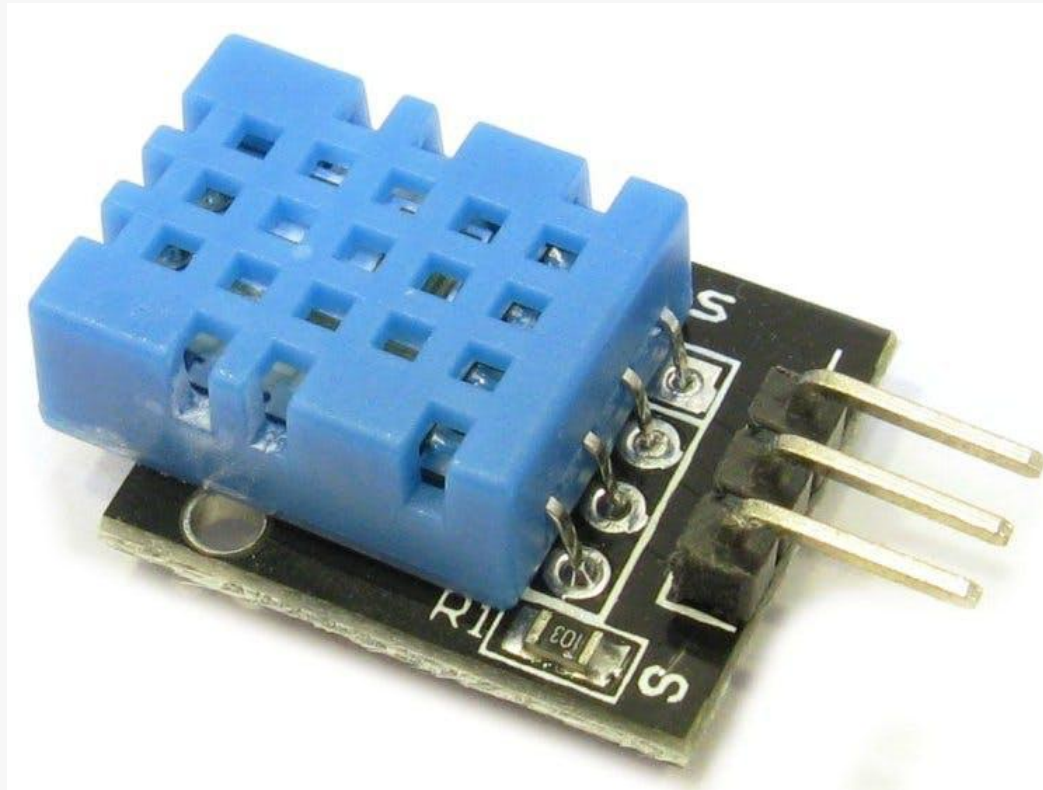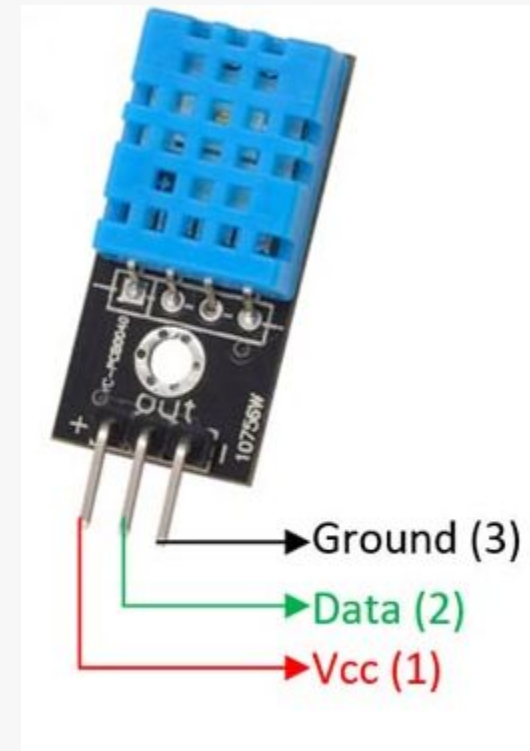# Interfacing of DHT11 Sensor

DHT11 Sensor

- The **DHT11** is a commonly used **Temperature and humidity sensor.**

- The sensor comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data.

- The sensor can measure temperature from 0°C to 50°C and humidity from 20% to 90% with an accuracy of ±1°C and ±1%.

Ground (3)
Data (2)
Vcc (1)

Applications of DHT11 Sensor

- Measure temperature and humidity
- Local Weather station
- Automatic climate control
- Environment monitoring

Working of DHT11 Sensor

- DHT11 sensor consists of a capacitive humidity sensing element and a thermistor for sensing temperature.

- The humidity sensing capacitor has two electrodes with a moisture holding substrate as a dielectric between them.

- It changes in the capacitance value occurs with the change in humidity levels. The IC measure, process this changed resistance values and change them into digital form.

- For measuring temperature this sensor uses a **Negative Temperature coefficient thermistor**, which causes a decrease in its resistance value with increase in temperature.

Components Required

- Arduino Nano
- DHT11 Sensor
- Breadboard
- Jumper wires

Connection Diagram
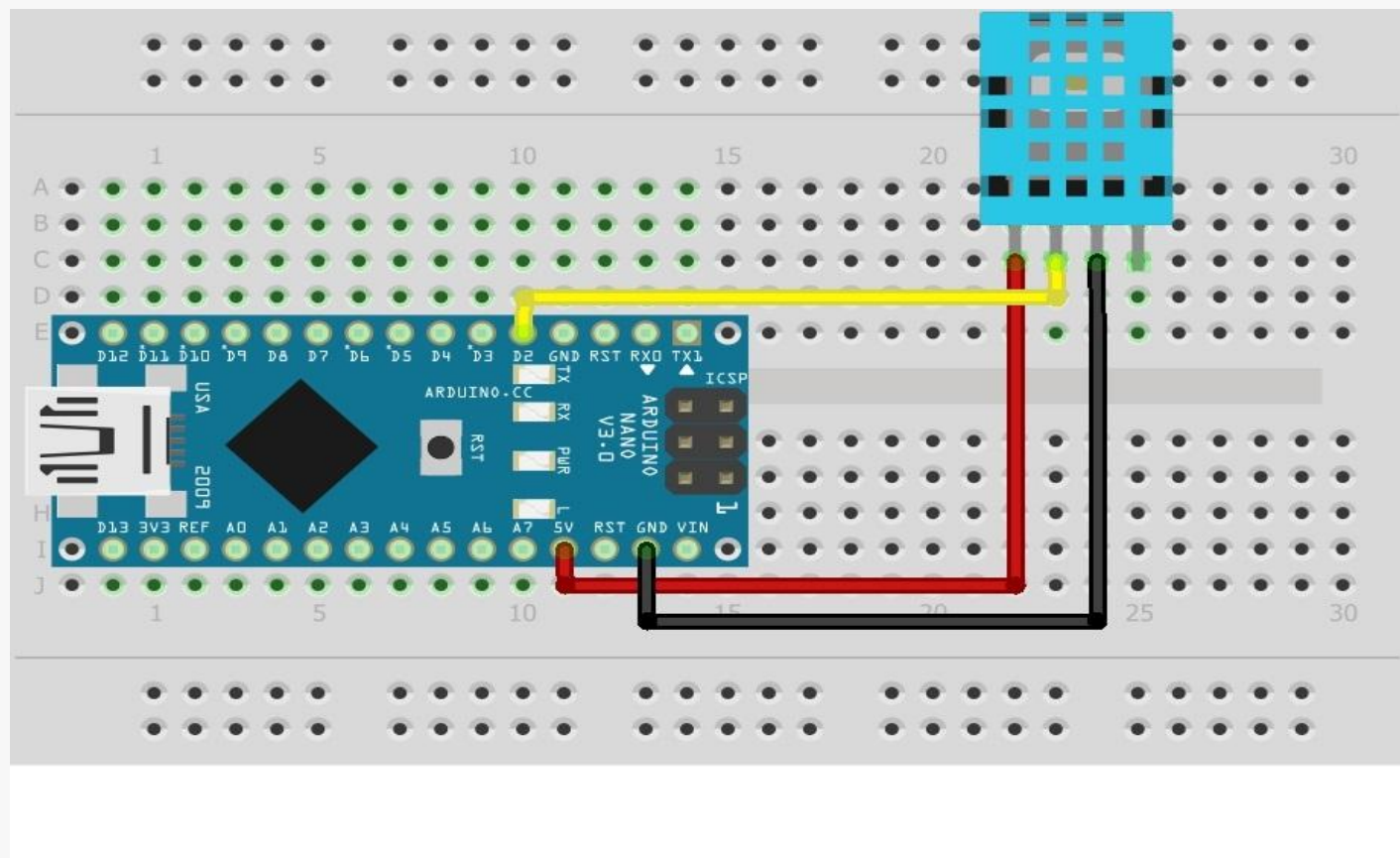
Connections

1. Connect DATA pin of DHT11 sensor with D2 (or any digital pin) of Arduino Nano.

2. Connect Vcc pin of DHT11 sensor with +5V pin of Arduino Nano.

3. Connect GND pin of DHT11 sensor with GND pin of Arduino Nano.

Details about the code

You need to follow these instructions to make it work:

1. You need to add the library of "DHT.zip" to the Arduino IDE.
2. Upload the code.
3. When the code is uploaded, open the Serial Monitor and set the baud rate to 9600.
4. You will see the humidity and temperature.

Code

File Edit Sketch Tools Help

Interfacing_of_DHT11

```arduino
#include <dht.h>

dht DHT;
// if you require to change the pin number, Edit the pin with your arduino pin.

#define DHT11_PIN 2

void setup() {

Serial.begin(9600);

Serial.println("welcome to ABL Education Humidity and temperature Detector"); }

void loop() { // READ DATA

int chk = DHT.read11(DHT11_PIN);

Serial.println(" Humidity " );

Serial.println(DHT.humidity,1);

Serial.println(" Temperature ");

Serial.println(DHT.temperature,1);

delay(2000);

}
```

Project Link: https://youtu.be/2Up9xWojDj4