GOVERNMENT COLLEGE OF ENGINEERING ERODE

அரசினர் பொறியியல் கல்லூரி, ஈரோடு
Government College of Engineering, Erode
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

B.E Electronics and Communication Engineering

AIR QUALITY MONITORING

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AQM:

In Air Quality Monitoring calculating the Air Quality Index is Important.The air quality index is an index for reporting air quality on a daily basis. In other words, it is a measure of how air pollution affects one's health within a short time of period. The AQI is calculated based on the average concentration of a particular pollutant measured over a standard time interval. Generally, the time interval is 24 hours for most pollutants, and 8 hours for carbon monoxide and ozone.

DATASET:

AQI LEVEL	AQI RANGE	Description of Air Quality
Good	0 – 50	Air quality is satisfactory, and air pollution poses little or no risk.
Moderate	51 – 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 – 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Unhealthy	151 – 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects
Very Unhealthy	201 – 300	Health alert; The risk of health effects is increased for everyone.
Hazardous	301 above	Health warning of Emergency conditions everyone is more likely to be affected.

CODING:

```
#define BLYNK_TEMPLATE_ID "TMPLgwKssgggsnFXp"
#define BLYNK_DEVICE_NAME "Air Quality Monitoring"
#define BLYNK_AUTH_TOKEN "k03gT6nJosdsfsffesrJV_S5SXEAdgdsdghhgPZvXEwSKDfj"

#define BLYNK_PRINT Serial
#include <WiFi.h>
#include <BlynkSimpleEsp8266.h>

#include <DHT.h>

//#include <Wire.h>
#include <LiquidCrystal_I2C.h>

LiquidCrystal_I2C lcd(0x27, 16, 2);

  byte degree_symbol[8] =
              {
                0b00111,
                0b00101,
                0b00111,
                0b00000,
                0b00000,
                0b00000,
                0b00000,
                0b00000
              };

char auth[] = BLYNK_AUTH_TOKEN;

char ssid[] = "";  // type your wifi name
char pass[] = "";  // type your wifi password

BlynkTimer timer;

int gas = A0;
int sensorThreshold = 100;

#define DHTPIN 2 //Connect Out pin to D2 in NODE MCU
#define DHTTYPE DHT22
DHT dht(DHTPIN, DHTTYPE);


void sendSensor()
{


  float h = dht.readHumidity();
```

```
  float t = dht.readTemperature(); // or dht.readTemperature(true) for
Fahrenheit


     if (isnan(h) || isnan(t)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
   int analogSensor = analogRead(gas);
  Blynk.virtualWrite(V2, analogSensor);
  Serial.print("Gas Value: ");
    Serial.println(analogSensor);
  // You can send any value at any time.
  // Please don't send more that 10 values per second.
    Blynk.virtualWrite(V0, t);
    Blynk.virtualWrite(V1, h);

    Serial.print("Temperature : ");
    Serial.print(t);
    Serial.print("    Humidity : ");
    Serial.println(h);


}
void setup()
{

  Serial.begin(115200);

 //pinMode(gas, INPUT);
  Blynk.begin(auth, ssid, pass);
  dht.begin();
  timer.setInterval(30000L, sendSensor);

 //Wire.begin();
   lcd.begin();


//  lcd.backlight();
 // lcd.clear();
  lcd.setCursor(3,0);
  lcd.print("Air Quality");
  lcd.setCursor(3,1);
  lcd.print("Monitoring");
  delay(2000);
  lcd.clear();
  }

void loop()
```

```
{
  Blynk.run();
  timer.run();
 float h = dht.readHumidity();
  float t = dht.readTemperature(); // or dht.readTemperature(true) for
Fahrenheit
    int gasValue = analogRead(gas);
  lcd.setCursor(0,0);
  lcd.print("Temperature ");
  lcd.setCursor(0,1);
  lcd.print(t);
  lcd.setCursor(6,1);
  lcd.write(1);
  lcd.createChar(1, degree_symbol);
  lcd.setCursor(7,1);
  lcd.print("C");
  delay(4000);
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Humidity ");
  lcd.print(h);
  lcd.print("%");
  delay(4000);
  lcd.clear();
  //lcd.setCursor(0,0);
 // lcd.print(gasValue);
 // lcd.clear();
  if(gasValue<600)
  {
    lcd.setCursor(0,0);
    lcd.print("Gas Value: ");
    lcd.print(gasValue);
    lcd.setCursor(0, 1);
    lcd.print("Fresh Air");
    Serial.println("Fresh Air");
    delay(4000);
    lcd.clear();
  }
  else if(gasValue>600)
  {
    lcd.setCursor(0,0);
    lcd.print(gasValue);
    lcd.setCursor(0, 1);
    lcd.print("Bad Air");
    Serial.println("Bad Air");
    delay(4000);
    lcd.clear();
  }
```

```
  if(gasValue > 600){
   //Blynk.email("mithunkumaran79@gmail.com", "Alert", "Bad Air!");
   Blynk.logEvent("pollution_alert","Bad Air");
 }
}
```

CONCLUSION:

The conclusion of air quality monitoring depends on the specific data and findings of the monitoring efforts. It typically involves summarizing key observations, identifying trends, and assessing the impact of air quality on human health and environment. Conclusions may also suggest recommendations for mitigating air quality issues, such as reducing emission, implementing regulatory measures, or promoting public awareness and action to improve air quality. The specific conclusion will vary depending on the location, time frame, and purpose of the air quality monitoring study.