

University of Jeddah

College of Computer Science and Engineering

Department of Software Engineering



CCSW-Internet of thing
Course Project “Smoke Detector”
Section:SC7
Prepared for : Dr.Qamar Naith

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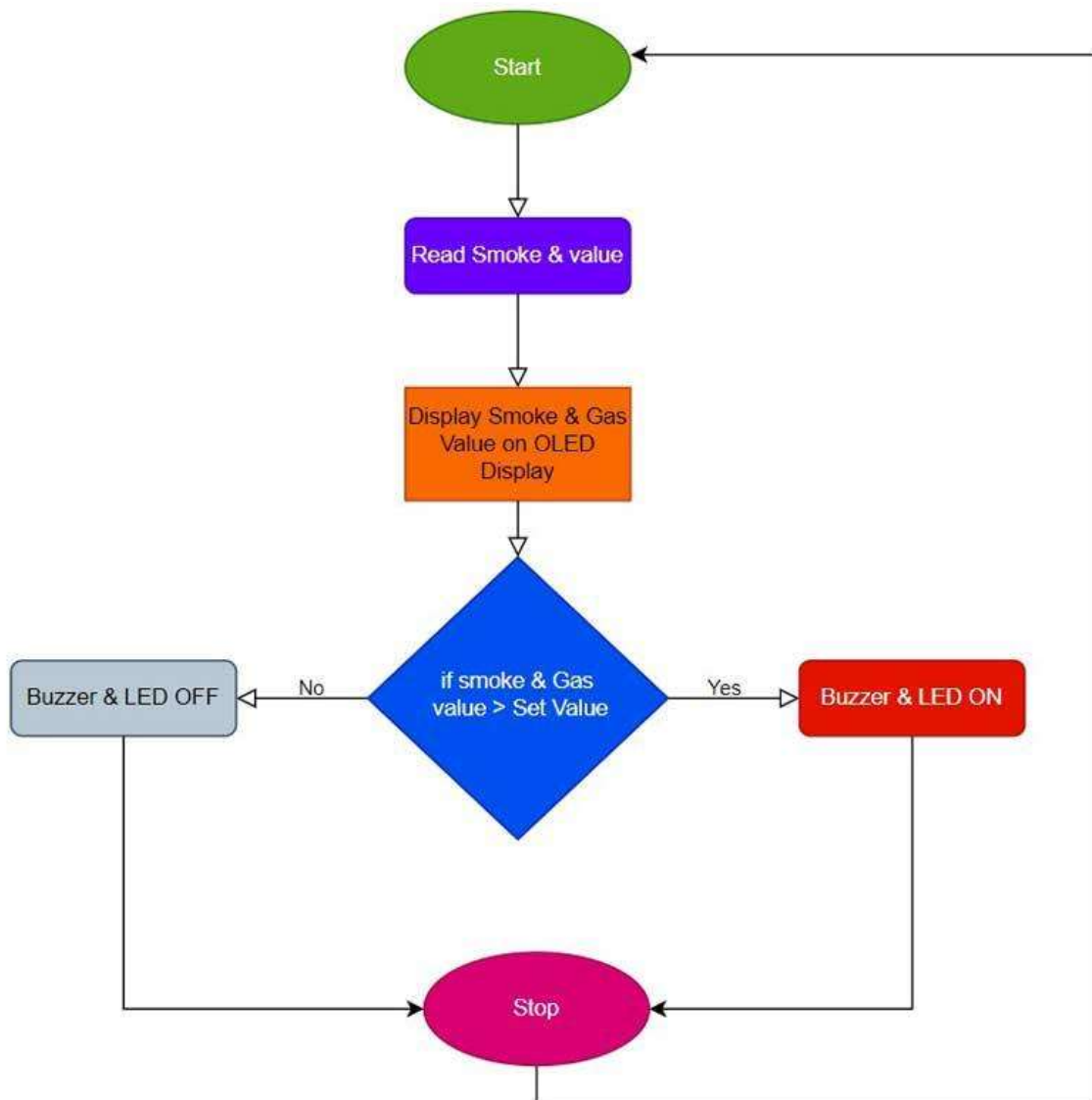
Idea of the project

IoT based smoke and gas detector using an MQ2 Sensor, ESP8266 microcontroller, and Blynk IoT Cloud. We have used the MQ2 Gas sensor module to detect Smoke, LPG, and carbon monoxide concentrations present in Air. MQ2 is a versatile sensor that can detect LPG, smoke, alcohol, propane, hydrogen, methane, carbon monoxide, etc. This makes the MQ2 Gas Sensor Module an excellent choice for building an indoor air quality monitoring system, a breathalyzer, or an early fire detection system.

This project has an OLED display to Display the Smoke, LPG, and Carbon Monoxide concentrations in PPM. The same data can be monitored on an Android app as well as Web Dashboard. We have two buttons that help to switch the monitoring screen between Smoke, LPG, and Carbon monoxide.

Overview :

The sensor detects smoke, LPG, and Carbon Monoxide values and sends them to ESP8266 Microcontroller. Then it processes these values and displays these values on the OLED display as well as on the Blynk IoT Platform. It also checks if these values are above the safe level then it sends a notification to the Mobile phone as well as buzzer starts alarming with a flashing LED.



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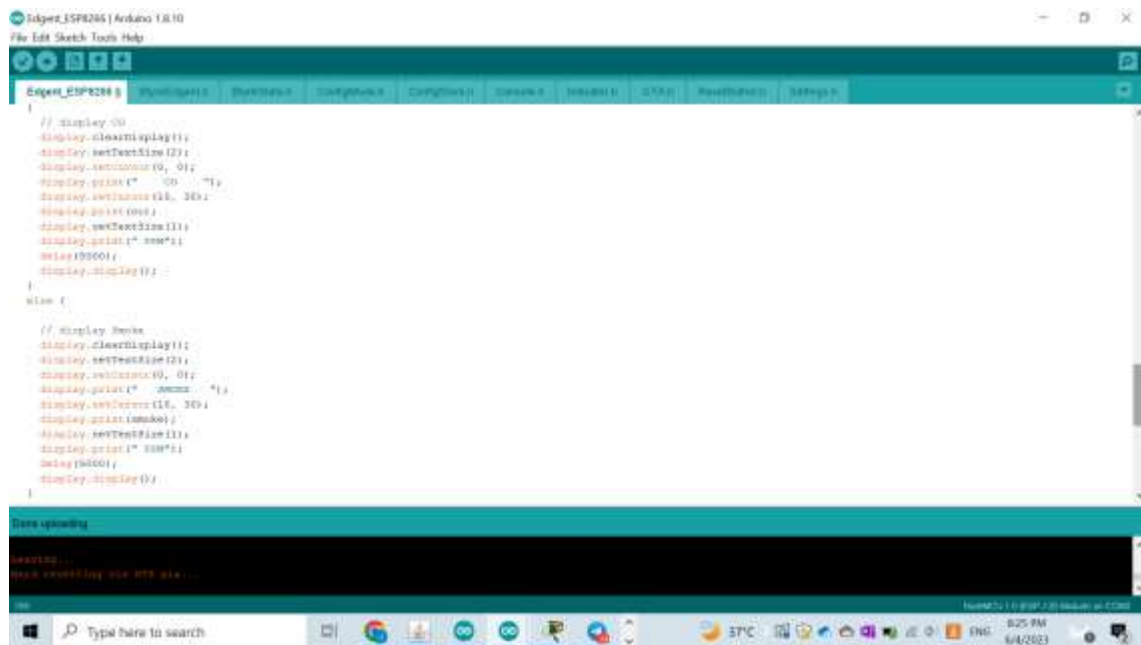
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Idgen:ESP0266(Arduino 1.8.10)
File Edit Sketch Tools Help

Export ESP0266 5 | RunExport 5 | RunSketch 5 | ConfigSerial 5 | ConfigData 5 | Connect 5 | Monitor 5 | OTA 5 | Reupload 5 | Settings 5

void loop() {
  timer_start // Initiate SingleTimer
  myEncayem.run();
}

void readSensorData()
{
  float* values = mq2.readAnalog(); //set it false if you don't want to print the values to the serial
  cv = mq2.readCO();
  smoke = mq2.readSmoke();
  lpg = mq2.readLPG();

  if (button1 == 1)
  {
    // Display LPM
    display.clearDisplay();
    display.setCursor(0, 0);
    display.setCursor(10, 0);
    display.print(" LPM ");
    display.setCursor(110, 0);
    display.print(lpg);
    display.setCursor(0, 1);
    display.setCursor(10, 1);
    display.print(" ppm");
    delay(500);
    display.display();
  }
  while (button1 == 1)
  {
  }
}
```



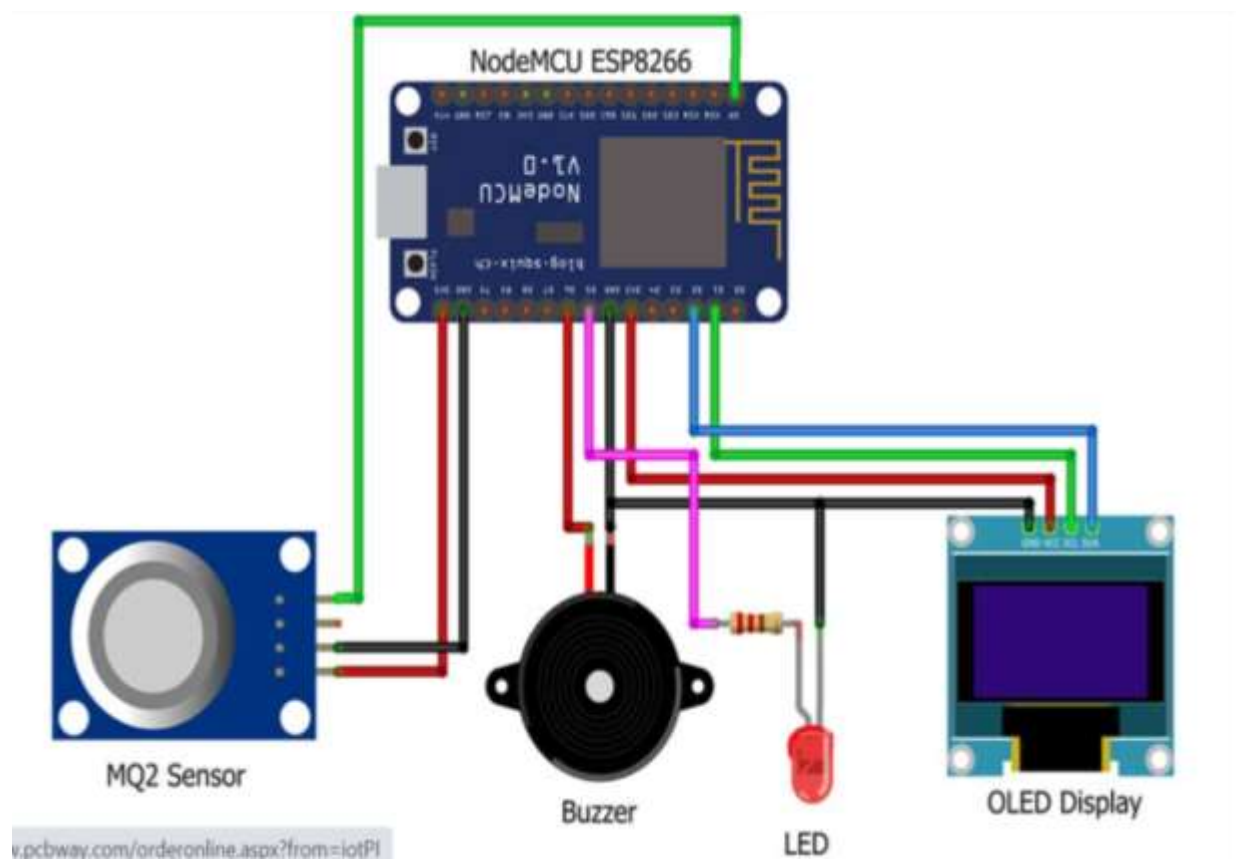
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Circuit diagram :



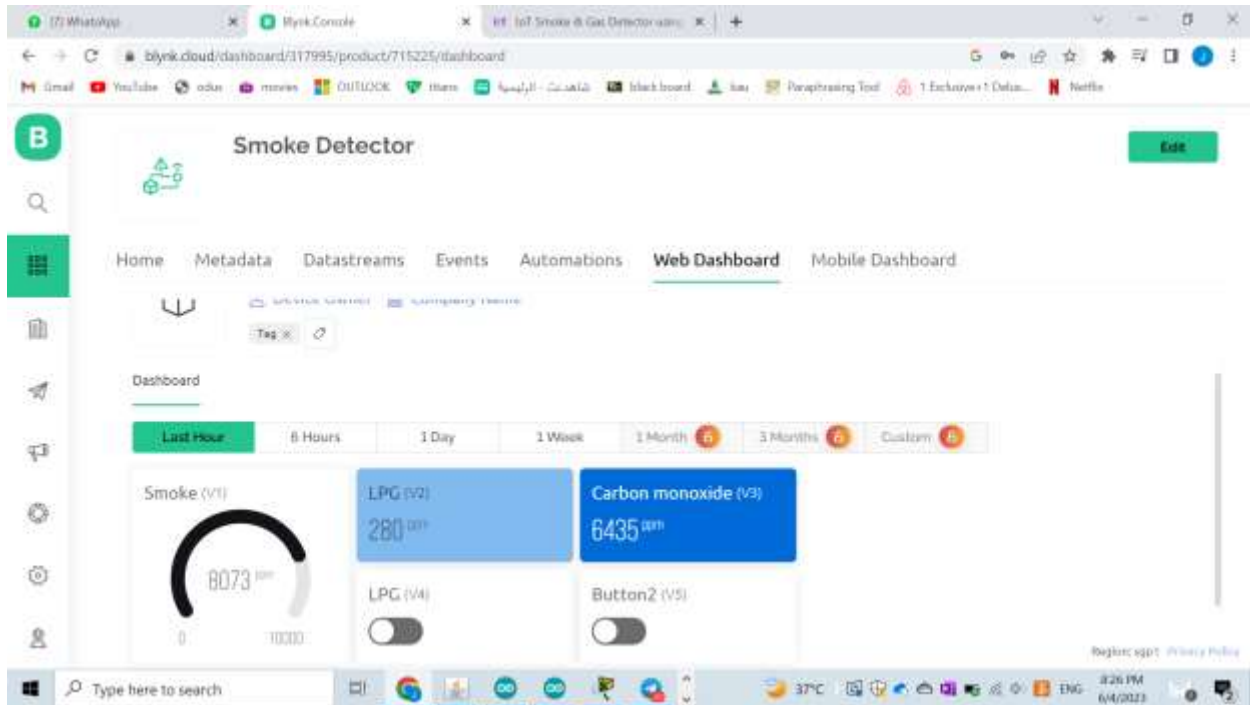
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Setting sensor using Blynk IOT :



The screenshot shows the Blynk Web Dashboard for a project named 'Smoke Detector', specifically the 'Events' tab. The dashboard is divided into several sections: Home, Metadata, Datastreams, Events (selected), Automations, Web Dashboard, and Mobile Dashboard. The main content area displays a table of events with columns: Id, Name, Code, Color, Type, and Description. The table contains three rows of events: 'Online', 'Offline', and 'Smoke'. The bottom of the dashboard shows a Windows taskbar with the date and time as 8:27 PM on 6/4/2023.

Id	Name	Code	Color	Type	Description
1	Online	online	Green	Online	
2	Offline	offline	Red	Offline	
3	Smoke	smoke	Red	Warning	Alert!!! Smoke Detected..

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Smoke Detector

Home Metadata **Datastreams** Events Automations Web Dashboard Mobile Dashboard

Search datastream

Id	Name	Alias	Color	Pin	Data Type	Units	Is Raw	Min	Max
3	CO	CO	Red	V3	Double	ppm	false	0	10000
4	Button1	Button1	Blue	V4	Integer		false	0	1
5	Button2	Button2	Blue	V5	Integer		false	0	1

Register app1 Privacy Policy

Smoke Detector

Home Metadata **Datastreams** Events Automations Web Dashboard Mobile Dashboard

Search datastream

Id	Name	Alias	Color	Pin	Data Type	Units	Is Raw	Min	Max
1	Smoke	Smoke	Green	V1	Double	ppm	false	0	10000
2	LPG	LPG	Blue	V2	Double	ppm	false	0	10000
3	CO	CO	Red	V3	Double	ppm	false	0	10000

Register app1 Privacy Policy

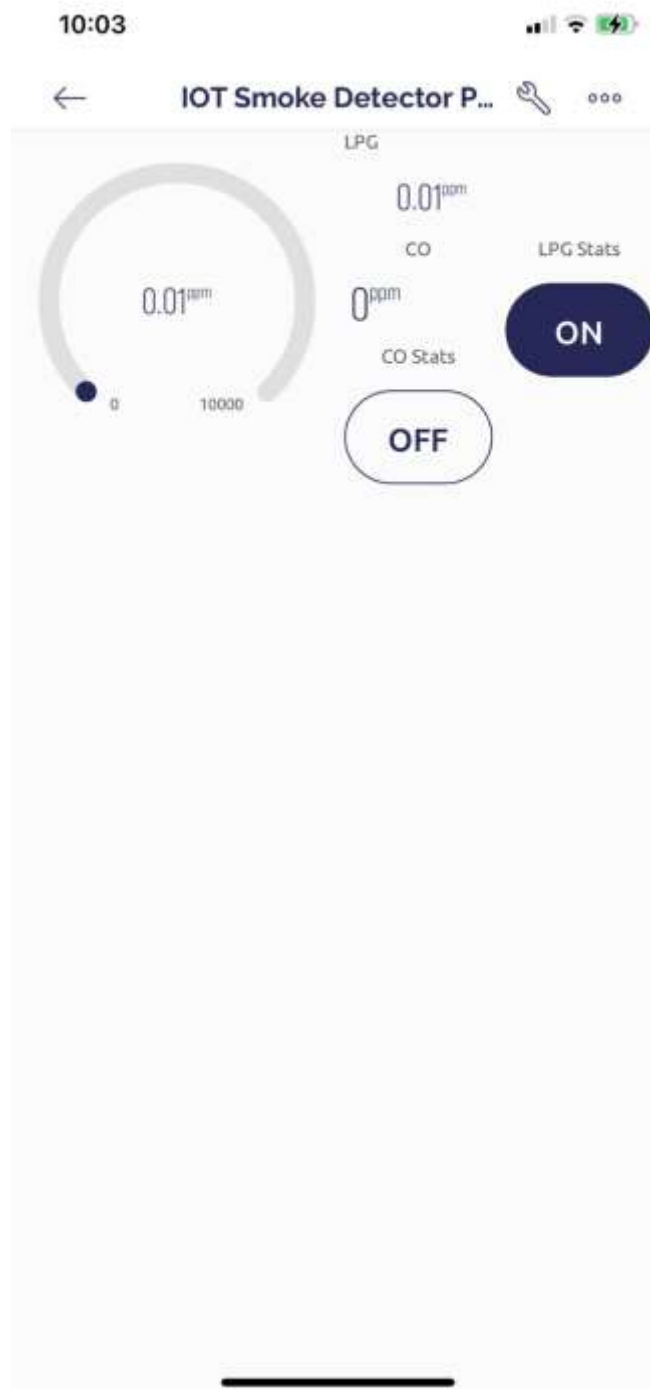
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Blynk IOT APP Dashboard :



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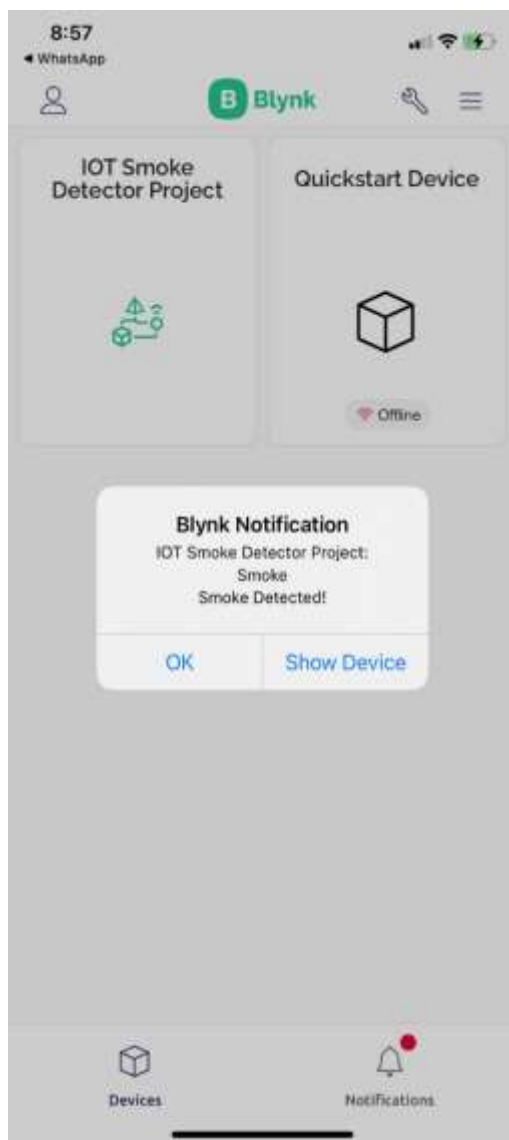
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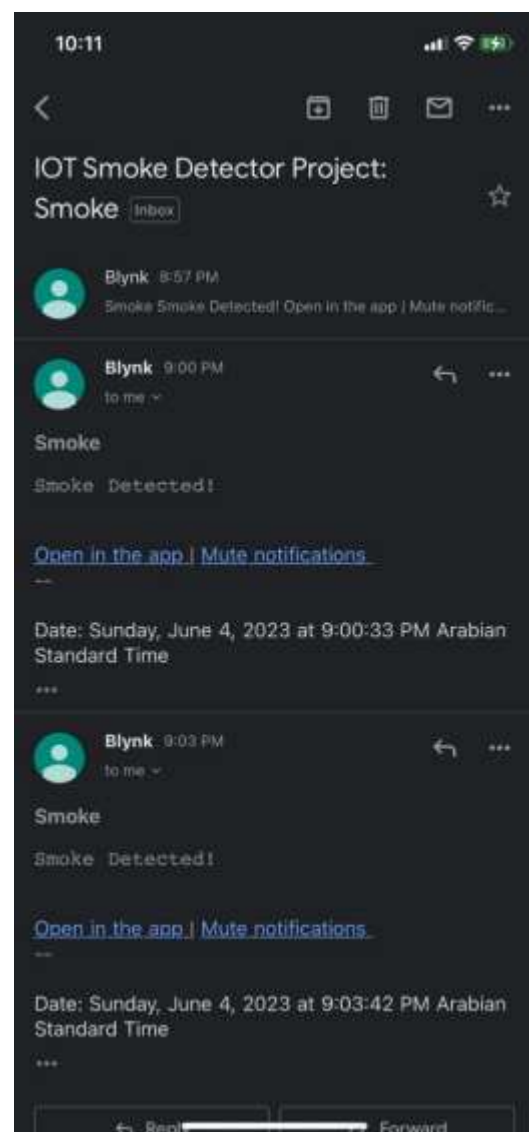


Alert Notification:

1- Blynk app



2- Email



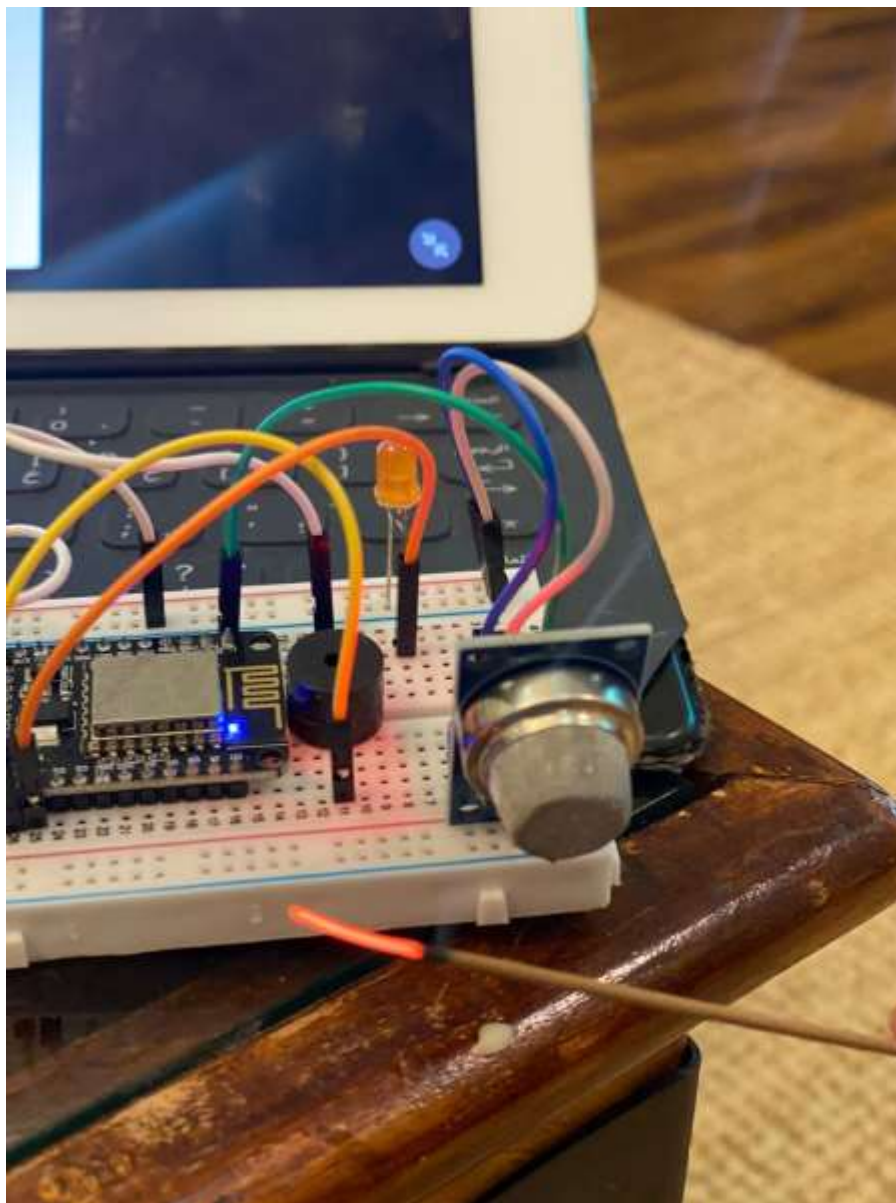
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Sensor:



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Video link:

<https://drive.google.com/file/d/1TUCyODqsPLuW-v9kiVDDJL0WADRucaaH/view?usp=sharing>