About Grove-temperature and humidity sensor DHT11

Seeeduino XIAO for Seeed Wiki
Purchase link
Call for multilingual translation volunteers!
CONTACTS
Course Developers

Resources, downloads, links and instructions related to this lesson.

About Grove–temperature and humidity sensor DHT11

The temperature and humidity sensor is used to detect the temperature and humidity in the environment. There are many types of temperature and humidity sensors. We use the DHT11 temperature and humidity sensor with calibrated digital signal output. The capacitive sensor element on the sensor can measure the relative humidity. The temperature is measured through the thermistor. It is very suitable to use it to make an intelligent temperature and humidity meter. Temperature and humidity sensors are widely used in agriculture, environmental protection and home life.

Reading temperature and humidity values in a serial monitor

When using the sensor, we can use the DHT library to open the "DHTtester" example through the following path: "File → Example → Temperature and humidity sensor → DHT tester." After opening the example program, we can see the following program. The program can read the temperature and relative humidity information in the environment and display real-time data on the serial monitor. Some code for the sample program needs to be modified:
#define DHTPIN 0, we need to modify the parameters according to the pin number of the actual connection of the temperature and humidity sensor.

#define DHTTYPE DHT11, because the temperature and humidity sensors have different models, we have to choose the correct model.

```cpp
#include "DHT.h"
#define DHTPIN 0  //temperature and humidity sensor connected to A0 pin
#define DHTTYPE DHT11  //DHT 11
DHT dht(DHTPIN, DHTTYPE);
#if defined(ARDUINO_ARCH_AVR)
#define debug  Serial
#elif defined(ARDUINO_ARCH_SAMD) || defined(ARDUINO_ARCH_SAM)
#define debug  SerialUSB
#else
#define debug  Serial
#endif

//Initializing serial port display
void setup() {
  debug.begin(115200);
  debug.println("DHTxx test!");
  Wire.begin();
  dht.begin();
}

void loop() {
  //Read the temperature and humidity values and print on the serial monitor
  float temp_hum_val[2] = {0};
  if (!dht.readTempAndHumidity(temp_hum_val)) {
    debug.print("Humidity: ");
    debug.print(temp_hum_val[0]);
    debug.print(" %\t");
    debug.print("Temperature: ");
    debug.print(temp_hum_val[1]);
    debug.println(" *C");
  } else {
    debug.println("Failed to get temperature and humidity value.");
  }
  delay(1500);
}
```

After modifying the code, connect the temperature and humidity sensor to A0 interface, upload the sample program to XIAO, and open the serial monitor, you can see the values of temperature
and humidity. You can put the temperature and humidity sensors in different environments to observe whether the temperature and humidity values will change.

In the course, we used the DHT20 in Lesson 8 and Lesson 12. The corresponding DHT11 version code is as follows:

**Seeeduino XIAO for Seeed Wiki**

https://wiki.seeedstudio.com/Seeeduino-XIAO/

**Purchase link**

Seeeduino XIAO & Seeeduino XIAO Expansion board
https://www.seeedstudio.com/Seeeduino-XIAO-Pre-Soldered-p-4747.html
Seeeduino XIAO Starter Kit for Arduino
Coming soon...

**Call for multilingual translation volunteers!**

If you wish to translate course content into a language version other than English or Chinese, you can also contact us for support.
CONTACTS
Tel: +86–0755–86716703
Address: 1002, G3 Building, TCL International E City, 1001 Zhongshan Park Road, Nanshan District, Shenzhen
General: contact@chaihuo.org
www.tinkergen.com
www.seeedstudio.com

Course Developers
This course was co–authored by the following SeeedStudio employees:
Authors: Yimeng Shi
Designer: Yihui Meng
Proofreaders: Lei Feng, Jonathan Tan