

## TEMPERATURE AND HUMIDITY MONITORING SYSTEM

Name: Surreddy Durga Bhavani

Domain: Embedded and IoT

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### AIM:

To measure the temperature and humidity by using temperature sensor with the interface of Arduino.

### SOFTWARE REQUIRED:

➔ Tinkercad

### HARDWARE REQUIRED:

- ➔ Potentiometer
- ➔ Temperature Sensor
- ➔ Breadboard
- ➔ Arduino
- ➔ Personal Computer

### THEORY:

#### ➔ Potentiometer:

- A variable resistor that can be adjusted to provide different resistance values. It is commonly used to control electrical devices such as volume controls on audio equipment.

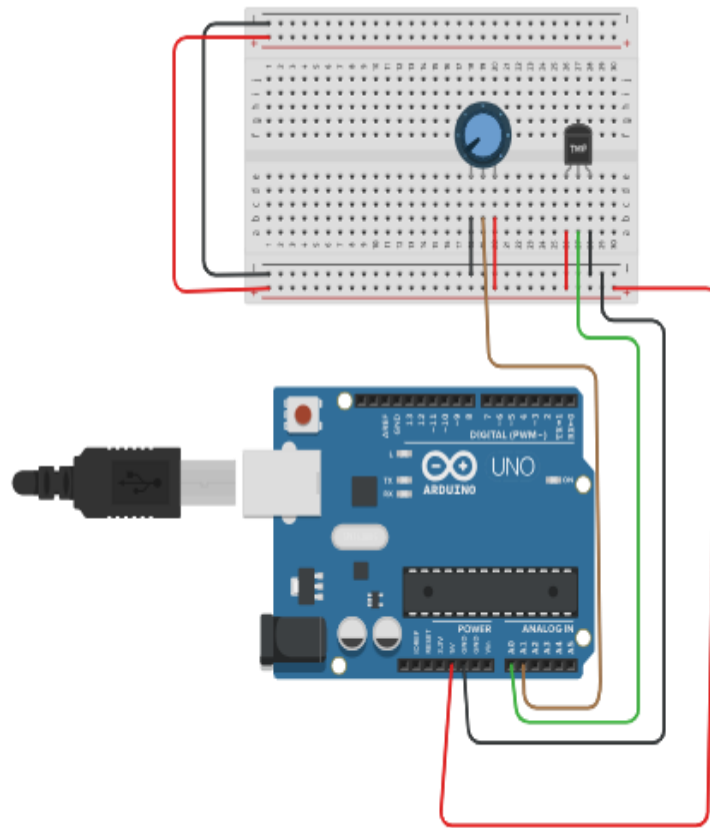
#### ➔ Temperature Sensor:

- A device that measures temperature and converts it into a signal that can be read by an instrument. Examples include thermistors, and thermocouples.

### CIRCUIT CONNECTION:

1. The Arduino 5V voltage supply is connected to the breadboard and one end of potentiometer and temperature sensor are connected to parallel and other end of potentiometer and temperature sensor are connected to the ground.
2. The middle pin of potentiometer is connected to the A1 of Arduino.
3. In potentiometer, an input is taken from A1 pin of Arduino.
4. Similarly the middle pin of temperature sensor is connected to the A0 of Arduino.

## CIRCUIT DIAGRAM:



## PROGRAM:

```
const int analogIn = A0;
int humiditysensorOutput = 0;
int RawValue=0;
double Voltage = 0;
double tempC = 0;
double tempF = 0;
void setup(){
  Serial.begin(9600);
  pinMode(A1, INPUT);
}
void loop(){
  RawValue = analogRead(analogIn);
  Voltage = (RawValue / 1023.0) * 5000;
  tempC = (Voltage-500) * 0.1;
  tempC = (tempC * 1.8) + 32;
  Serial.print("Raw Value = ");
  Serial.print(RawValue);
```

```

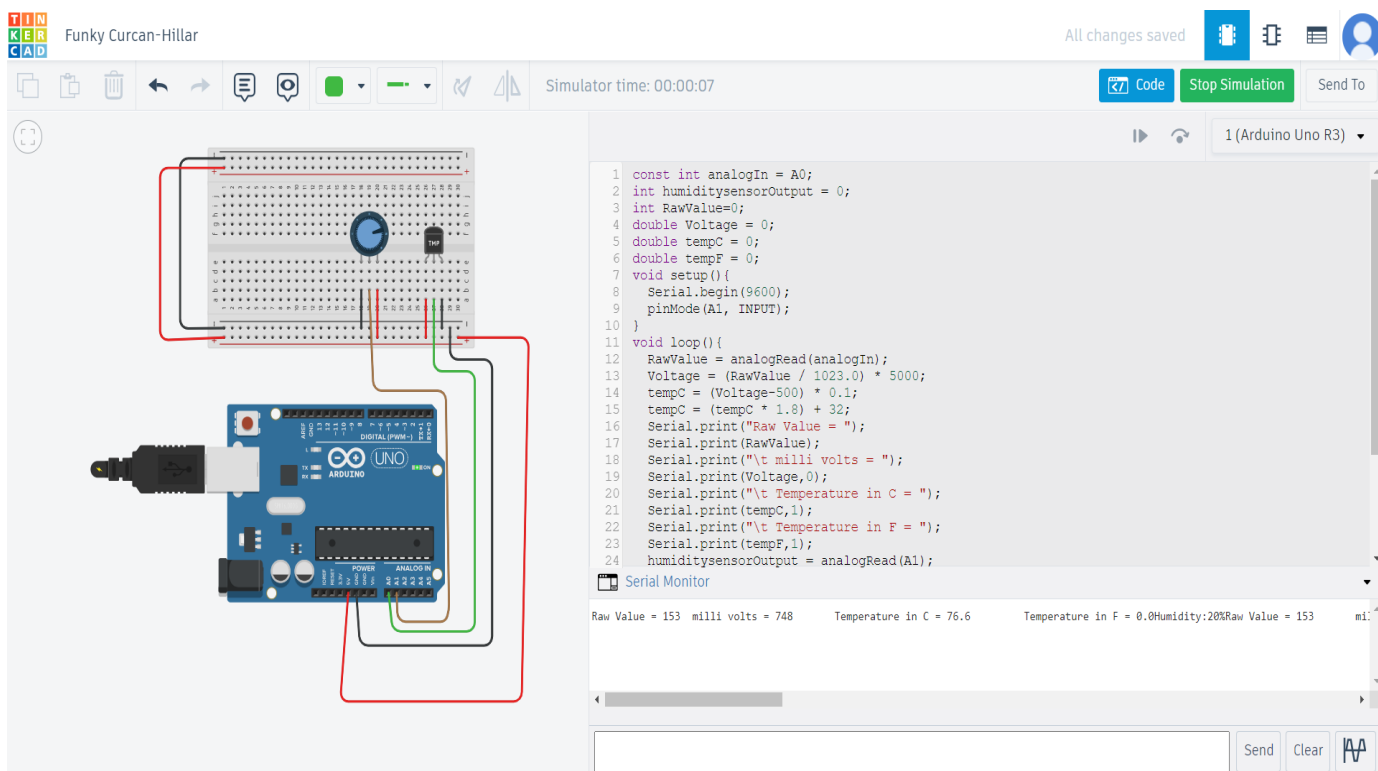
Serial.print("\t milli volts = ");
Serial.print(Voltage,0);
Serial.print("\t Temperature in C = ");
Serial.print(tempC,1);
Serial.print("\t Temperature in F = ");
Serial.print(tempF,1);
humiditysensorOutput = analogRead(A1);
Serial.print("Humidity:");
Serial.print(humiditysensorOutput);
Serial.print("%");
delay(5000);
}

```

### PRECAUTIONS:

1. Check the compilation errors.
2. Connect the circuit properly to particular Arduino pins.

### OUTPUT:



The screenshot shows the Arduino IDE interface. On the left, a circuit diagram illustrates an Arduino Uno R3 connected to a breadboard. A blue potentiometer is connected to the 5V pin (red wire), the wiper (middle pin, green wire), and the GND pin (black wire). The wiper is also connected to the A0 pin of the Arduino. The Arduino is connected to a USB cable. On the right, the code from the previous block is displayed. Below the code, the Serial Monitor is open, showing the following output:

```

Raw Value = 153 milli volts = 748    Temperature in C = 76.6    Temperature in F = 0.0Humidity:20%Raw Value = 153

```

### RESULT:

Hence I run the code successfully and observed the output values on Serial Monitor.