

**ДОДАТОК А**

## Код програми

```
#include <SPI.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
#include <DHT.h>
#include <ESP8266WiFi.h>
#include <PubSubClient.h>

#define OLED_RESET 4
Adafruit_SSD1306 display(OLED_RESET);

#define DHTPIN D5
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

const char* ssid = "YourSSID";
const char* password = "YourPassword";
const char* mqtt_server = "mqtt_server_address";
const char* mqtt_user = "mqtt_username";
const char* mqtt_password = "mqtt_password";
const char* mqtt_temp_topic = "temperature";
const char* mqtt_humidity_topic = "humidity";

WiFiClient espClient;
PubSubClient client(espClient);
```

```
void setup() {
  Serial.begin(115200);
  delay(100);

  // Initialize the OLED display
  display.begin(SSD1306_SWITCHCAPVCC, 0x3C);
  display.display();
  delay(2000);
  display.clearDisplay();
  display.setTextSize(1);
  display.setTextColor(WHITE);

  // Initialize the DHT sensor
  dht.begin();

  // Connect to Wi-Fi
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("WiFi connected");

  // Connect to MQTT
  client.setServer(mqtt_server, 1883);
  while (!client.connected()) {
    if (client.connect("ESP8266Client", mqtt_user, mqtt_password )) {
      Serial.println("MQTT connected");
    } else {
```

```
    Serial.print("failed, rc=");
    Serial.print(client.state());
    Serial.println(" try again in 5 seconds");
    delay(5000);
  }
}
}

void loop() {
  // Read temperature and humidity from DHT sensor
  float temperature = dht.readTemperature();
  float humidity = dht.readHumidity();
  if (isnan(temperature) || isnan(humidity)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }

  // Display temperature and humidity on OLED display
  display.clearDisplay();
  display.setCursor(0, 0);
  display.print("Temperature:");
  display.setCursor(0, 16);
  display.print(temperature);
  display.print(" C");
  display.setCursor(0, 32);
  display.print("Humidity:");
  display.setCursor(0, 48);
  display.print(humidity);
  display.print(" %");
}
```

```
display.display();

// Publish temperature and humidity to MQTT
char tempString[6];
char humString[6];
dtostrf(temperature, 4, 2, tempString);
dtostrf(humidity, 4, 2, humString);
client.publish(mqtt_temp_topic, tempString);
client.publish(mqtt_humidity_topic, humString);

delay(2000);
}
```

**ДОДАТОК Б**

Демонстраційний матеріал

