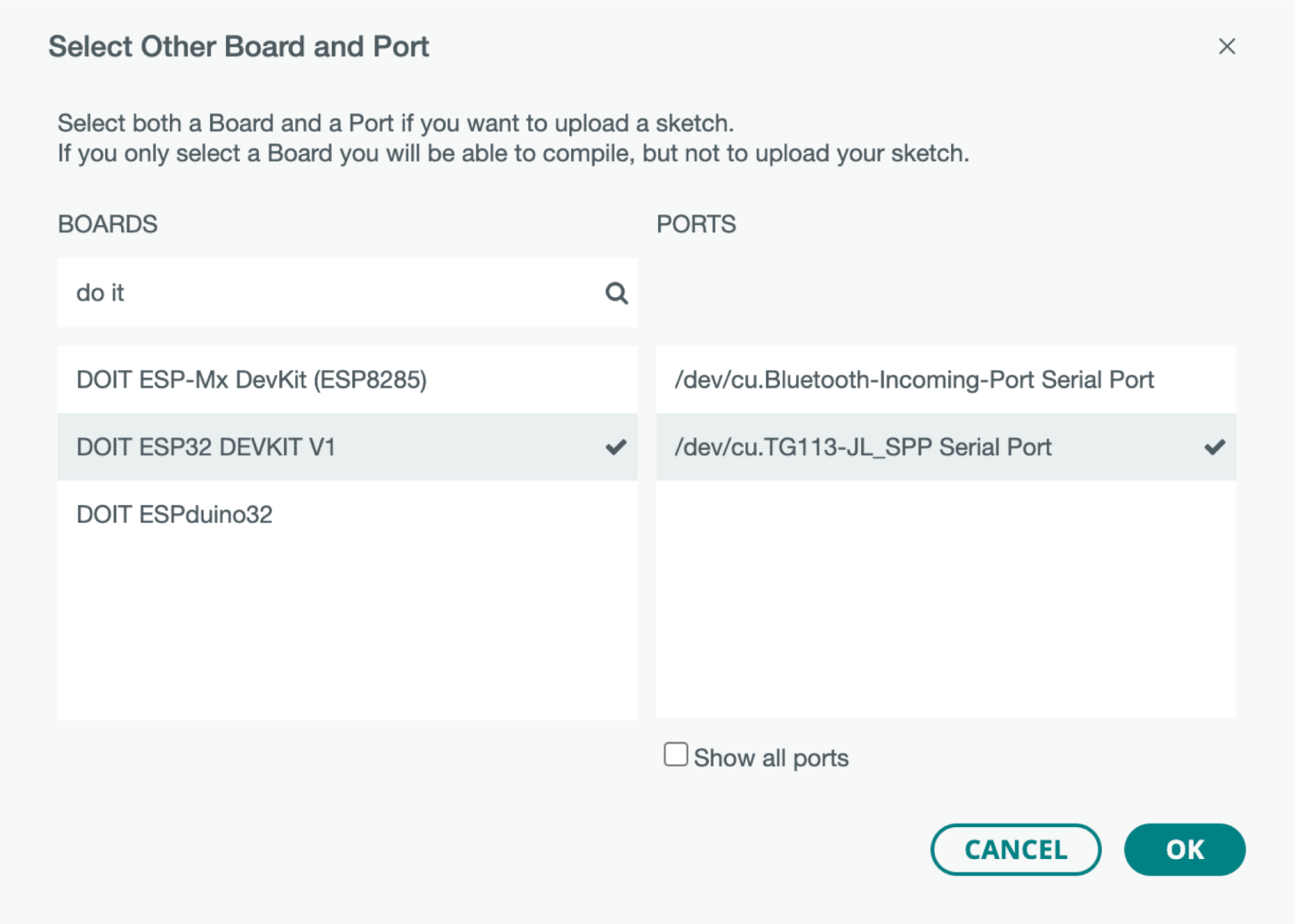


2 **Open Arduino IDE and click “Select other board and port”**



3

At the following screen type “UNO” under BOARDS and then select the USB port for communication



4. **Open Google Chrome browser type the following URL (Uniform Resource Locator) https://github.com/aetosgit/IOT at the address bar**

5. **Open "MQ2withESP32.ino" sketch among the list the codes available**

6. **Copy "MQ2withESP32.ino sketch from GitHub**

7. **Paste sketch on to the new Arduino IDE and click *File -> Save as…* name sketch as "MQ2GasTest" and click "Save"**

8. **Hold "Boot" button while Upload the sketch**

9. **After successful upload (without any errors) click "Serial Monitor"**

10. **Follow "testing tips" given below to understand functionality**

Testing tips:

- *By exposing MQ-2 with one of the listed gas*
- *MQ-2 values go high on a serial monitor*
- *If sensor reads more than 1800 ppm it alerts the user.*
- ***While testing make sure your trainer along with you for safety.***