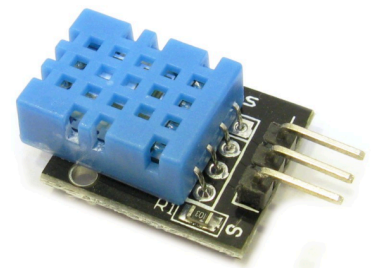


IoT tutorial

The slaves « DHT11 sensor »



1. Material required

- Arduino mega board with cable
- DHT11 sensor
- 3 Wires
- Computer

2. Software required

- Arduino software
- DHT library

3. Programming

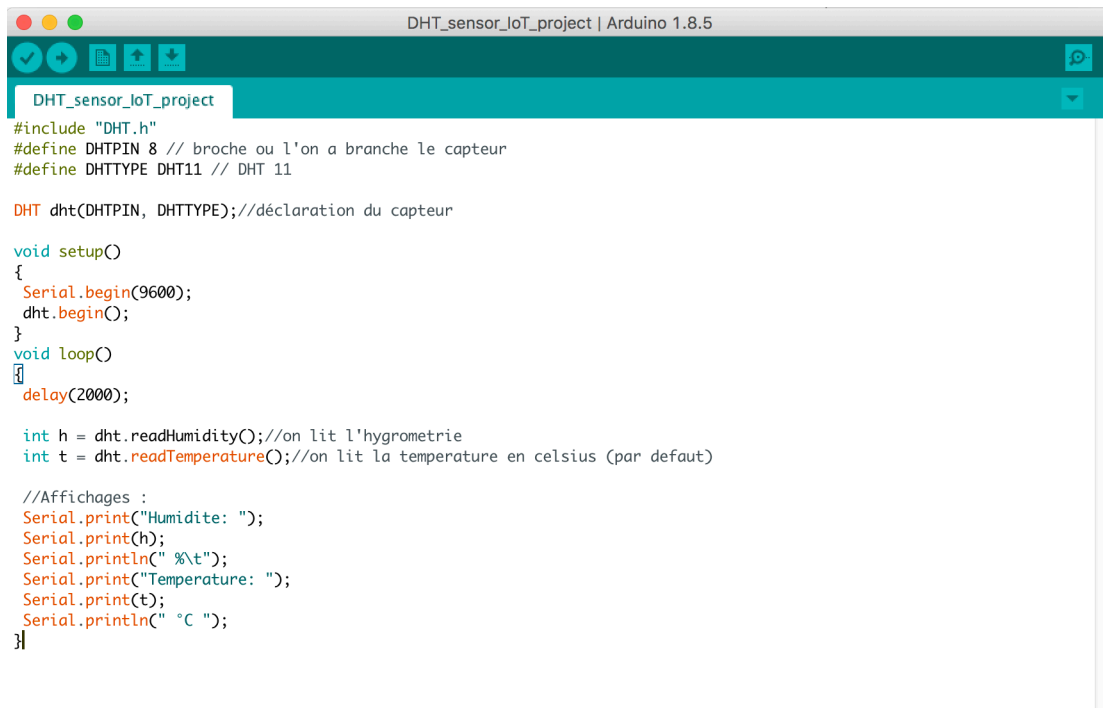
First of all, you have to download the DHT library.

As a first step, include the DHT library. Then, define the pin where we will wire the pin data from the sensor. In our case, we will use the PWM 8 of the Arduino mega board. After that, define the type of DHT sensor. Indeed, there are two types of DHT sensors: DHT11 and DHT12. In this project, we will use the DHT11. Finally, declare the sensor with the DHT pin and DHT type as parameters.

Then, in the void setup, we will start the sensor. In the void loop, we will recover the data from the sensor. The variables h and t represent the humidity and the temperature. Thus, both of these variables are integers. The `dht.readHumidity()` function will read the humidity, and, the `dht.readTemperature()` will read the temperature (in Celsius degree by default value).

We will finally print the results.

Then, just compile the code and check if there are any errors.



```
DHT_sensor_IoT_project | Arduino 1.8.5

#include "DHT.h"
#define DHTPIN 8 // broche ou l'on a branché le capteur
#define DHTTYPE DHT11 // DHT 11

DHT dht(DHTPIN, DHTTYPE); // déclaration du capteur

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

void loop()
{
  delay(2000);

  int h = dht.readHumidity(); // on lit l'hygrométrie
  int t = dht.readTemperature(); // on lit la température en celsius (par défaut)

  // Affichages :
  Serial.print("Humidité: ");
  Serial.print(h);
  Serial.println(" %\t");
  Serial.print("Température: ");
  Serial.print(t);
  Serial.println(" °C ");
}
```

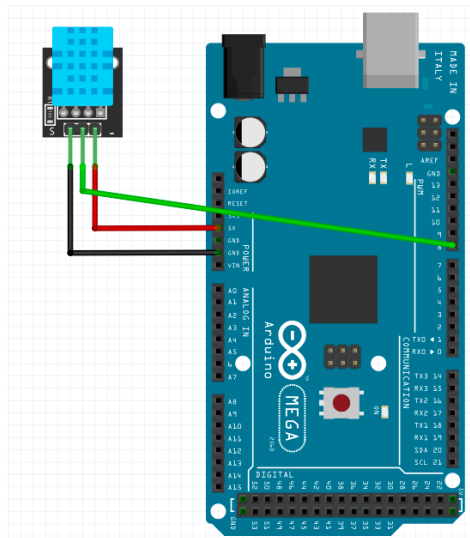
4. Wires

We will now power the DHT11 sensor and recover the data (temperature and humidity).

To do that, we have to wire the three pins of the DHT11 sensor:

- Ground to the ground of the Arduino
- Vcc to the 5V
- Data to the pin 8 PWM

When the sensor is well powered, the red led should light up.



Then, wire the Arduino mega board the computer and upload the code.

5. Visualize the data

Once the code uploaded on the Arduino mega board, just start the monitor.

You should have results like that:

```

/dev/cu.usbmodem1441 (Arduino/Genuino Mega or Mega 2560)
Humidite: 49 %
Temperature: 24 °C
Humidite: 50 %
Temperature: 24 °C
Humidite: 50 %
Temperature: 24 °C
Humidite: 49 %
Temperature: 24 °C
Humidite: 50 %
Temperature: 24 °C
Humidite: 54 %
Temperature: 24 °C
Humidite: 58 %
Temperature: 24 °C
Humidite: 61 %
Temperature: 24 °C
Humidite: 62 %
Temperature: 24 °C
Humidite: 63 %
Temperature: 25 °C
Humidite: 64 %
Temperature: 25 °C
Humidite: 65 %
Temperature: 25 °C
Humidite: 66 %
Temperature: 25 °C
Humidite: 66 %
Temperature: 26 °C
Humidite: 65 %
Temperature: 26 °C

```

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