How to Use DHT-22 Sensor - Arduino Tutorial

By codebender_cc (/member/codebender_cc/) in Circuits (/circuits/) > Arduino (/circuits/arduino/projects/) 258,458 84 28

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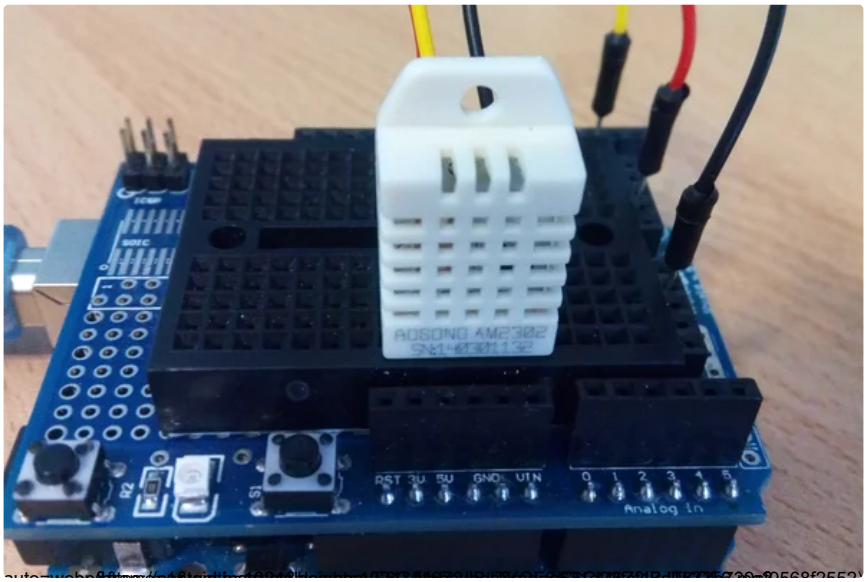

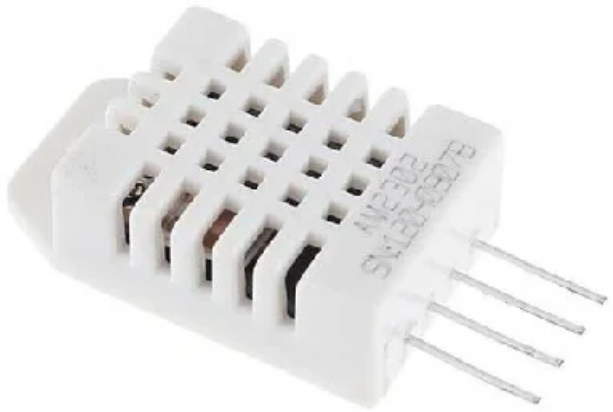

(/member/codebender_cc/)
By **codebender_cc (/member/codebender_cc/)**
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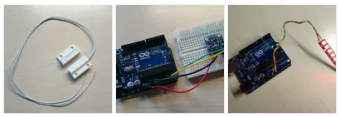

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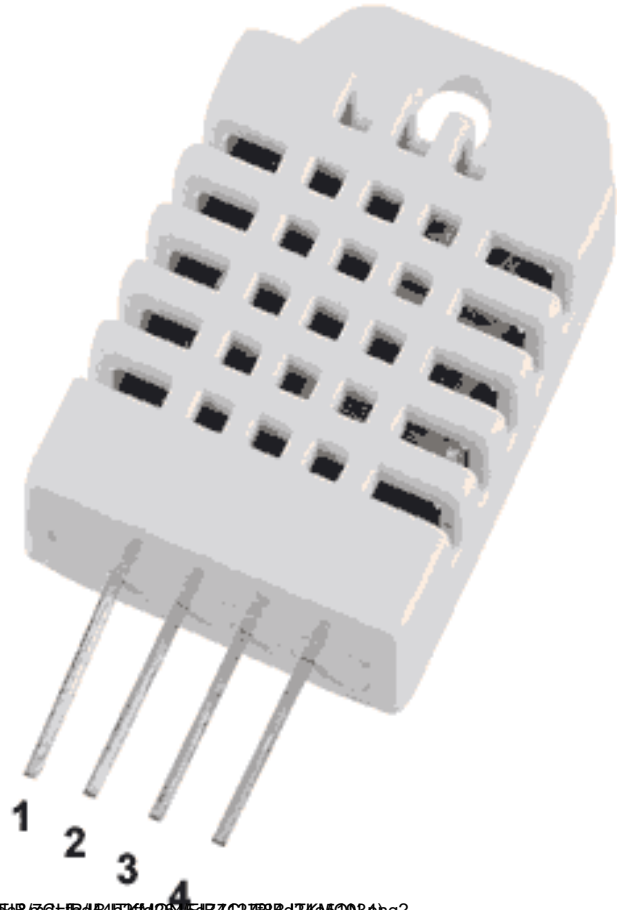
The DHT-22 (also named as AM2302) is a digital-output relative humidity and temperature sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and spits out a digital signal on the data pin.

In this tutorial you will learn how to use this sensor with Arduino uno. The room temperature & humidity will be printed to serial monitor.

So, let's get started!

Step 1: About the DHT-22 Sensor

DHT22 pins	
1	VCC
2	DATA
3	NC
4	GND



The DHT22 is a basic, low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and spits out a digital signal on the data pin (no analog input pins needed).

Connections are simple, the first pin on the left to 3-5V power, the second pin to your data input pin and the right most pin to ground.

Technical details:

- Power: 3-5V
- Max Current: 2.5mA
- Humidity: 0-100%, 2-5% accuracy
- Temperature: -40 to 80°C, ±0.5°C accuracy

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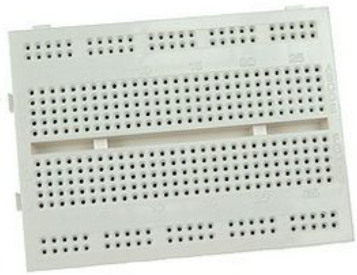
Step 2: What You Will Need



(https://content.instructables.com/FQY/O3A0/IBJTKQ7I/FQYO3A0IBJTKQ7I.png?auto=webp&frame=1&fit=bounds&md=f91f44f0dea85d9925175250abeff59e)

For this tutorial you will need:

- Arduino uno
- Breadboard
- DHT-22

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Step 3: The Circuit

The connections are pretty easy, see the image above with the breadboard circuit schematic.

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Step 4: The Code

(https://content.instructables.com/FSG/JQPN/IBKMKYEY/FSGJQPNIBKMKYEY.jpg?auto=webp&frame=1&fit=bounds&md=96e2c3af65dbee836672ceb47b20d630)

Here's the code, embedded using codebender!

Try downloading the codebender plugin and clicking on the "Run on Arduino" button to program your Arduino board with this sketch. Below you will also find codebender serial monitor, press connect button to start receiving data from sensor.

[arduino-tutorial] DHT-22 Temp and Humidity Sensor (https://codebender.cc/sketch:129686?referrer=mi.vasilakis) by mi.vasilakis (https://codebender.cc/user/mi.vasilakis?referrer=mi.vasilakis) | Edit | Clone & Edit | Download

```
/* How to use the DHT-22 sensor with Arduino uno
   Temperature and humidity sensor
   More info: http://www.ardumotive.com/how-to-use-dht-22-sensor-en.
   Dev: Michalis Vasilakis // Date: 1/7/2015 // www.ardumotive.com */

//Libraries
#include <DHT.h>;

//Constants
#define DHTPIN 2     // what pin we're connected to
#define DHTTYPE DHT22   // DHT 22  (AM2302)
DHT dht(DHTPIN, DHTTYPE); //// Initialize DHT sensor for normal 16mh


//Variables
int chk;
float hum;  //Stores humidity value
float temp; //Stores temperature value

void setup()
{
    Serial.begin(9600);
    dht.begin();

}

void loop()
{
    //Read data and store it to variables hum and temp
    hum = dht.readHumidity();
```

There was an unexpected error. Please refresh your browser.

Please select a board | Run on Arduino

Serial Monitor:

Port: | Speed: 9600 | Connect

To program your Arduino from your browser, install the codebender app or

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Step 5: Well Done!

You have successfully completed one more Arduino "How to" tutorial and you learned how to use the DHT-22 sensor.

I hope you liked this, let me know in the comments.

There will be more of them, so make sure to click Follow button!

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5 People Made This Project!

ayginn (/member/ayginn/) made it!

SomePolishGuy (/member/SomePolishGuy/) made it!

rvan katwijk (/member/rvan+katwijk/) made it!

Shankar AnanthA (/member/Shankar+AnanthA/) made it!

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Please be positive and constructive.

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28 Comments

(/member/usama17tlmuetUsama/) usama17tlmuetUsama (/member/usama17tlmuetUsama/)
1 year ago on Step 5

Reply Upvote

does anyone have code of DHT22 with wifi module?

(/member/SomePolishGuy/) SomePolishGuy (/member/SomePolishGuy/) 3 years ago

Reply Upvote

Thanks for the great tutorial! Up and running in minutes!!!!!

1

(/member/jroachsr/) jroachsr (/member/jroachsr/) Question 4 years ago on Step 2

Answer Upvote

I copied & pasted your code but get an error "exit status 1" error compiling for board Arduino/Genuine UNO. However if I use the online uploader it indicates it up loaded successfully. I want to use this program with a LCD but if I can't compile this portion of the code I cannot add to it, any suggestions?

(/member/hornerj99/) hornerj99 (/member/hornerj99/) 7 years ago

Reply Upvote

Don't you need a 10k resistor in there?

1 reply

(/member/JayM83/) JayM83 (/member/JayM83/) 6 years ago

Reply Upvote

Hi!, I am Jay and want to ask about the problem which i faced. I connected everything perfectly, codes were also perfect but then i uploaded the code onto the Intel Galileo Gen2 board and found out that no humidity and temperature is measured perfectly through serial monitor. it says " Humidity = 0% Temperature = 0.00C". Please help me out.

1 reply

(/member/charliescarface/) charliescarface (/member/charliescarface/) 5 years ago

Reply Upvote

Can this project be used in conjunction with a WeMo switch to turn on/off a furnace based on the humidity of that space?

1 reply

(/member/ChandruS6/) ChandruS6 (/member/ChandruS6/) 5 years ago

Reply Upvote

But Great Project I already made it!

1

(/member/ChandruS6/) ChandruS6 (/member/ChandruS6/) 5 years ago

Reply Upvote

Where I should get the DHT22.h Library?
? ? ? ? ? ? ?

(/member/banjabi1/) banjabi1 (/member/banjabi1/) 5 years ago

Reply Upvote

probably need to add these lines:
#include <DHT.h>
#include <DHT_U.h>
#include <Adafruit_Sensor.h>

and first install Adafruit Dht22 and somekind of Unified Sensor library from the library manager

1 reply

(/member/soardr/) soardr (/member/soardr/) 5 years ago

Reply Upvote

Can we use an analog pin to connect the data pin of the sensor ?

(/member/GeeksTipsDotCom/) GeeksTipsDotCom (/member/GeeksTipsDotCom/) 5 years ago

Reply Upvote

Very thorough! Just want to mention that the DC is actually between 3.3v - 6v considering the datasheet provided by Sparkfun. If you don't know what sensor to use in your project you can see here a comparison between DHT22 and DS18B20 (http://www.geekstips.com/arduino/arduino-temperature-sensor-tutorial-dht22-vs-ds18b20)

(/member/bonsaiclub/) bonsaiclub (/member/bonsaiclub/) 6 years ago

Reply Upvote

Μπόμπα! Thanks!

(/member/jurgen.geldhof.1/) jurgen.geldhof.1 (/member/jurgen.geldhof.1/) 6 years ago

Reply Upvote

The 10k resistor seems to be missing here!

(/member/sridharj2/) sridharj2 (/member/sridharj2/) 6 years ago

Reply Upvote

NICE

(/member/Nygreekkid93/) Nygreekkid93 (/member/Nygreekkid93/) 6 years ago

Reply Upvote

Μπόμπα!

(/member/Orion96/) Orion96 (/member/Orion96/) 6 years ago

Reply Upvote

Thanks for this, real help for the beginners.

One prob though, my humidity shows around 8% and i know that is deffinitely not right, it's winter here, any ideas??

thanks in advance.

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