

Using DHT22 Digital Temperature & Humidity Sensor

Module with Arduino

Introduction:



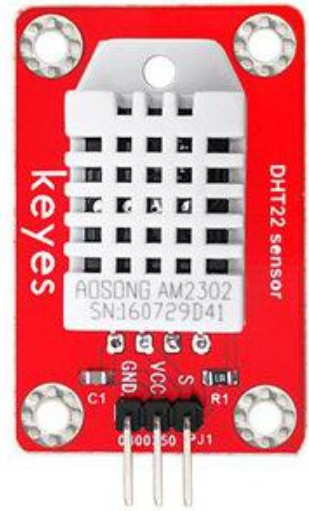
The DHT sensors are made of two parts, a capacitive humidity sensor and a thermistor. There is also a very basic chip inside that does some analog to digital conversion and spits out a digital signal with the temperature and humidity. The digital signal is fairly easy to read using any microcontroller.

In this tutorial, the DHT22 sensor will be used along side with Arduino to take a temperature and humidity reading. This sensor are suitable to use for basic data logging.

Feature/Details:-

- Type: AM2302
- Accuracy resolution: 0.1
- Humidity range: 0-100%RH
- Temperature range: -40~80°C
- Humidity measurement precision: $\pm 2\%$ RH
- Temperature measurement precision: $\pm 0.5^\circ\text{C}$

Pin-out differences between DHT22 sensor and DHT22 Sensor Module:-



DHT22 Without Module			DHT22 With Module		
Pin	Name	Description	Pin	Name	Description
1	VDD	Power (3.3v - 5V)	1	GND	Ground
2	SDA / DATA	Serial Data / Bidirectional Port	2	VCC	Power (3.3v - 5V)
3	NC	Empty	3	SDA / DATA	Serial Data / Bidirectional Port
4	GND	Ground			

Objective:-

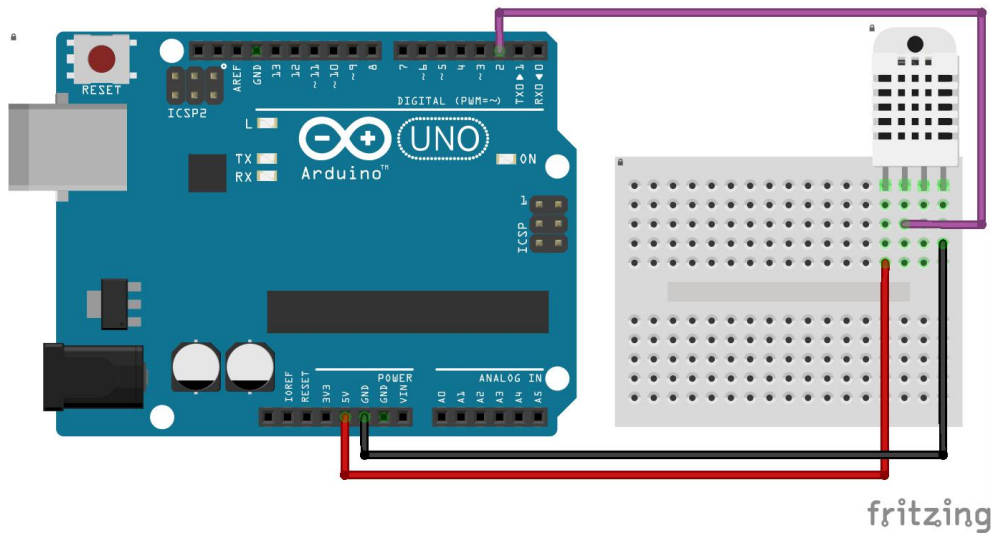
The DHT22 sensor will sense the Temperature & Humidity level and the reading values will be displayed at the Serial Monitor tab.

Component Needed:-

- Arduino UNO (Mega & Nano compatible)
- DHT22 Digital Temperature & Humidity Sensor Module
- Few Jumper Wires
- Breadboard

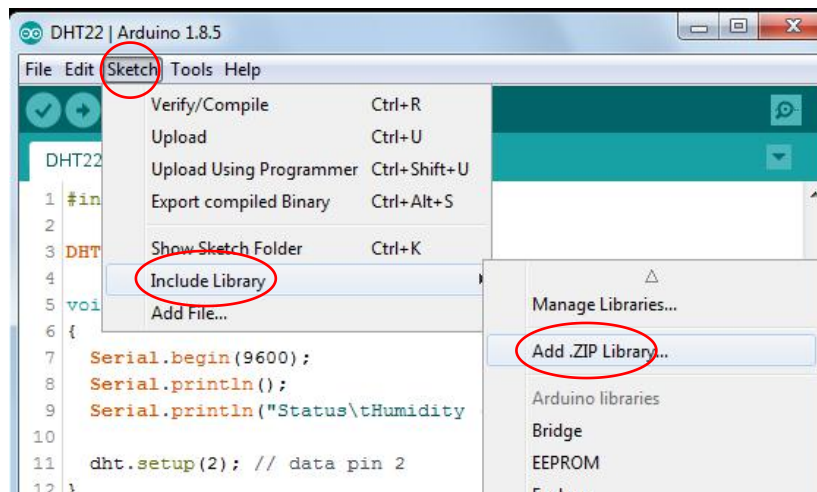
Procedure:-

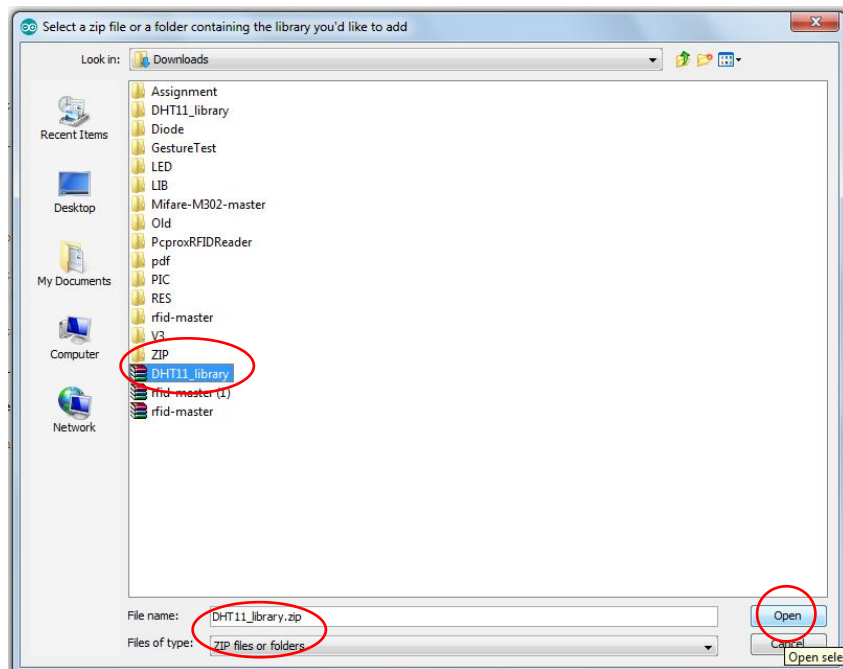
- 1) Connect the DHT22 sensor with Arduino based on Picture and Table below.



Arduino UNO	DHT22 Sensor
2	SDA / Data
3.3v	VDD
GND	GND
-	NC

- 2) [Download](#) the library from given link below. Open **Arduino IDE** install the library by clicking on *Sketch > Include Library > Add .ZIP Library...* . Then navigate to the downloaded library and click on **Open**.





- 3) Copy and Paste the following provided program code into Arduino IDE. Connect the Arduino to the PC then click on **Verify** and after that click on **Upload** button.

```
#include "DHT.h"

DHT dht;

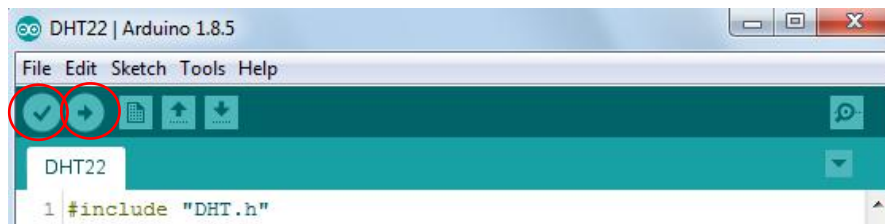
void setup()
{
  Serial.begin(9600);
  Serial.println();
  Serial.println("Status\tHumidity (%)\tTemperature (C)\t(F)");

  dht.setup(2); // data pin 2
}

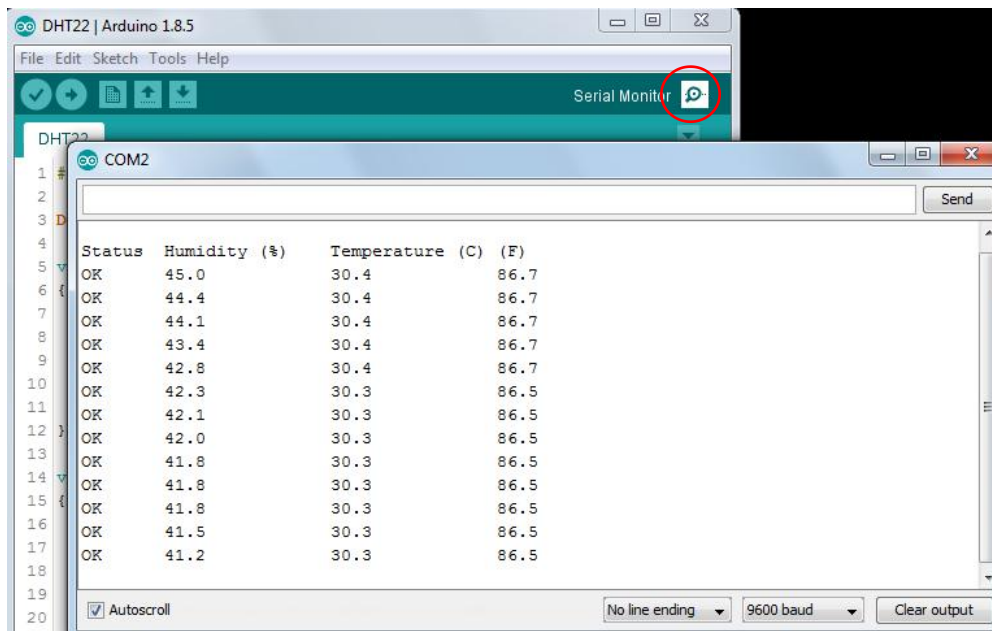
void loop()
{
  delay(dht.getMinimumSamplingPeriod());

  float humidity = dht.getHumidity();
  float temperature = dht.getTemperature();

  Serial.print(dht.getStatusString());
  Serial.print("\t");
  Serial.print(humidity, 1);
  Serial.print("\t\t");
  Serial.print(temperature, 1);
  Serial.print("\t\t");
}
```



- 4) After finish uploading the program code to the Arduino, **Open the Serial Monitor** tab to see the **Temperature & Humidity** value reading. Done!!!



Sample Pictures

