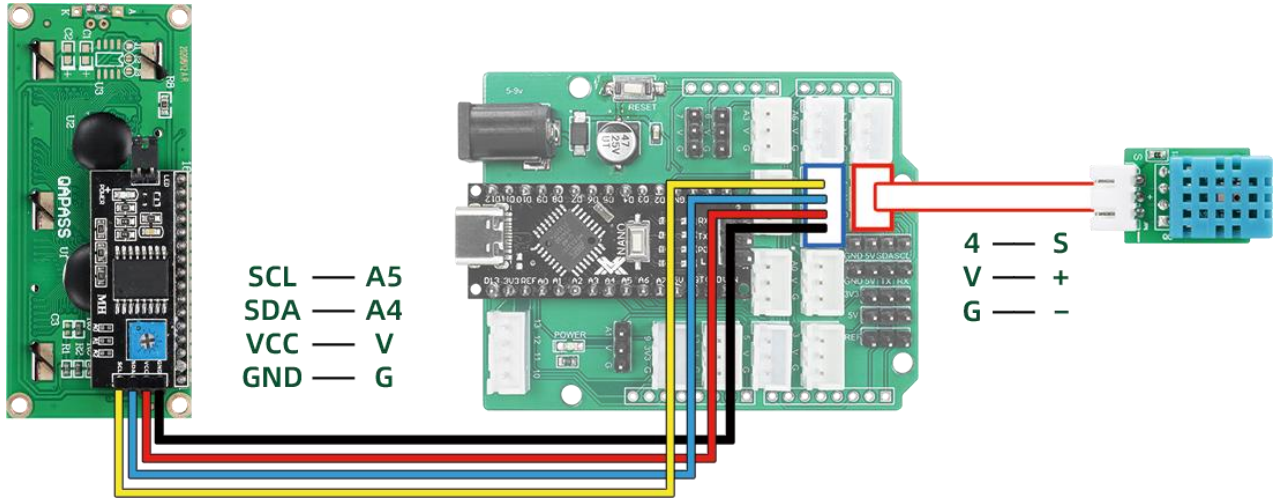
Item 12-LCD display temperature and humidity

1. project description

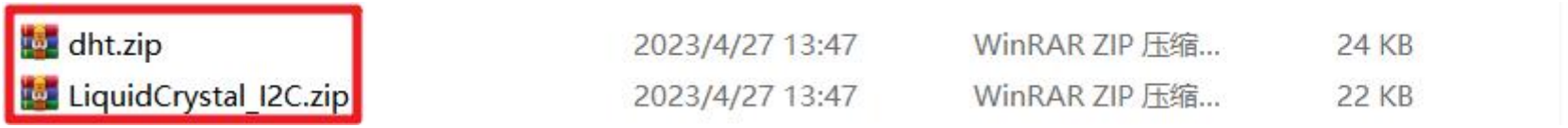
In this project, we will learn how to combine a DHT11 temperature and humidity sensor with a 1602LCD display. It's accurate enough for most projects that require tracking humidity and temperature readings. Again, we will use a library specifically designed for these sensors, which will keep our code short and easy to write.

2. Project wiring diagram

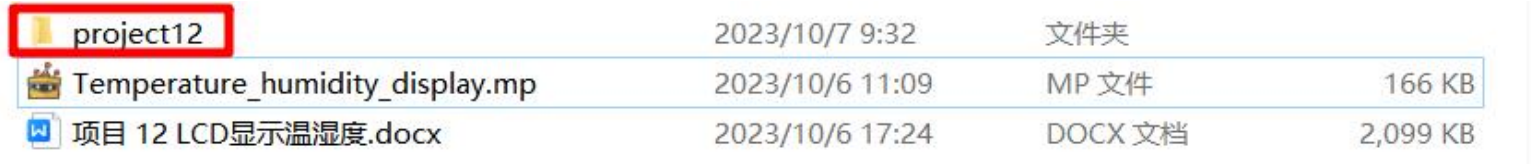


3. Download Arduino code

Confirm that the temperature and humidity library dht.zip and the LCD display library LiquidCrystal_I2C.zip have been successfully installed. If not, please go back to Project 10/11 to see how to install these two libraries.



Open the project Arduino code file (path: project 12 LCD display temperature and humidity\project12\project12.ino)



Connect the main control board to the computer using USB, select the board type as Nano, select the newly displayed COM number, click "Download" to start compiling and downloading the program to the main control board.

Code analysis:

```
#include <Wire.h>
#include <dht.h>                //添加温湿度库    Add temperature and humidity library
#include <LiquidCrystal_I2C.h>  //添加LCD显示屏库   Add LCD display library

#define DHT11_PIN 4 //定义温湿度传感器引脚为4   Define temperature and humidity sensor pin as 4

dht DHT;            //实例化温湿度对象为DHT   Instantiate the temperature and humidity object as a DHT
```

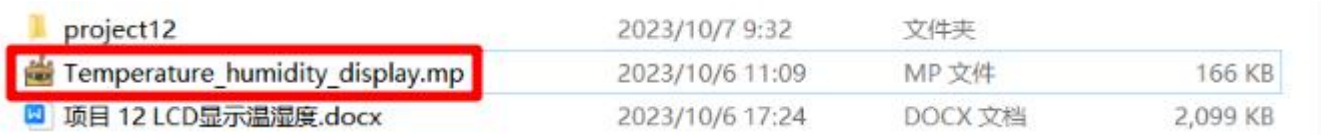
```
12  void setup()
13  {
14    Serial.begin(115200);
15    lcd.init();       //初始化lcd   initialize the lcd
16    lcd.backlight();  //开启LCD背光
```

```
25  void loop()
26  {
27    ShowHumiture(); //调用温湿度显示函数    Call the temperature and humidity display function
28  }
```

```
33  void ShowHumiture()            //函数实现过程    Function implementation process
34  {
35      int chk = DHT.read11(DHT11_PIN);
36      //Serial.println("DHT TEST PROGRAM ");
37      lcd.setCursor(0,0);
38      lcd.print("temp:");
39      lcd.setCursor(5,0);
40      lcd.print(DHT.temperature); //在第一行显示温度值    Display the temperature value
41
42      lcd.setCursor(0,1);
43      lcd.print("humi:");
44      lcd.setCursor(5,1);
45      lcd.print(DHT.humidity);    //在第二行显示湿度值    Display humidity value
46
47      Serial.print("temp:");
48      Serial.println(DHT.temperature);
49      Serial.print("humi:");
50      Serial.println(DHT.humidity);
51      delay(100);
```

4. Download Mind+ graphical code

Open the project Mind+code file (path: Project 12 LCD display temperature and humidity\ Temperature_humidity_display.mp)



Connect the main control board to the computer with a USB cable and select the newly appeared CH340 serial port COM number. Click "Upload to Device" to complete the code upload.

Programming analysis:

Click "Extension" in the lower left corner, and then select the main control board type as Nano.

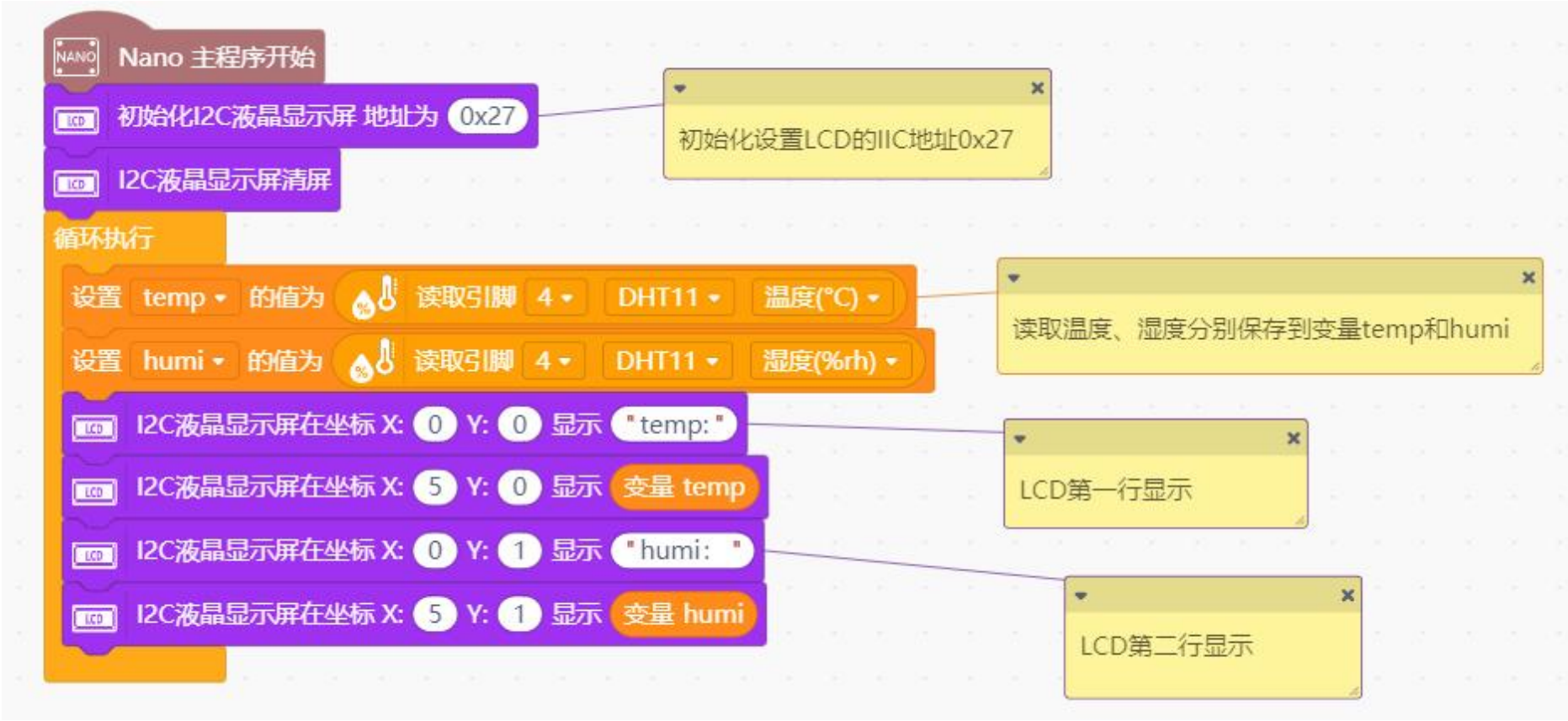
Add LCD 1602 library file : Click the "Display" type and select the LCD1602 module.

Add the DHT11 temperature and humidity sensor library in the same way

After the addition is successful, you can see that there are three more categories in the programming block column on the

left: Nano, "Sensor" and "Display"

The complete programming is as follows:



Tip: The default IIC communication connection pin is A4/A5. The graphical code library file has been bound internally, and external programming does not show the pin situation.