#include <ESP8266WiFi.h>

#include <ESP8266WebServer.h>

#include <Servo.h>

// Gas sensor analog pin

#define MQ5\_SENSOR\_PIN A0

// Threshold value for gas detection

#define THRESHOLD\_VALUE 500 // Adjust as needed

// Servo pin

#define SERVO\_PIN D1

/\* Put IP Address details \*/

IPAddress local\_ip(192,168,1,1);

IPAddress gateway(192,168,1,1);

IPAddress subnet(255,255,255,0);

// WiFi credentials for AP mode

const char\* apSSID = "GasDetector\_AP";

const char\* apPassword = "12345678";

ESP8266WebServer server(80);

// Create servo object

Servo gasValveServo;

bool is\_gas\_detected = false;

void setup() {

  Serial.begin(9600);

  gasValveServo.attach(SERVO\_PIN);

  pinMode(D0, OUTPUT);

  digitalWrite(D0, HIGH);

  delay(1000);

  digitalWrite(D0, LOW);

  // Set up ESP8266 in AP mode

  WiFi.softAP(apSSID, apPassword);

  WiFi.softAPConfig(local\_ip, gateway, subnet);

  //IPAddress apIP = WiFi.softAPIP();

  //Serial.print("Access Point IP address: ");

  //Serial.println(apIP);

  // Set up server routes

  server.on("/", HTTP\_GET, []() {

    server.send(200, "text/html", gpage());

  });

  // Start server

  server.begin();

}

void loop() {

  server.handleClient();

}

void close\_regulator(){

  gasValveServo.write(0);

}

String gpage(){

    if(analogRead(MQ5\_SENSOR\_PIN)>THRESHOLD\_VALUE){

    gasValveServo.attach(D1);

    digitalWrite(D0, HIGH);

    close\_regulator();

    is\_gas\_detected = true;

  }

  else{

    gasValveServo.detach();

    digitalWrite(D0, LOW);

    is\_gas\_detected = false;

  }

  String page = "<!DOCTYPE html>";

  page += "<html><head><title>Gas Sensor Status</title>";

  page += "<style>";

  page += "body { font-family: Arial, sans-serif; text-align: center; }";

  page += "h1 { color: #333; font-size: 36; }";

  page += "p { font-size: 24px; color: #666; }";

  page += ".lpg-detected { color: red; }";

  page += "</style>";

  page += "</head><body>";

  page += "<h1>Gas Sensor Status</h1>";

  page += "<p>Gas Concentration: " + String(analogRead(MQ5\_SENSOR\_PIN)) + "</p>\n";

  page += "<script>setTimeout(function(){location.reload();}, 1000);</script>"; // Refresh the page every second

  if(is\_gas\_detected){

    page+="<p class = 'lpg-detected'>LPG detected. Hurry soon!!</p>";

  }

  else{

    page+="<p>Dont worry. Everything's under control!!</p>";

  }

  page += "</body></html>";

  return page;

}