

Internet of Things

✚ Practical No 8: Study the Temperature sensor and Write Program for monitor temperature using Arduino

➤ We will take Humidity from DHT11 & DHT22 Sensor with LCD display

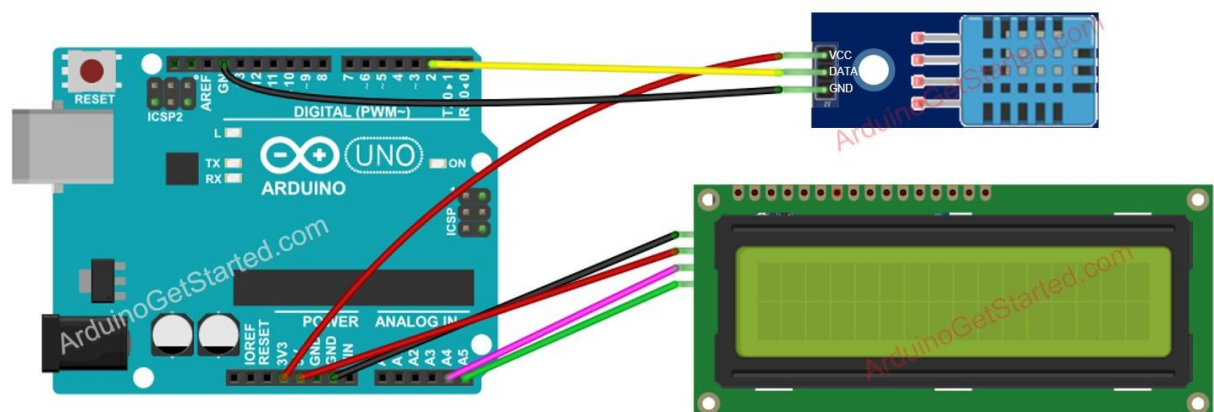
Hardware Required

- 1) Arduino Uno or Genuino Uno
- 2) USB 2.0 cable type A/B
- 3) LCS I2C
- 4) Temperature and Humidity Sensor DHT11 & DHT22
- 5) Jumper Wires

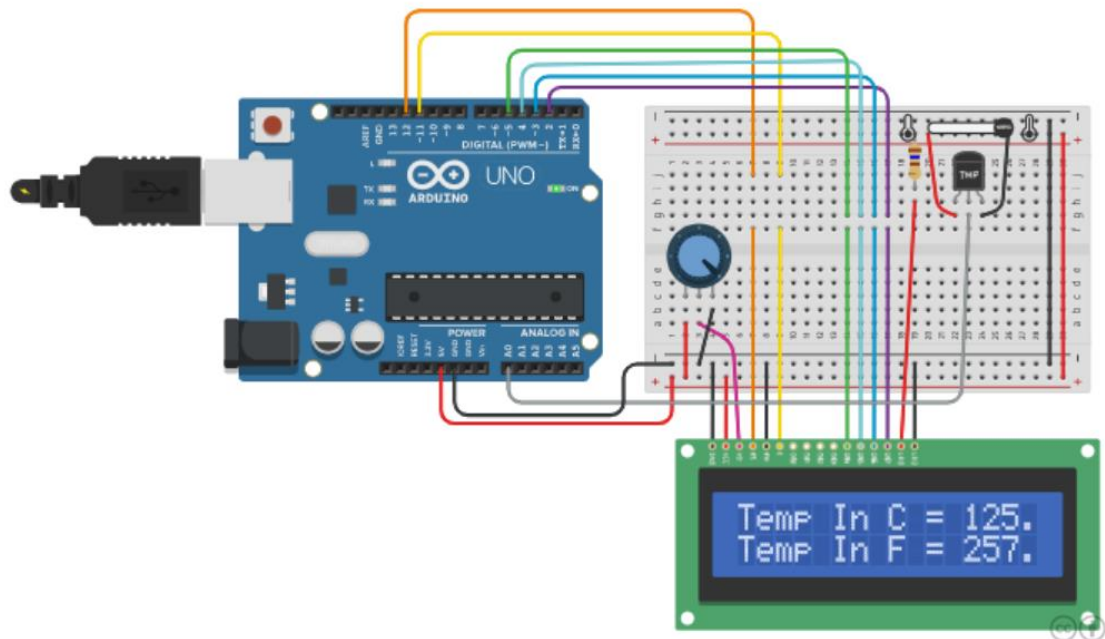
The differences between DHT11 and DHT22

	DHT11	DHT22
Price	ultra low cost	low cost
Temperature Range	0°C to 50°C	-40°C to 80°C
Temperature Accuracy	± 2°C	± 0.5°C
Humidity Range	20% to 80%	0% to 100%
Humidity Accuracy	5%	± 2 to 5%
Reading Rate	1Hz (once every second)	0.5Hz (once every 2 seconds)
Body size	15.5mm x 12mm x 5.5mm	15.1mm x 25mm x 7.7mm

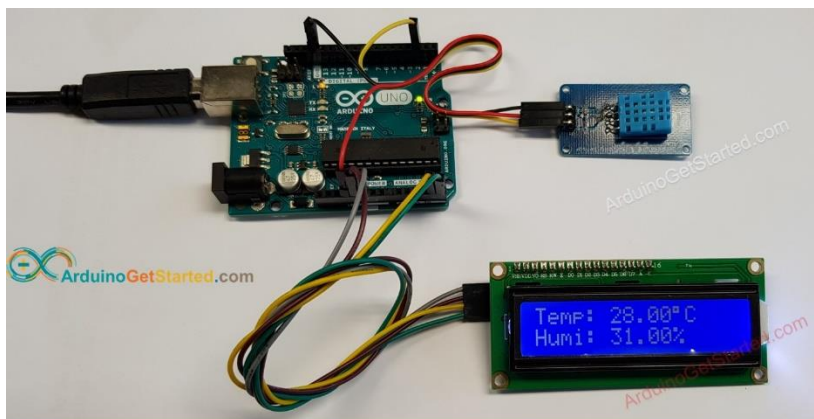
Tinker card Implement



Displaying Temperature Sensor Values on LCD Display Tinker cad



Real-time Application



CODE

```
#include <LiquidCrystal_I2C.h>
#include "DHT.h"
#define DHTPIN 2
#define DHTTYPE DHT11
```

```
LiquidCrystal_I2C lcd(0x3F, 16, 2); // I2C address 0x3F, 16 column and 2 rows
DHT dht(DHTPIN, DHTTYPE);

void setup()
{
    dht.begin(); // initialize the sensor
    lcd.init(); // initialize the lcd
    lcd.backlight(); // open the backlight
}

void loop()
{
    delay(2000); // wait a few seconds between measurements

    float humi = dht.readHumidity(); // read humidity
    float tempC = dht.readTemperature(); // read temperature

    lcd.clear();
    // check if any reads failed
    if (isnan(humi) || isnan(tempC)) {
        lcd.setCursor(0, 0);
        lcd.print("Failed");
    } else {
        lcd.setCursor(0, 0); // start to print at the first row
        lcd.print("Temp: ");
        lcd.print(tempC); // print the temperature
        lcd.print((char)223); // print ° character
        lcd.print("C");

        lcd.setCursor(0, 1); // start to print at the second row
```

```
lcd.print("Humi: ");  
lcd.print(humi);    // print the humidity  
lcd.print("%");  
}  
}
```

Output:

