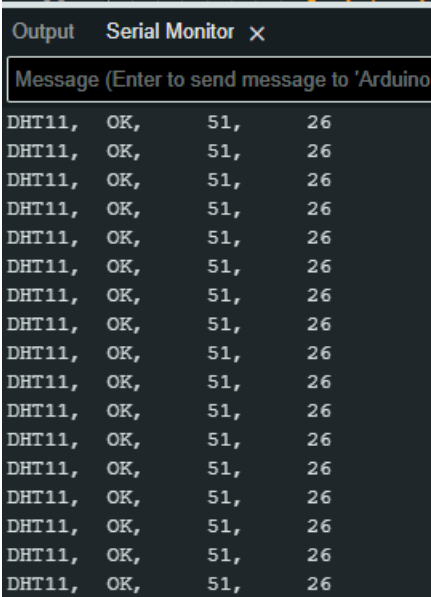


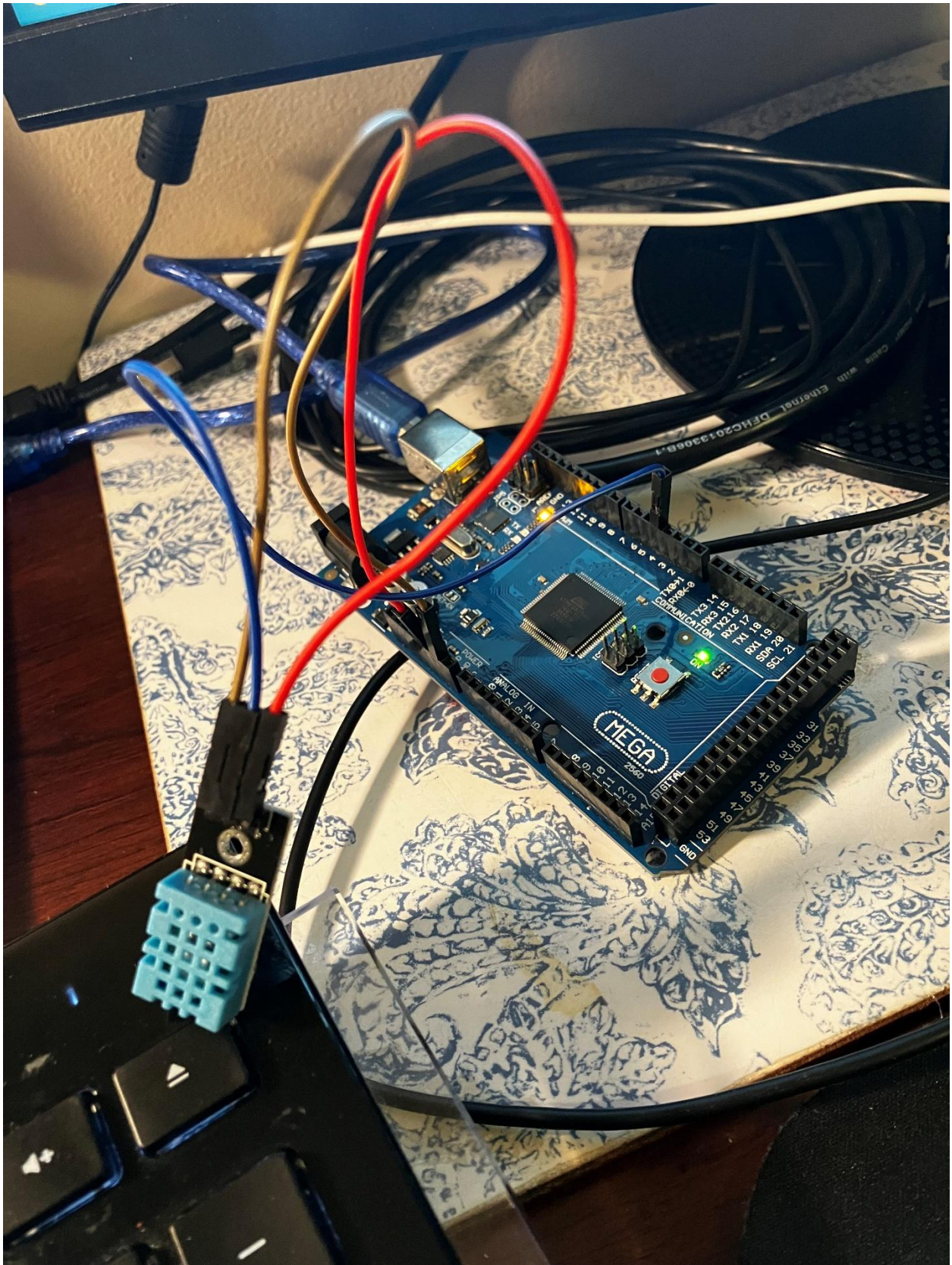
CpE 4010: Sensors, Actuators, and Integration

Name: Anindita Deb	KSU ID: 000922115
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From procedure 3:

Insert your picture of your circuit and serial monitor here:





From procedure 5:

Insert the screenshot of your IDE code window and serial monitor here:

sketch_oct9a | Arduino IDE 2.3.2

File Edit Sketch Tools Help

Arduino Mega or Meg... Upload

sketch_oct9a.ino

```
13 Serial.println("Time (s),\tTemperature (C),\tTemperature (F),\tTemperature (K)");
14 }
15
16 void loop(){
17   int chk = DHT.read(DHT11_PIN); // Read data from DHT11 sensor
18
19   // Check the sensor status
20   if (chk == DHTLIB_OK) {
21     float tempC = DHT.temperature; // Temperature in Celsius
22     float tempF = tempC * 9.0 / 5.0 + 32; // Convert to Fahrenheit
23     float tempK = tempC + 273.15; // Convert to Kelvin
24
25
26     // Display data in the serial monitor
27     Serial.print(timeCounter); // Display time in seconds
28     Serial.print(" s,\t");
29     Serial.print(tempC, 1); // Display temperature in Celsius
30     Serial.print(" °C,\t");
31     Serial.print(tempF, 1); // Display temperature in Fahrenheit
32     Serial.print(" °F,\t");
33     Serial.print(tempK, 1); // Display temperature in Kelvin
34     Serial.println(" K");
35
36     // Increment the counter for the next second
37     timeCounter++;
38   } else {
39     Serial.print("Error reading data from DHT11, Code: ");
40     Serial.println(chk); // Display error code in case of failure
41   }
42
43   delay(1000); // Wait for 1 second before the next reading
44 }
45
```

Output Serial Monitor X

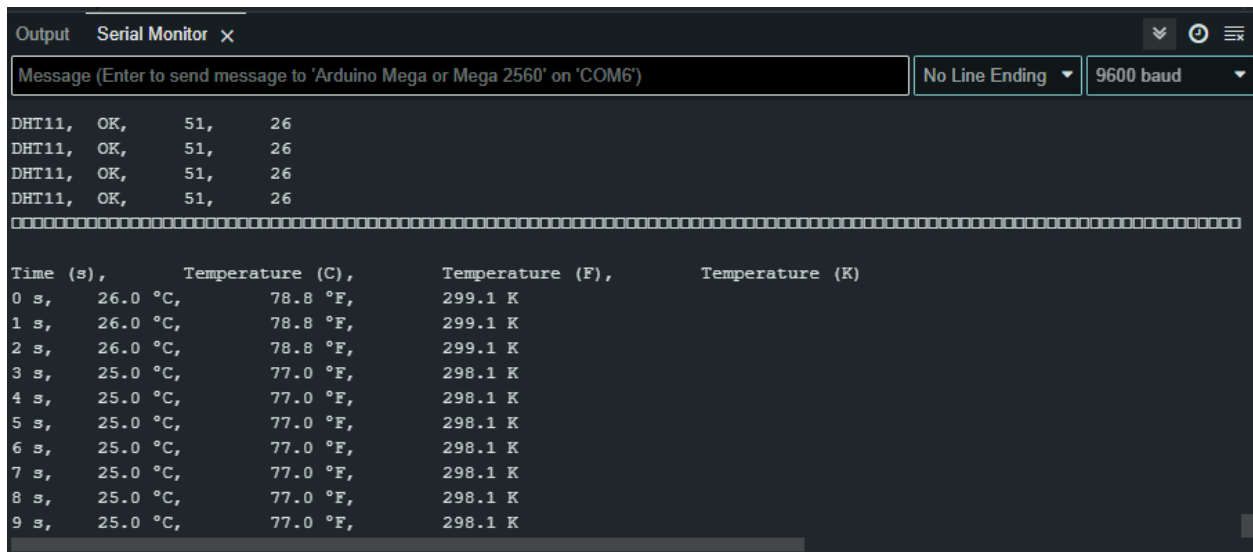
Message (Enter to send message to 'Arduino Mega or Mega 2560' on 'COM6') No Line Ending 9600 baud

494 s, 26.0 °C, 78.8 °F, 299.1 K

Time (s), Temperature (C), Temperature (F), Temperature (K)

0 s,	26.0 °C,	78.8 °F,	299.1 K
1 s,	26.0 °C,	78.8 °F,	299.1 K
2 s,	26.0 °C,	78.8 °F,	299.1 K
3 s,	26.0 °C,	78.8 °F,	299.1 K
4			

Ln 24, Col 1 Arduino Mega or Mega 2560 on COM6 3



From procedure 7:

Insert the resolution, accuracy, and response time of the sensor here:

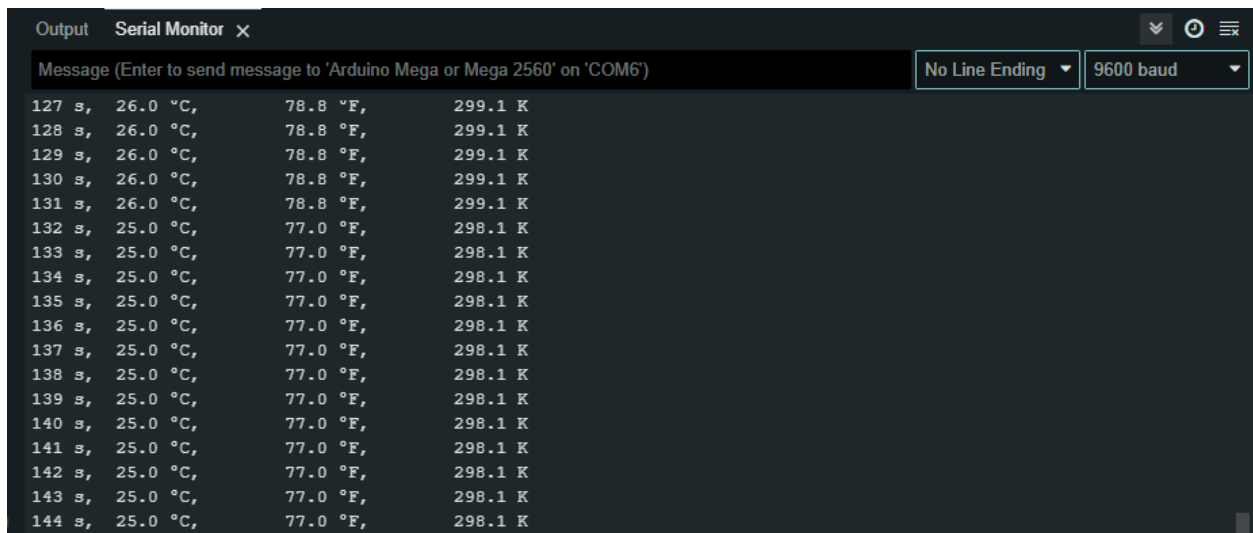
Resolution: 1 degree Celsius

Accuracy: +- 2 degrees Celsius

Response Time: 5 seconds-30 seconds

From procedure 8:

Insert the screenshot of the stable room temperature here:



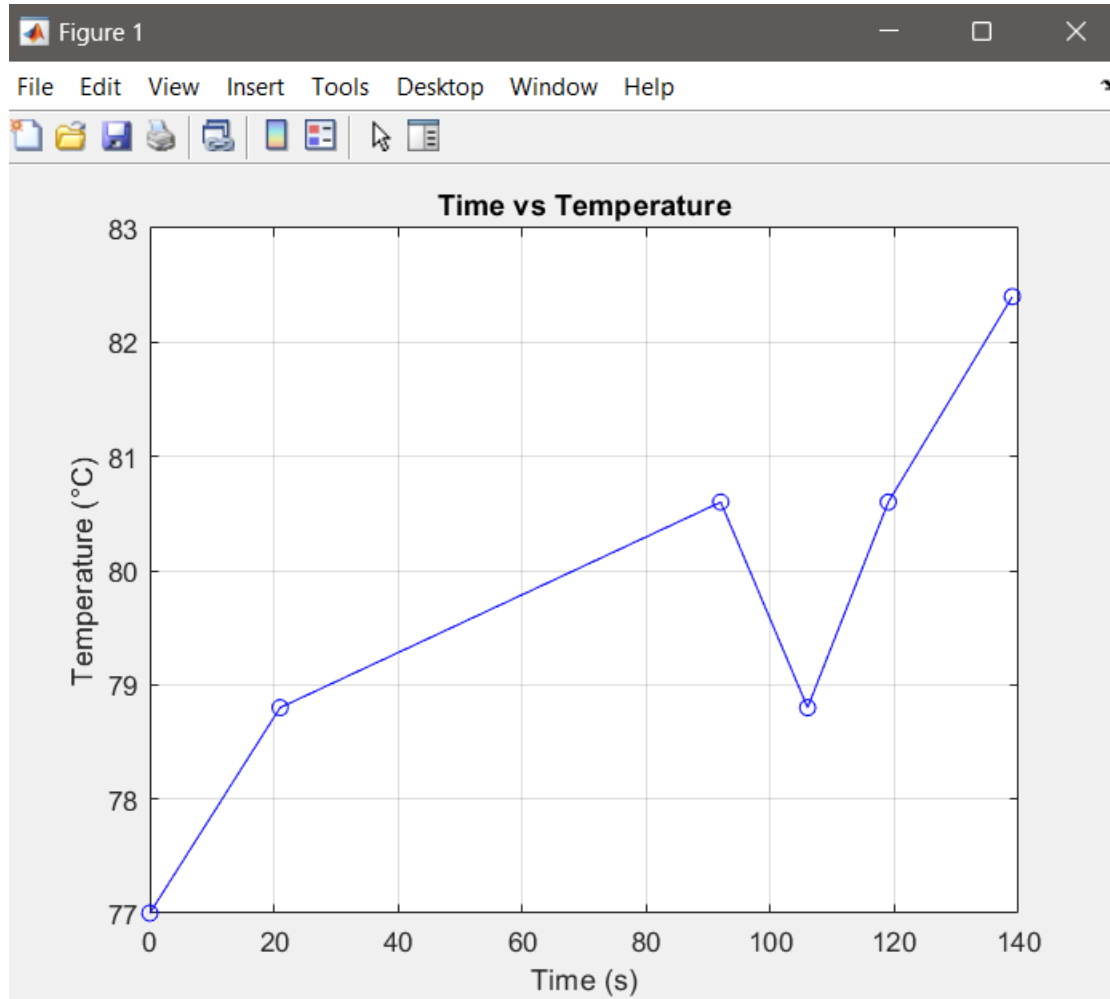
From procedure 10:

Insert the temperature vs time plot figure and compare with the specs here:

```

0 s, 25.0 °C, 77.0 °F, 298.1 K
21 s, 26.0 °C, 78.8 °F, 299.1 K
92 s, 27.0 °C, 80.6 °F, 300.1 K
106 s, 26.0 °C, 78.8 °F, 299.1 K
119 s, 27.0 °C, 80.6 °F, 300.1 K
Error reading DHT11 sensor data.
139 s, 28.0 °C, 82.4 °F, 301.1 K
Time (s), Temperature (C), Temperature (F), Temperature (K)
0 s, 28.0 °C, 82.4 °F, 301.1 K

```



Conclusions:

The Arduino lost connection a couple of times so that why its kind of a pretty short graph with some plotted points.