# AIR QUALITY MONITORING SYSTEM

DESCRIPTION:

In this part you will need to understand the problem statement and create a document on what have you understood and how will you proceed ahead with solving the problem. Please think on a design and present in form of a document.

 The project involves using IoT devices and data analytics to monitor traffic flow and congestion in real-time, providing commuters with access to this information through a public platform or mobile apps. The objective is to help commuters make informed decisions about their routes and alleviate traffic congestion. This project includes defining objectives, designing the IoT traffic monitoring system, developing the traffic information platform, and integrating them using IoT technology and Python.

DESIGN THINKING:

1.Project Objectives: Define objectives such as real-time traffic monitoring, congestion detection, route optimization, and improved commuting experience..

2. IoT Sensor Design: Plan the deployment of IoT devices (sensors) to monitor traffic flow and congestion.

3. Real-Time Transit Information Platform: Design a web-based platform and mobile apps to display real-time traffic information to the public.

4. Integration Approach: Design a web-based platform and mobile apps to display real-time traffic information to the public.

ARCHITECTURE DESIGN FLOW:
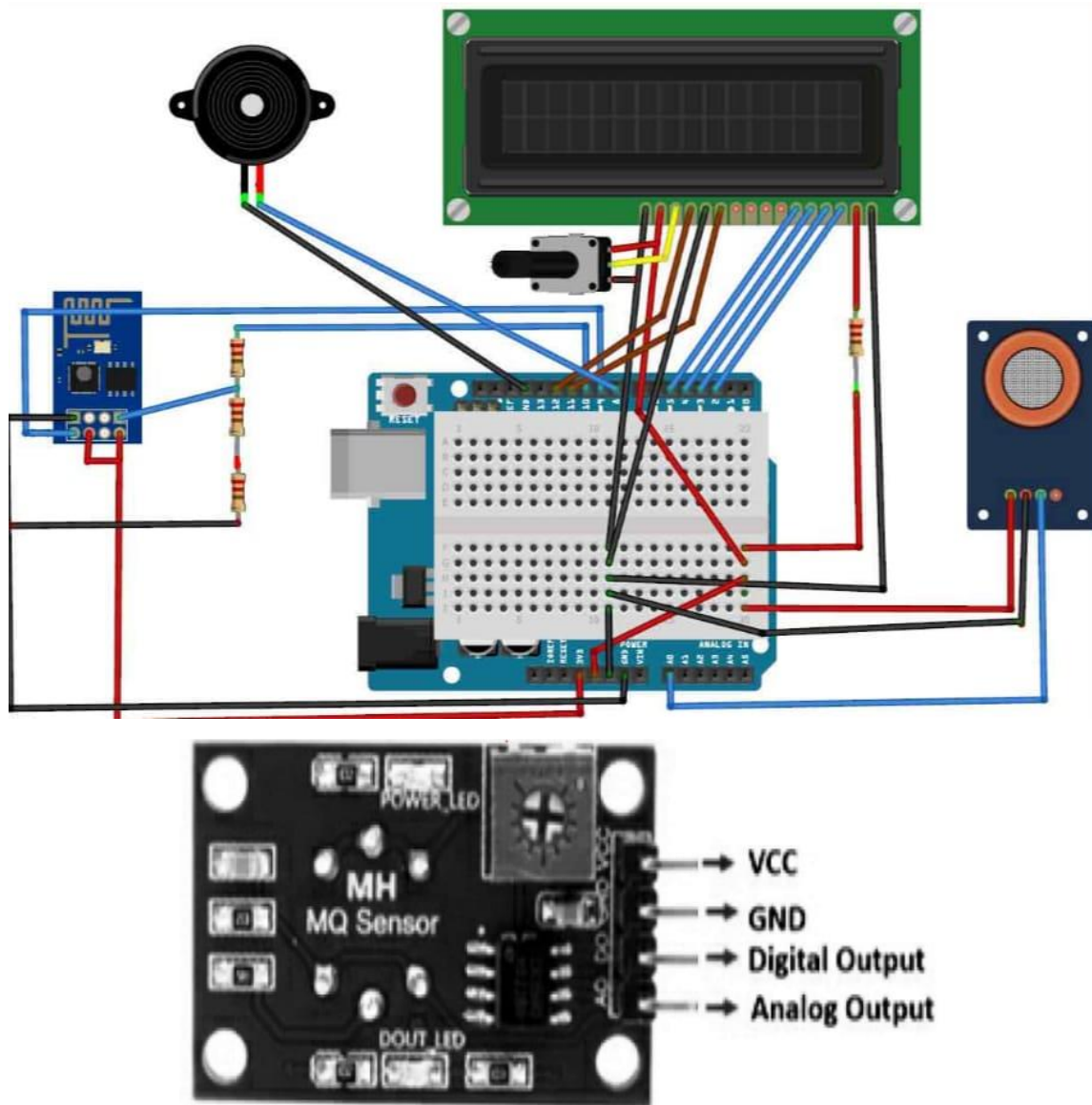
MQ135 Air Quality Sensor Pin Configuration

DESCRIPTION OF COMPONENTS:

1. MQ135 Gas sensor

2. Arduino Uno

3. Wi-Fi module ESP8266

4. 16X2 LCD

5. Breadboard

6.10K potentiometer

7.1K ohm resistors

8. 220 ohm resistor

9. Buzzer

MQ-135 GAS SENSOR FUNCTION:

VCC: This pin refers to a positive power supply of 5V that power up the MQ135 sensor module.

GND (Ground): This is a reference potential pin, which connects the MQ135 sensor module to the ground.

 Digital Out (Do): This pin refers to the digital output pin that gives the digital output by adjusting the threshold value with the help of a potentiometer. This pin is used to detect and measure any one particular gas and makes the MQ135 sensor work without a microcontroller.

 Analog Out (Ao): This pin generates the analog output signal of 0V to 5V and it depends on the gas intensity. This analog output signal is proportional to the gas vapor concentration, which is measured by the MQ135 sensor module. This pin is used to measure the gases in PPM. It is driven by TTL logic, operates with 5V, and is mostly interfaced with microcontrollers.

INNOVATIVE IDEA USE:

1.vertical forests

2.Electric Self -driving cars

3.Air cleaning buildings

4.pollution absorbing street furniture

COMPONENTS PROGRAMMING:

MQ-135 GAS SENSOR PROGRAM:

int sensorPin=A4;

int sensorData;

```
void setup()
{
  Serial.begin(9600);
  pinMode(sensorPin,INPUT);
 }
void loop()
{
  sensorData = analogRead(sensorPin);
  Serial.print("Air Quality:");
  Serial.print(sensorData, DEC);
  Serial.println(" PPM");
  delay(100);
}
```

ESP8266 PROGRAM:

```
int sensorPin=A4;
int sensorData;
void setup()
{
  Serial.begin(9600);
  pinMode(sensorPin,INPUT);
 }
void loop()
{
  sensorData = analogRead(sensorPin);
  Serial.print("Air Quality:");
```

```
  Serial.print(sensorData, DEC);
  Serial.println(" PPM");
  delay(100);
}
```