🌡️

Temp36 Sensor Arduino Testing

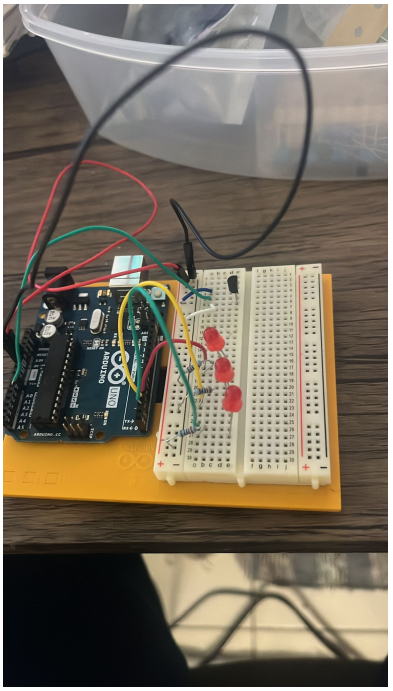
Status	Completed
Assign	k kennedy freitas
Type	Learning

Objectives

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

🎯 Summary:

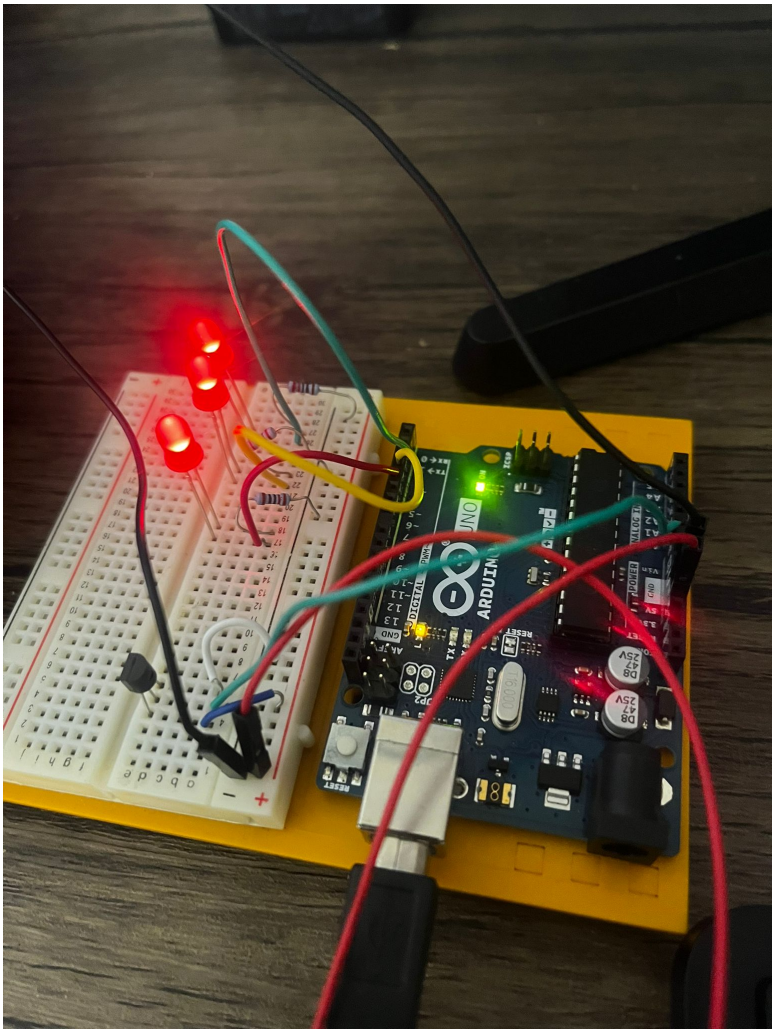
1. Reads **temperature** from the **TMP36 sensor**.
2. Converts the **analog signal (0-1023)** to **voltage (0-5V)**.
3. Converts **voltage to temperature (°C)**.
4. **Prints** the values to the **Serial Monitor** for debugging.
5. Controls **three LEDs**:
   - **1st LED** turns **on** at **20°C**.
   - **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 (0-1
  float voltage = sensorVal * (5.0 / 1023.0); // Convert ADC 
  float temperature = (voltage - 0.5) * 100; // Convert volta

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

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

  // 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