

AIR QUALITY MONITORING

PHASE -4

DEVELOPMENT PART-2

Introduction:

Our project has undergone a substantial evolution with the integration of a diverse array of sensors. This evolution involves seamlessly connecting these sensors to our existing air quality monitoring system, effectively extending the project's capabilities and scope.

In practical terms, this integration is akin to equipping our project with additional senses, enhancing its capacity to perceive and understand the environment. These newly incorporated sensors play a pivotal role in data collection, enabling us to capture critical information related to temperature, humidity, an extensive range of gases, and even early fire hazard detection.

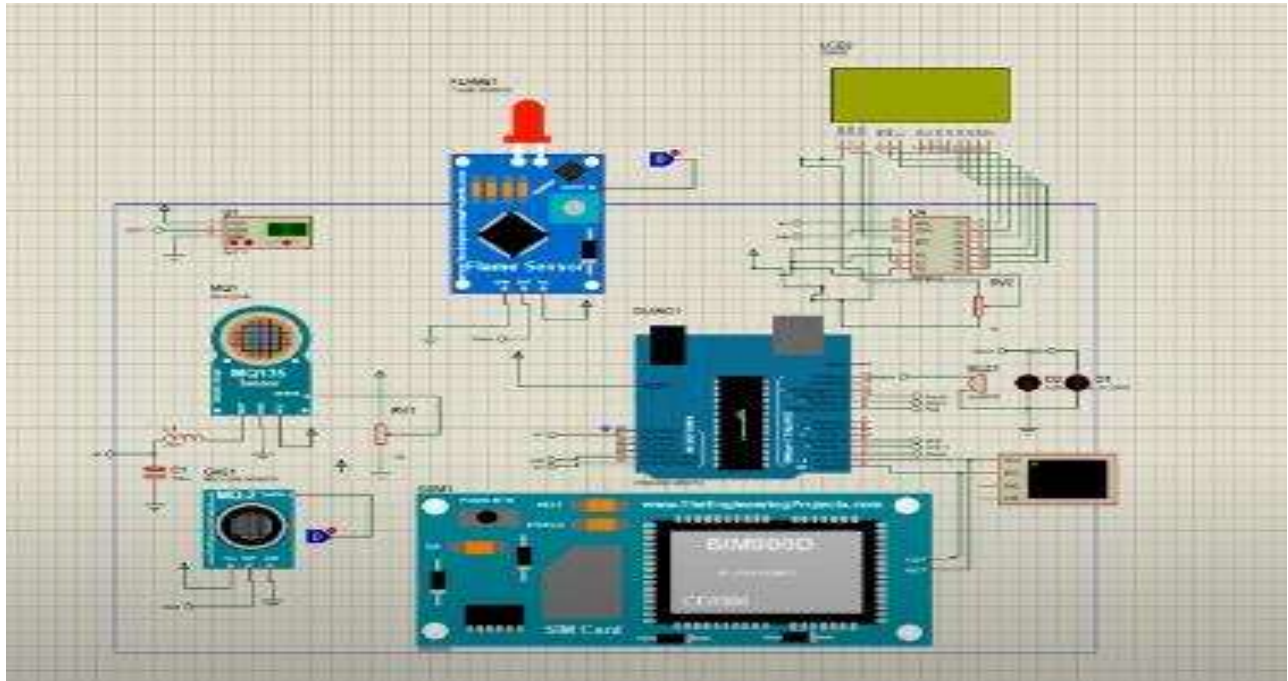
This expanded sensor network is a transformative milestone, endowing our project with deeper insights and an improved capacity to monitor and respond to environmental changes. It's a significant stride in our ongoing mission to create cleaner, safer environments, reinforcing our commitment to providing communities with the tools they need to safeguard air quality and, in doing so, protect public health.

Components we included:

- DHT11 or DHT22
- MQ-135
- Flame Sensor
- MQ-2

These are the sensors we added in our project to enhance it.

Circuit Diagram



WEBPAGE:



IOT Air Pollution Monitoring System

Air Quality is 977 PPM

Good Air

This page is like our prototype .We are trying to improve our site more preciously

In this site we are going to notify quality of air like the humity ppm co2 level pollution and harmful gases.We also determine the temperature of air also.

This will help people to realise ans aware for the harm that they inject to the earth atmosphere.And it may help people to escape fro death also.

code:

```
#include <Wire.h>

#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27,16,2);
#include "DHT.h"

#define DHTPIN 3

//-----Sensors-----

#define DHTTYPE DHT11
#define MQ135 A0
#define Flame_Sen 2
#define MQ2 4

//-----output-----

#define Red 8
#define Green 9
#define Buzzer 10

//-----

int MQ2_output;
int F_output;
int Gas_Sensor;

DHT dht(DHTPIN, DHTTYPE);
```

```
void setup() {  
  
  Serial.begin(9600);  
  lcd.init();  
  lcd.backlight();  
  lcd.setCursor(0, 0);  
  lcd.print("Air Quality");  
  lcd.setCursor(0, 1);  
  lcd.print("System");  
  delay(1000);  
  dht.begin();  
  pinMode(MQ135,OUTPUT);  
  pinMode(Flame_Sen,OUTPUT);  
  pinMode(MQ2,OUTPUT);  
  pinMode(Green,OUTPUT);  
  pinMode(Red,OUTPUT);  
  pinMode(Buzzer,OUTPUT);  
  lcd.clear();  
  
}
```

```
void loop() {  
  Gas_Sensor=analogRead(MQ135);  
  Gas_Sensor=map(Gas_Sensor,0,1023,0,100);  
  Serial.print("Carbon_monoxide Present in air=");  
  Serial.print(Gas_Sensor);  
  Serial.println("%");  
  delay(200);  
}
```

```

F_output=digitalRead(Flame_Sen);
MQ2_output=digitalRead(MQ2);
if(F_output==HIGH)
{
    Serial.println("Fire Detected Please take action");
}

if(MQ2_output==HIGH)
{
    Serial.println("Smoke Detected Please Take Action as soon as possible");

}

float h = dht.readHumidity();
float t = dht.readTemperature();
float f = dht.readTemperature(true);
if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println(F("Failed to read from DHT sensor!"));
    return;
}
float hif = dht.computeHeatIndex(f, h);
float hic = dht.computeHeatIndex(t, h, false);

Serial.print(F("Humidity: "));
Serial.print(h);
Serial.print((" % Temperature: "));
Serial.print(t);
Serial.print(F("°C "));

```

```

Serial.print(f);
Serial.print(F("°F  Heat index: "));
Serial.print(hic);
Serial.print(F("°C  "));
Serial.print(hif);
Serial.println(F("°F"));
lcd.setCursor(0, 0);
lcd.print("Air Temp=");
lcd.setCursor(9, 0);
lcd.println(t);
lcd.setCursor(0, 1);
lcd.print("Humidity=");
lcd.setCursor(10, 1);
lcd.println(h);
lcd.setCursor(1, 2);
lcd.print("Gas=");
lcd.setCursor(5, 2);
lcd.println(Gas_Sensor);
lcd.setCursor(7, 2);
lcd.println("%");
if(((t>25)&&(t<35))||(F_output==LOW)||(MQ2_output==LOW))// when everthing normal
{
digitalWrite(Red,LOW);
digitalWrite(Green,HIGH);
digitalWrite(Buzzer,LOW);
}
if((t>36)||(F_output==HIGH)||(MQ2_output==HIGH))
{
digitalWrite(Red,HIGH);

```

```
digitalWrite(Green,LOW);  
digitalWrite(Buzzer,HIGH);  
}  
if(t>36)  
{  
  Serial.println("Temperature Incerease Please take action ASAP");  
}  
  
}
```