



Temp36 Sensor Arduino Testing

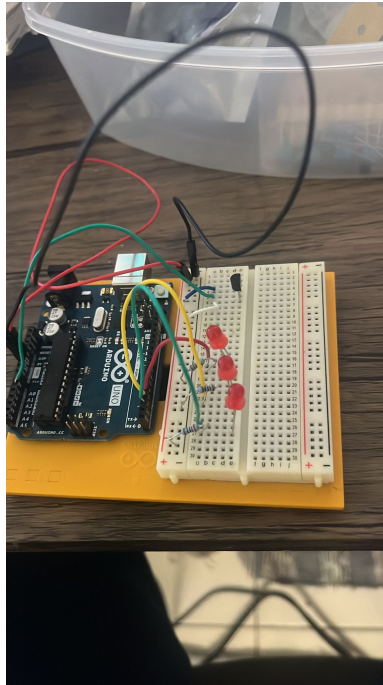
⚙️ Status	Completed
👤 Assign	k kennedy freitas
📄 Type	Learning

Objectives

Control of 3 LEDS based on the read temperature of the sensor.

Summary:

1. Reads **temperature** from the **TMP36 sensor**.
2. Converts the **analog signal (0-1023)** to **voltage (0-5V)**.
3. Converts **voltage to temperature (°C)**.
4. **Prints** the values to the **Serial Monitor** for debugging.
5. Controls **three LEDs**:
 - **1st LED** turns **on** at **20°C**.
 - **2nd LED** turns **on** at **22°C**.
 - **3rd LED** turns **on** at **24°C**.
6. **Repeats every 500ms**.



Code

```
const int sensorPin = A0;
const float baselineTemp = 20.0;

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

  for (int pin = 2; pin < 5; pin++) {
    pinMode(pin, OUTPUT);
    digitalWrite(pin, LOW);
  }
}

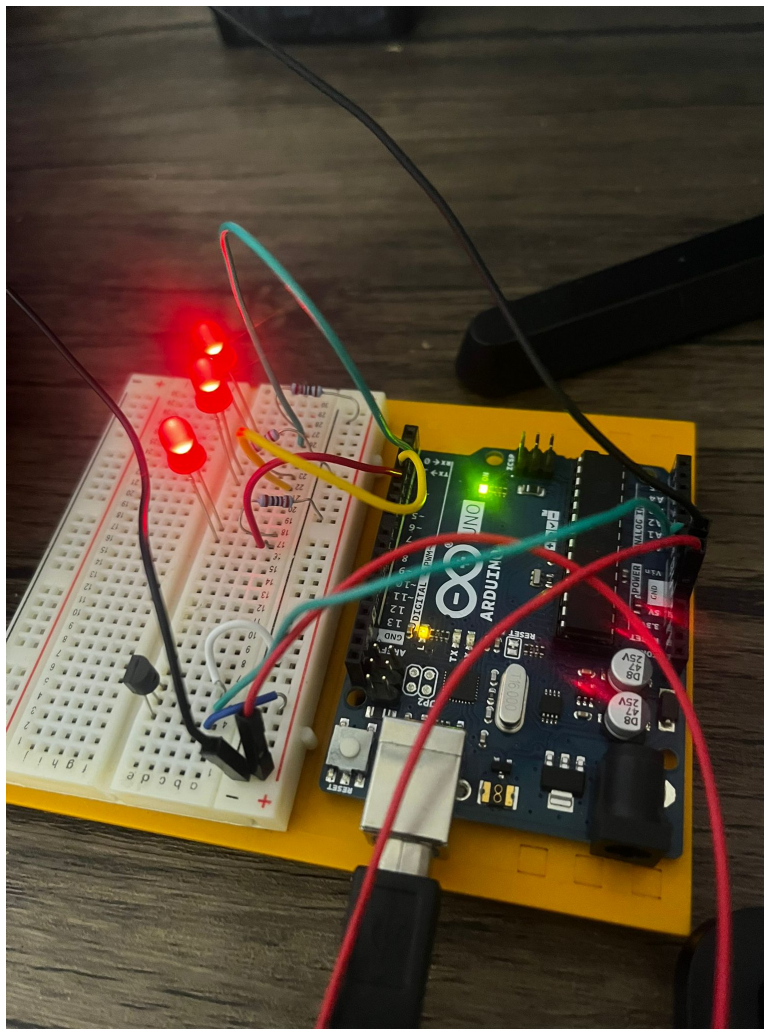
void loop() {
  // Read and convert sensor value
  int sensorVal = analogRead(sensorPin); // Read from A0 (0-1023)
  float voltage = sensorVal * (5.0 / 1023.0); // Convert ADC to voltage
  float temperature = (voltage - 0.5) * 100; // Convert voltage to temperature

  // Print values
  Serial.print("Sensor Value: "); Serial.print(sensorVal);
  Serial.print(", Volts: "); Serial.print(voltage, 2); // 2 decimal places
```

```
Serial.print(", degrees C: "); Serial.println(temperature, 1);

// Control LEDs based on temperature
digitalWrite(2, temperature >= baselineTemp);
digitalWrite(3, temperature >= baselineTemp + 2);
digitalWrite(4, temperature >= baselineTemp + 4);

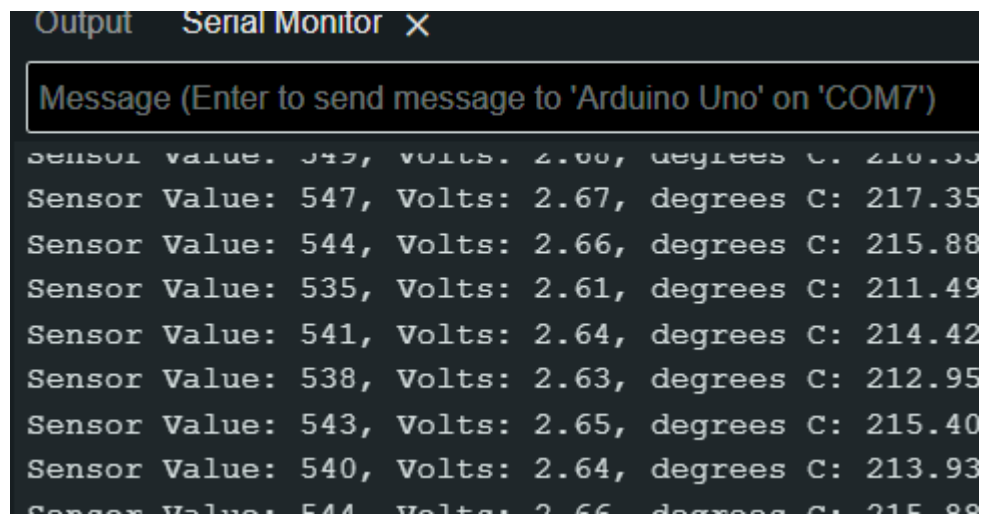
delay(500); // Allow time for readings to stabilize
}
```



Bugs & Errors

Issue with Sensor calibration.

Base temp values are quite high due to calibration error which provide innacurate temperature readings



The screenshot shows an Arduino Serial Monitor window titled "Output Serial Monitor X". It displays a series of sensor readings. The first line is partially cut off, but the subsequent lines show the following data:

Sensor Value	Volts	degrees C
547	2.67	217.35
544	2.66	215.88
535	2.61	211.49
541	2.64	214.42
538	2.63	212.95
543	2.65	215.40
540	2.64	213.93
544	2.66	215.88