

ДОДАТОК А

Лістинг коду контроллера

```
#include <DHT.h>
#include <Wire.h>
#include <BH1750.h>
#include <SoftwareSerial.h>
#define DHTPIN 2
#define DHTTYPE DHT22
#define CO2PIN 3
#define LIGHT_SENSOR_ADDRESS 0x23
DHT dht(DHTPIN, DHTTYPE);
BH1750 lightMeter(LIGHT_SENSOR_ADDRESS);
SoftwareSerial co2Serial(CO2PIN, -1); // RX pin, no TX pin
const int heaterPin = 4;
const int humidifierPin = 5;
const int ventPin = 6;
const int lightPin = 7;
float temperature;
float humidity;
float co2Level;
uint16_t lightLevel;
void setup() {
  Serial.begin(9600);
  dht.begin();
  lightMeter.begin();
  co2Serial.begin(9600);
  pinMode(heaterPin, OUTPUT);
```

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pinMode(humidifierPin, OUTPUT);
pinMode(ventPin, OUTPUT);
pinMode(lightPin, OUTPUT);
}
void loop() {
  readSensors();
  controlActuators();
  delay(2000);
}
void readSensors() {
  temperature = dht.readTemperature();
  humidity = dht.readHumidity();
  lightLevel = lightMeter.readLightLevel();
  co2Level = readCO2();
  Serial.print("Temperature: "); Serial.print(temperature); Serial.println(" *C");
  Serial.print("Humidity: "); Serial.print(humidity); Serial.println(" %");
  Serial.print("CO2 Level: "); Serial.print(co2Level); Serial.println(" ppm");
  Serial.print("Light Level: "); Serial.print(lightLevel); Serial.println(" lx");
}
float readCO2() {
  if (co2Serial.available() > 0) {
    int high = co2Serial.read();
    int low = co2Serial.read();
    return (high * 256.0) + low;
  }
  return -1; // Error code if no data is available
}
void controlActuators() {
  // Control temperature

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if (temperature < 20) {
    digitalWrite(heaterPin, HIGH);
} else {
    digitalWrite(heaterPin, LOW);
}
// Control humidity
if (humidity < 30) {
    digitalWrite(humidifierPin, HIGH);
} else {
    digitalWrite(humidifierPin, LOW);
}
// Control CO2 level
if (co2Level > 1000) {
    digitalWrite(ventPin, HIGH);
} else {
    digitalWrite(ventPin, LOW);
}
// Control light
if (lightLevel < 300) {
    digitalWrite(lightPin, HIGH);
} else {
    digitalWrite(lightPin, LOW);
}
}
```

ДОДАТОК Б

Демонстраційний матеріал

