NAME: KSHITIJ GUPTA

Enrolment Number: 211621010007

Sub: IoT

Practical – 5[Batch-71]

Parts needed:

Arduino uno

Jumper wires

led

Humidity sensor

```
#include <OneWire.h>
#include <DallasTemperature.h>


// Data wire is connected to digital pin 2#define
ONE_WIRE_BUS 2

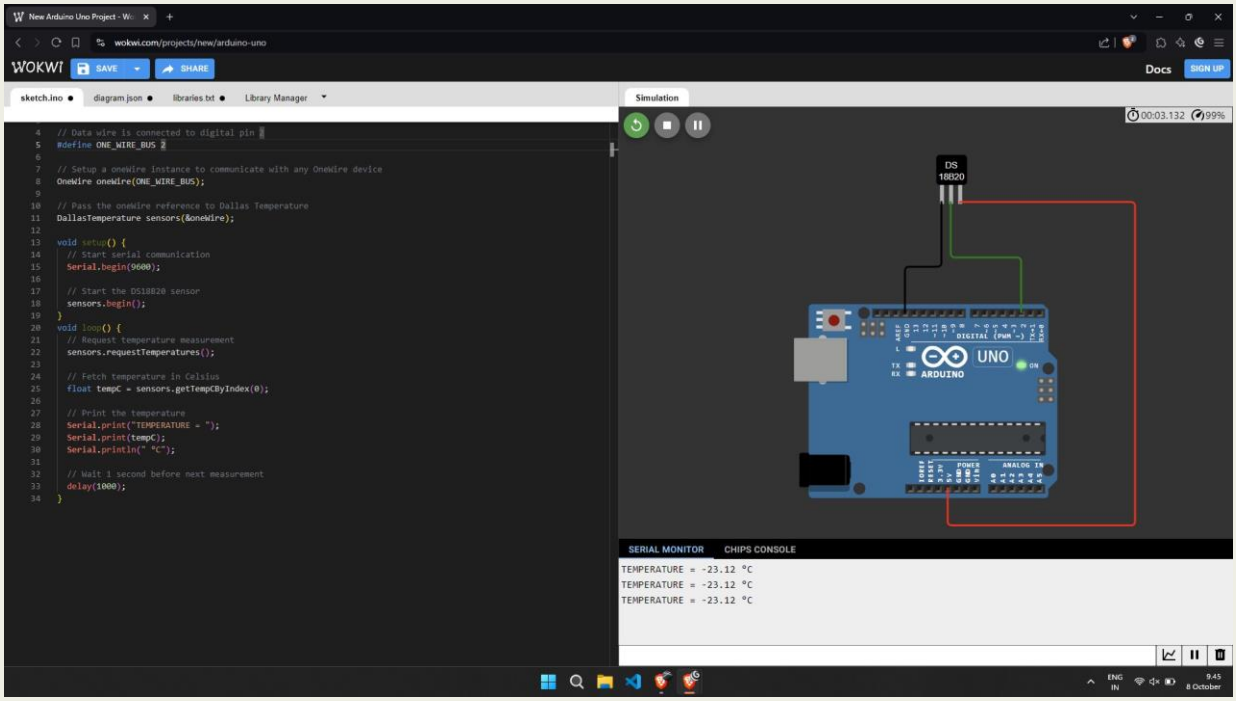

// Setup a oneWire instance to communicate with any OneWire deviceOneWire
oneWire(ONE_WIRE_BUS);


// Pass the oneWire reference to Dallas TemperatureDallasTemperature
sensors(&oneWire);
```

```
    // Start the DS18B20 sensor
    sensors.begin();
}
void loop() {
    // Request temperature measurement
    sensors.requestTemperatures();

    // Fetch temperature in Celsius
    float tempC = sensors.getTempCByIndex(0);

    // Print the temperature
    Serial.print("TEMPERATURE = ");
    Serial.print(tempC);
    Serial.println(" °C");
```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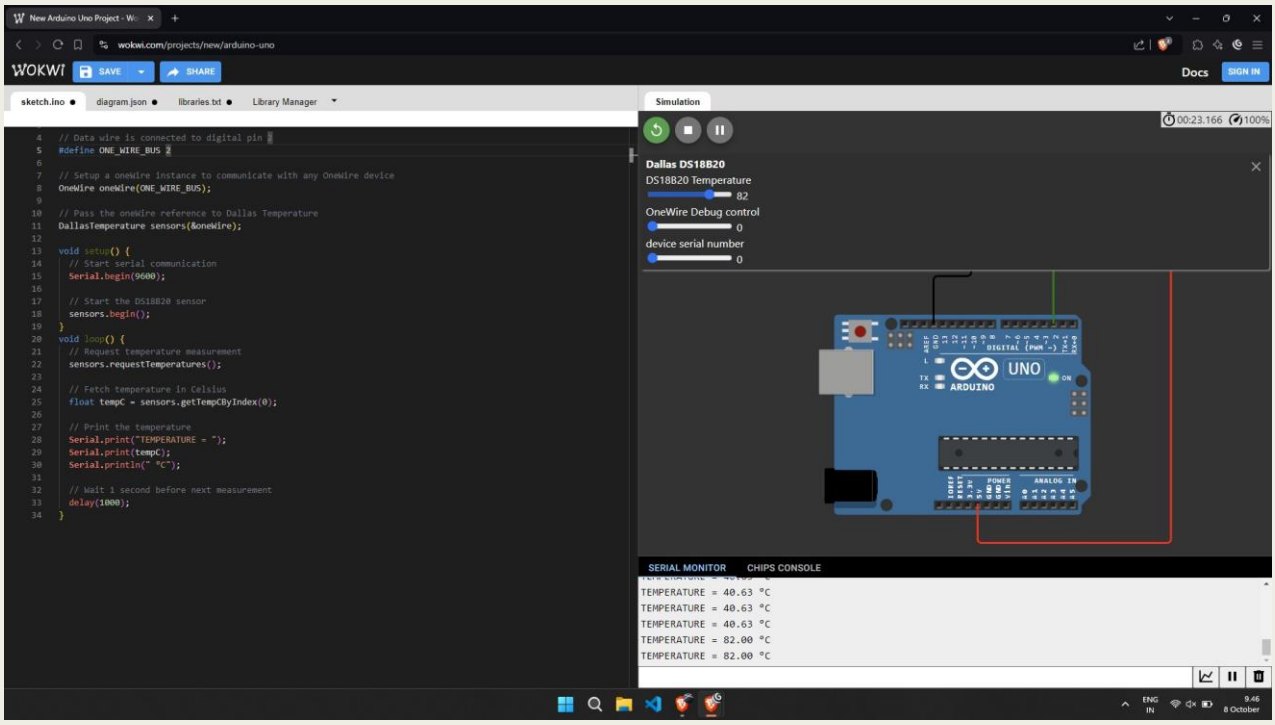
SIGN UP
sketch.ino
diagram.json
libraries.txt
Library Manager
// Data wire is connected to digital pin 2
#define ONE_WIRE_BUS 2
// Setup a oneWire instance to communicate with any OneWire device
OneWire oneWire(ONE_WIRE_BUS);
// Pass the oneWire reference to Dallas Temperature
DallasTemperature sensors(&oneWire);
void setup() {
// Start serial communication
Serial.begin(9600);
// Start the DS18B20 sensor
sensors.begin();
}
void loop() {
// Request temperature measurement
sensors.requestTemperatures();
// Fetch temperature in Celsius
float tempC = sensors.getTempCByIndex(0);
// Print the temperature
Serial.print("TEMPERATURE = ");
Serial.print(tempC);
Serial.println(" °C");
// Wait 1 second before next measurement
delay(1000);
}
Simulation
00:03.132
99%
DS
18B20
UNO
ARDUINO
SERIAL MONITOR
CHIPS CONSOLE
TEMPERATURE = -23.12 °C
TEMPERATURE = -23.12 °C
TEMPERATURE = -23.12 °C
ENG
IN
9:45
8 October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sensors.requestTemperatures();
// Fetch temperature in Celsius
float tempC = sensors.getTempCByIndex(0);
// Print the temperature
Serial.print("TEMPERATURE = ");
Serial.print(tempC);
Serial.println(" °C");
// Wait 1 second before next measurement
delay(1000);
}
Simulation
00:23.166
100%
Dallas DS18B20
DS18B20 Temperature
82
OneWire Debug control
0
device serial number
0
UNO
ARDUINO
SERIAL MONITOR
CHIPS CONSOLE
TEMPERATURE = 40.63 °C
TEMPERATURE = 40.63 °C
TEMPERATURE = 40.63 °C
TEMPERATURE = 82.00 °C
TEMPERATURE = 82.00 °C
ENG
IN
9.46
8 October

```
#include <OneWire.h>
#include <DallasTemperature.h>

// Data wire is connected to digital pin 2#define
ONE_WIRE_BUS 2
#define LED_PIN 13                    // LED connected to digital pin 13
#define TEMP_THRESHOLD 30.0           // Set temperature threshold in Celsius(e.g., 30°C)

OneWire oneWire(ONE_WIRE_BUS);
DallasTemperature sensors(&oneWire);

void setup() {
  // Start serial communication
  Serial.begin(9600);

  // Start the DS18B20 sensor
```

```
// Check if any sensors are connected if
(sensors.getDeviceCount() == 0) {
Serial.println("No DS18B20 sensors found.");
} else {
Serial.print(sensors.getDeviceCount());
Serial.println(" DS18B20 sensor(s) found.");
}
}

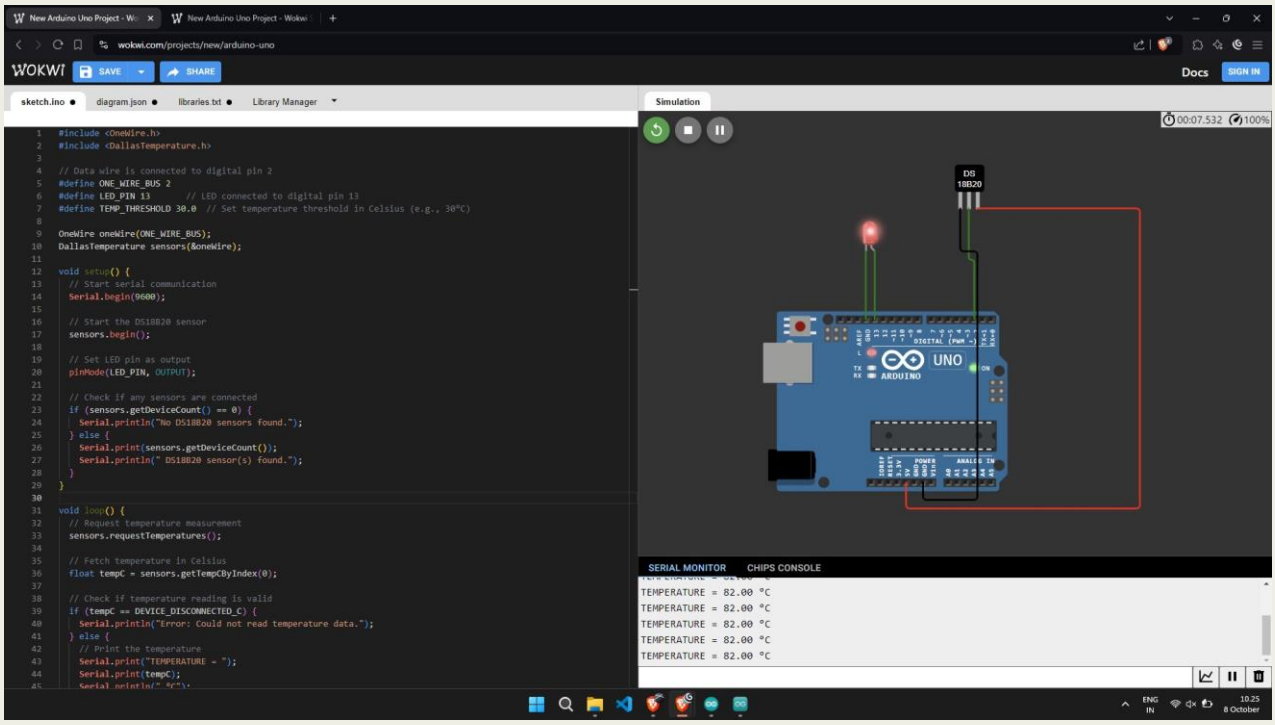
void loop() {
// Request temperature measurement
sensors.requestTemperatures();

// Fetch temperature in Celsius
float tempC = sensors.getTempCByIndex(0);
```

```
// Check if temperature reading is valid if (tempC == DEVICE_DISCONNECTED_C) {
Serial.println("Error: Could not read temperature data.");
} else {
// Print the temperature
Serial.print("TEMPERATURE = ");
Serial.print(tempC);
Serial.println(" °C");

// Turn on the LED if temperature exceeds threshold if (tempC > TEMP_THRESHOLD) {
digitalWrite(LED_PIN, HIGH);    // Turn LED on
} else {
digitalWrite(LED_PIN, LOW);    // Turn LED off
}
}
```

```
delay(1000);  // Wait 1 second before repeating
}
```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Library Manager
#include <OneWire.h>
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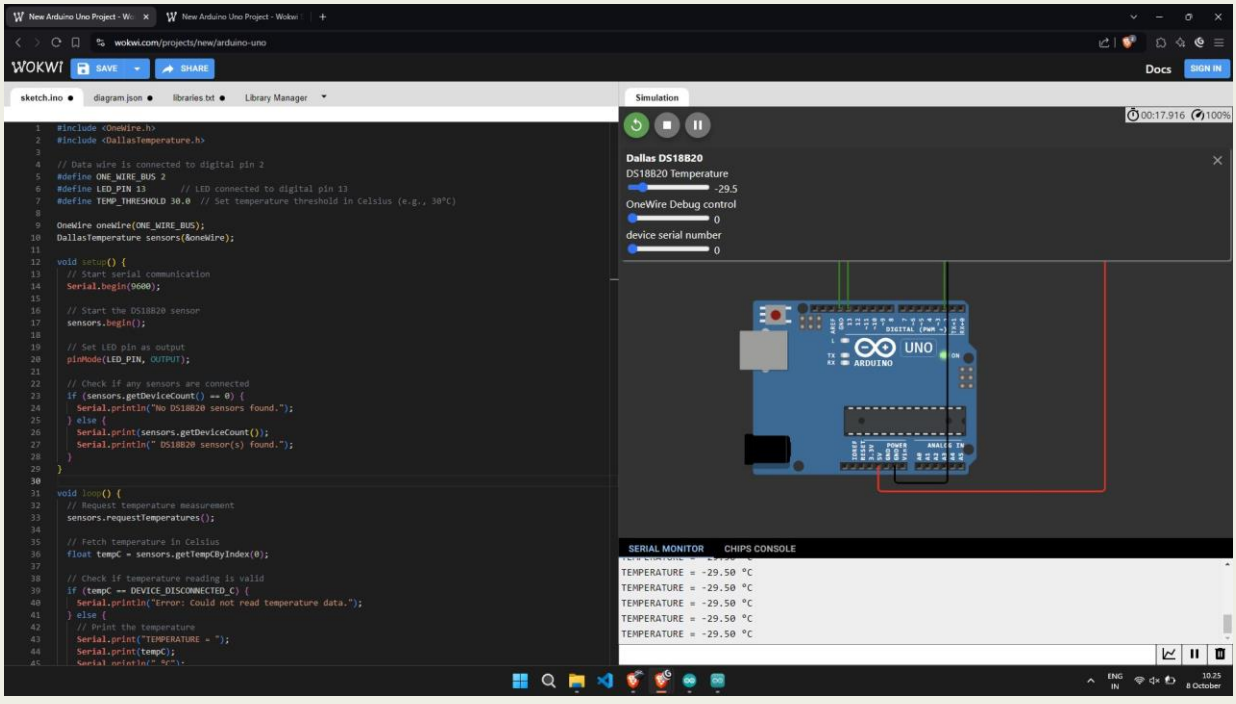
// Data wire is connected to digital pin 2
#define ONE_WIRE_BUS 2
#define LED_PIN 13 // LED connected to digital pin 13
#define TEMP_THRESHOLD 30.0 // Set temperature threshold in Celsius (e.g., 30°C)
OneWire oneWire(ONE_WIRE_BUS);
DallasTemperature sensors(&oneWire);
void setup() {
// Start serial communication
Serial.begin(9600);
// Start the DS18B20 sensor
sensors.begin();
// Set LED pin as output
pinMode(LED_PIN, OUTPUT);
// Check if any sensors are connected
if (sensors.getDeviceCount() == 0) {
Serial.println("No DS18B20 sensors found.");
} else {
Serial.print(sensors.getDeviceCount());
Serial.println(" DS18B20 sensor(s) found.");
}
}
void loop() {
// Request temperature measurement
sensors.requestTemperatures();
// Fetch temperature in Celsius
float tempC = sensors.getTempCByIndex(0);
// Check if temperature reading is valid
if (tempC == DEVICE_DISCONNECTED_C) {
Serial.println("Error: Could not read temperature data.");
} else {
// Print the temperature
Serial.print("TEMPERATURE = ");
Serial.print(tempC);
Serial.println(" °C");
Simulation
00:07.532
100%
DS 18B20
UNO
ARDUINO
SERIAL MONITOR
CHIPS CONSOLE
TEMPERATURE = 82.00 °C
TEMPERATURE = 82.00 °C
TEMPERATURE = 82.00 °C
TEMPERATURE = 82.00 °C
TEMPERATURE = 82.00 °C
ENG
IN
10.25
8 October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// Data wire is connected to digital pin 2
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#define LED_PIN 13 // LED connected to digital pin 13
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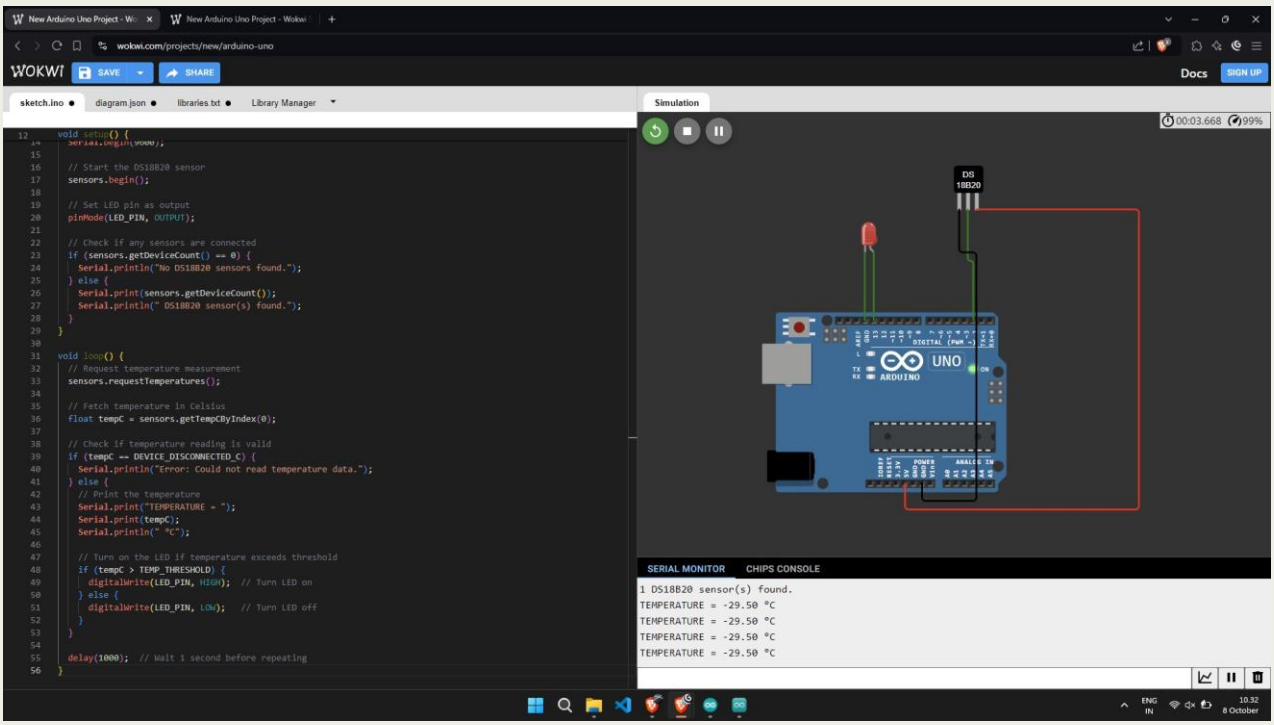
OneWire oneWire(ONE_WIRE_BUS);
DallasTemperature sensors(&oneWire);
void setup() {
// Start serial communication
Serial.begin(9600);
// Start the DS18B20 sensor
sensors.begin();
// Set LED pin as output
pinMode(LED_PIN, OUTPUT);
// Check if any sensors are connected
if (sensors.getDeviceCount() == 0) {
Serial.println("No DS18B20 sensors found.");
} else {
Serial.print(sensors.getDeviceCount());
Serial.println(" DS18B20 sensor(s) found.");
}
}
void loop() {
// Request temperature measurement
sensors.requestTemperatures();
// Fetch temperature in Celsius
float tempC = sensors.getTempCByIndex(0);
// Check if temperature reading is valid
if (tempC == DEVICE_DISCONNECTED_C) {
Serial.println("Error: Could not read temperature data.");
} else {
// Print the temperature
Serial.print("TEMPERATURE = ");
Serial.print(tempC);
Serial.println(" °C");
Simulation
00:17.916
100%
Dallas DS18B20
DS18B20 Temperature
-29.5
OneWire Debug control
0
device serial number
0
UNO
ARDUINO
SERIAL MONITOR
CHIPS CONSOLE
TEMPERATURE = -29.50 °C
TEMPERATURE = -29.50 °C
TEMPERATURE = -29.50 °C
TEMPERATURE = -29.50 °C
TEMPERATURE = -29.50 °C
ENG
IN
10.25
8 October

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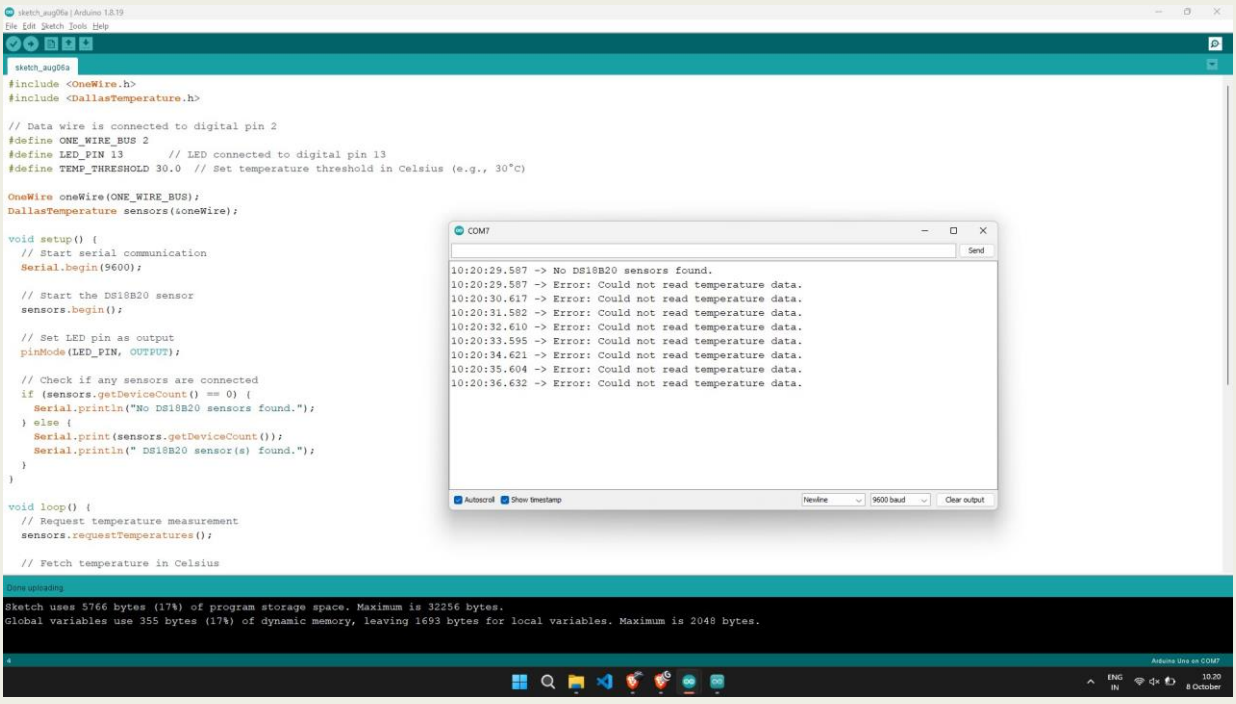
    // Turn on the LED if temperature exceeds threshold
    if (tempC > TEMP_THRESHOLD) {
      digitalWrite(LED_PIN, HIGH);  // Turn LED on
    } else {
      digitalWrite(LED_PIN, LOW);   // Turn LED off
    }
  }

  delay(1000);  // Wait 1 second before repeating
}
```

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