

Experiment NO 7

Write the program read the temperature by sensor and the values to the serial monitor on the computer

CODE :-

```
const int tempPin = A0; // LM35 connected to analog pin A0
float temperatureC = 0;
float temperatureF = 0;
void setup()
{
    Serial.begin(9600); // Start serial communication
    Serial.println("Temperature Monitoring Started");
}
void loop()
{
    int analogValue = analogRead(tempPin); // Read analog value
    float voltage = analogValue * (5.0 / 1023.0); // Convert to voltage
    temperatureC = voltage * 100.0; // LM35: 10mV per °C
    temperatureF = (temperatureC * 9.0 / 5.0) + 32.0; // Convert to Fahrenheit

    // Display readings
    Serial.print("Celsius: ");
    Serial.print(temperatureC);
    Serial.print(" °C\tFahrenheit: ");
    Serial.print(temperatureF);
    Serial.println(" °F");
    delay(500); // Update every 0.5 seconds
}
```

OUTPUT:-



The screenshot shows the Arduino IDE interface with the following details:

- Sketch Name:** practical7ino
- Code Content:**

```
1 //Write a program so it displays the temperature in Fahrenheit as well as the maximum and minimum temperatures it has seen.
2
3 const int tempPin = A0; // U35 connected to analog pin A0
4
5 float temperatureC = 0;
6 float temperatureF = 0;
7
8 // Initialize max/min with extreme values
9 float maxTempF = -1000.0;
10 float minTempF = 1000.0;
11
12 void setup() {
13   Serial.begin(9600); // Start serial communication
14   Serial.println("Temperature Monitoring Started");
15 }
16
17 void loop() {
18   int analogValue = analogRead(tempPin); // Read analog value
19   float voltage = analogValue * (5.0 / 1023.0); // Convert to voltage
20 }
```
- Output Window:** Shows the serial monitor output:

```
Message [Enter to send message to Arduino Uno on 'COM7']
14:19:59.813 -> Temperature Monitoring Started
14:19:59.867 -> Celsius: 31.77 °C
14:20:00.401 -> Celsius: 33.24 °C
14:20:00.902 -> Celsius: 33.24 °C
14:20:01.406 -> Celsius: 33.24 °C
14:20:01.912 -> Celsius: 33.24 °C
14:20:02.393 -> Celsius: 33.24 °C
14:20:02.914 -> Celsius: 33.72 °C
...
...
```
- Bottom Status Bar:** Includes a weather forecast card for London, UK, showing 27°C, mostly cloudy, and a battery icon indicating 22% remaining.