

25. Make a hygrothermograph

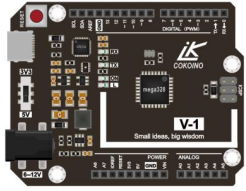
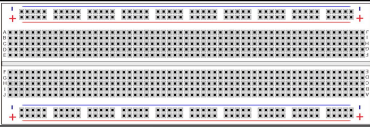

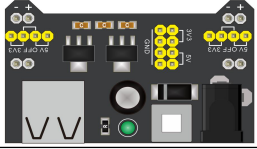




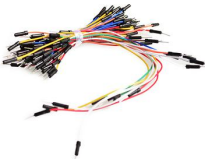
ABOUT THIS PROJECT:

You will learn:



How to make a hygrothermograph

1. Things used in this project

| Hardware components | Picture | Quantity |
|---------------------------------------|--|----------|
| V-1 board |  | 1 PCS |
| Breadboard |  | 1 PCS |
| 30CM USB Cable |  | 1 PCS |
| Breadboard power module |  | 1 PCS |
| DHT12 Temperature and Humidity Sensor |  | 1 PCS |
| Adjustable potentiometer |  | 1 PCS |
| 9V Battery Snap Connector |  | 1 PCS |
| 1602 LCD |  | 1 PCS |
| Male to Male DuPont Line |  | 22 PCS |

2、Make a hygrothermograph

The experiment is to integrate the knowledge of lesson _ 22 and lesson _ 24, and then we use the hardware above to make an electronic display of the temperature and humidity meter, to apply the lessons learned to life.

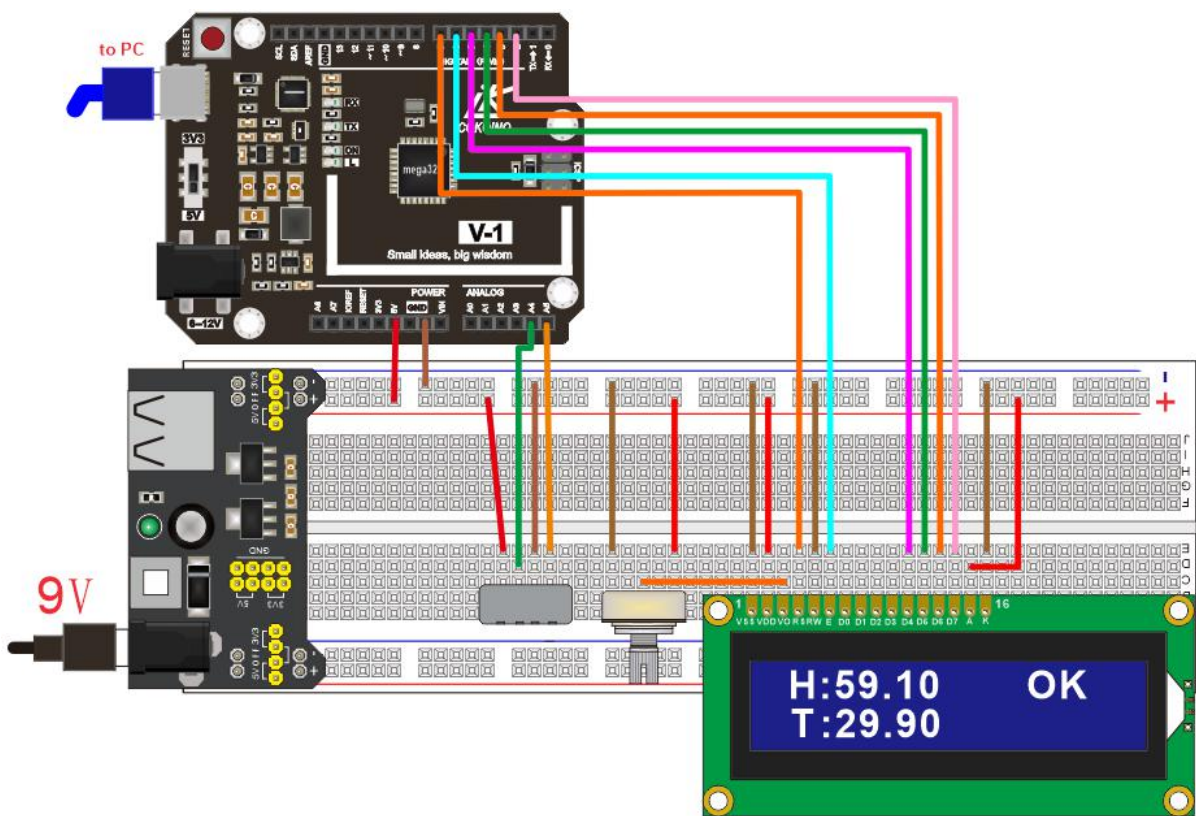
2.1 Code:

```
#include <DHT10.h>
#include <LiquidCrystal.h>

const int rs = 7, en = 6, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

DHT10 DHT;
////////////////////////////////////
void setup(){
    Wire.begin();
    Serial.begin(115200);
    lcd.begin(16, 2);
    lcd.setCursor(1, 0);
    lcd.print("hello cokoino!");
    delay(1000);
    lcd.clear();
}
////////////////////////////////////
void loop(){
    int status = DHT.read();
    if(status == DHT10_OK){
        lcd.setCursor(1, 0);
        lcd.print("H:");
        lcd.print(DHT.humidity);
        lcd.print("  OK  ");
        lcd.setCursor(1, 1);
        lcd.print("T:");
        lcd.print(DHT.temperature);
    }
    delay(2000); //recommend delay 2 second
}
```

2.2、Connections diagram



2.3、Compile and upload

2.3.1、 Using USB cable to connect computer to V-1 board, Open the Arduino IDE, copy the above code into the IDE:

```
humidity | Arduino 1.8.5
File Edit Sketch Tools Help

humidity

#include <DHT12.h>
#include <LiquidCrystal.h>

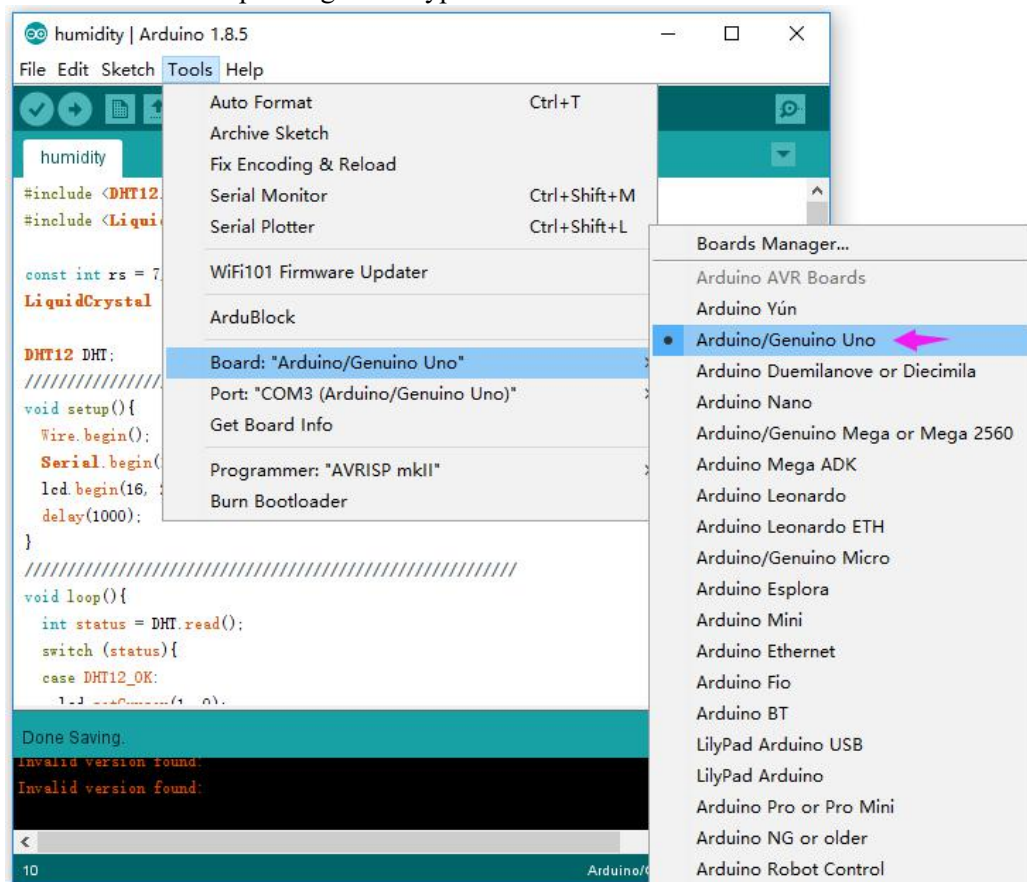
const int rs = 7, en = 6, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

DHT12 DHT;
////////////////////////////////////
void setup(){
  Wire.begin();
  Serial.begin(115200);
  lcd.begin(16, 2);
  delay(1000);
}
////////////////////////////////////
void loop(){
  int status = DHT.read();
  switch (status){
    case DHT12_OK:
      lcd.setCursor(0, 0);
      lcd.print("H:59.10");
      lcd.setCursor(0, 1);
      lcd.print("T:29.90");
      lcd.setCursor(14, 1);
      lcd.print("OK");
      delay(1000);
    }
  }
}

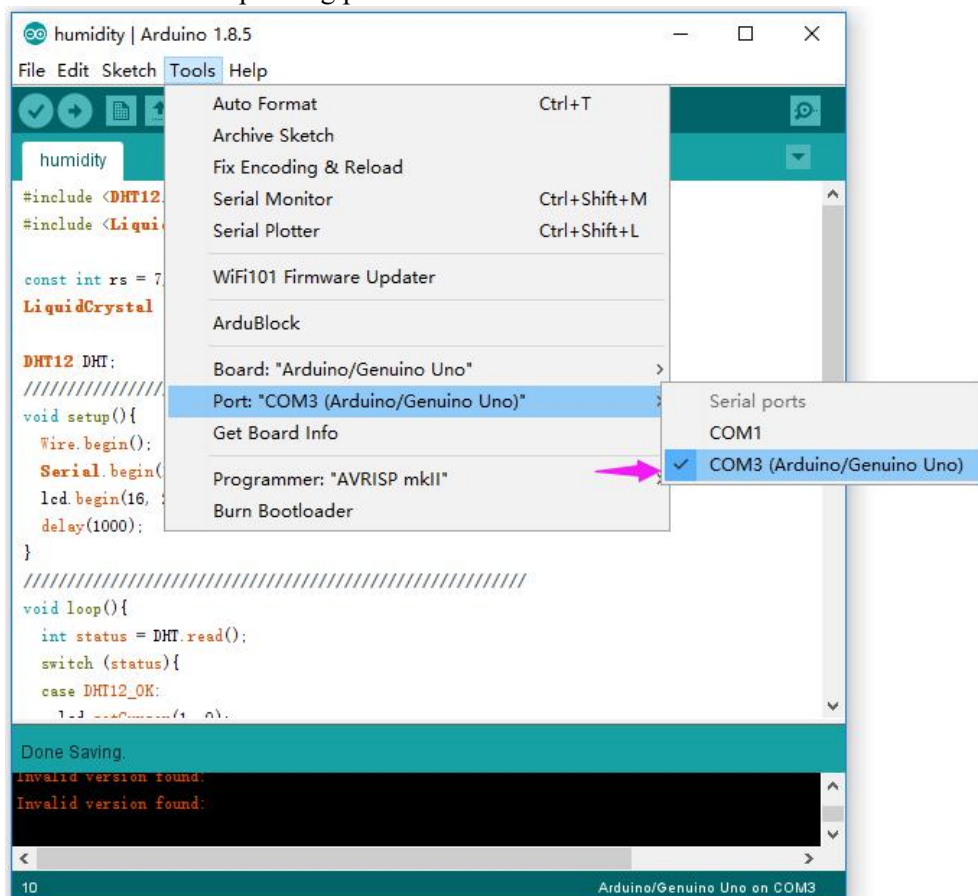
Done Saving.
Invalid version found:
Invalid version found:

10 Arduino/Genuino Uno on COM3
```

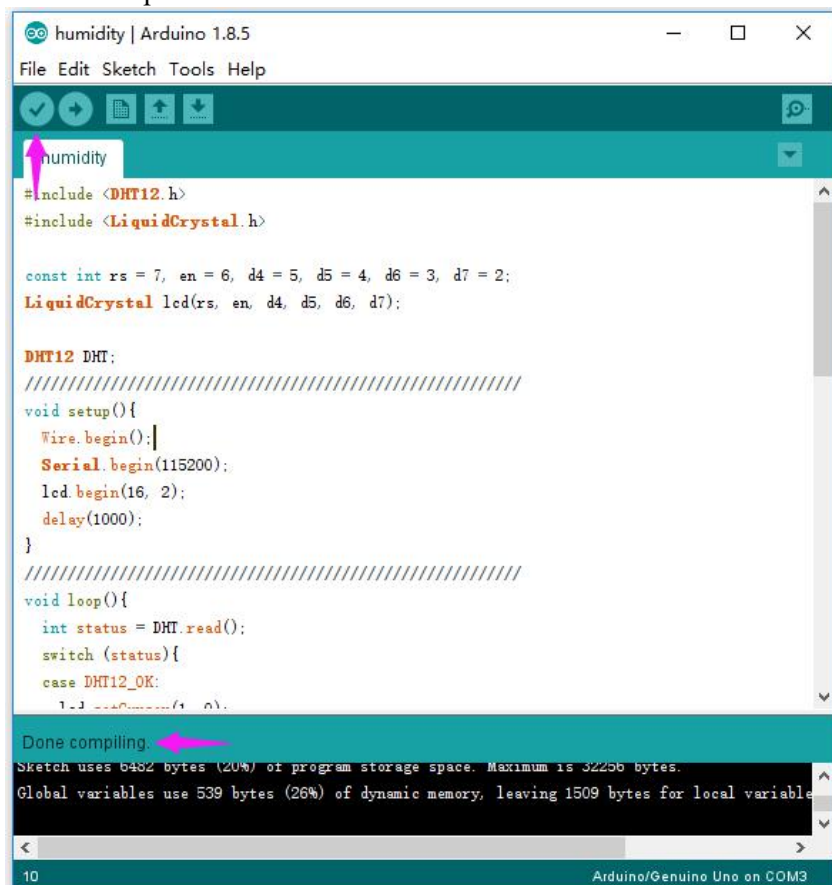
2.3.2、select corresponding board type



2.3.3、select corresponding port



2.3.4、 compile this sketch



The screenshot shows the Arduino IDE interface with the sketch 'humidity' open. The code includes headers for DHT12 and LiquidCrystal, defines pin constants, and sets up the hardware. The status bar at the bottom indicates 'Arduino/Genuino Uno on COM3'. A pink arrow points to the 'Compile' button (a checkmark icon) in the top toolbar. Another pink arrow points to the 'Done compiling.' message in the status bar.

```
humidity | Arduino 1.8.5
File Edit Sketch Tools Help

#include <DHT12.h>
#include <LiquidCrystal.h>

const int rs = 7, en = 6, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

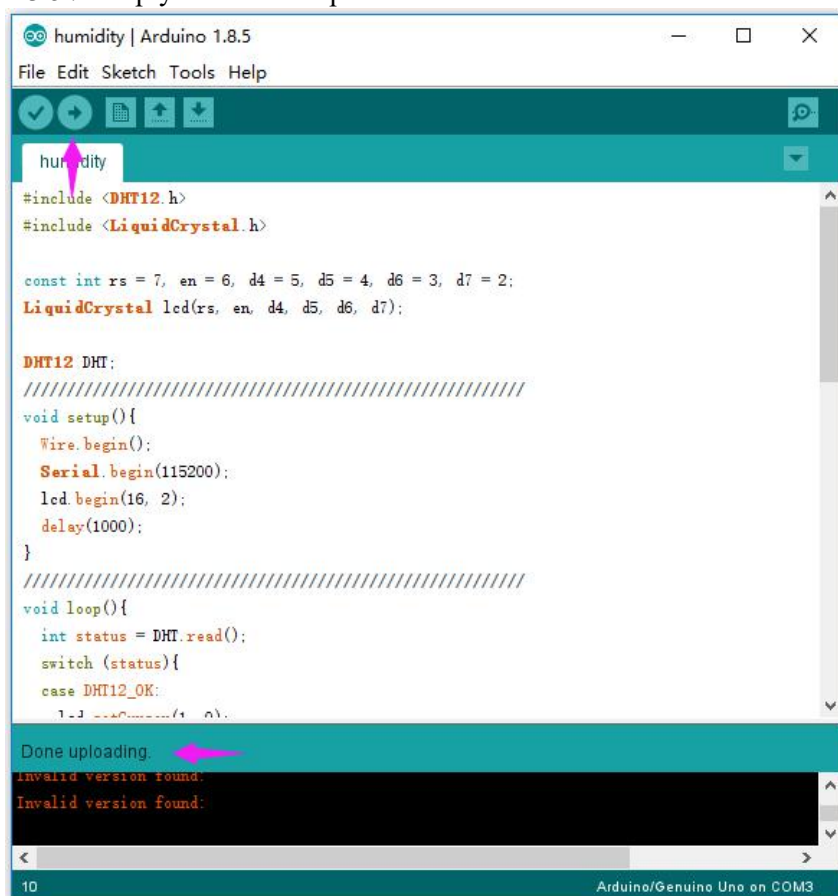
DHT12 DHT;
////////////////////////////////////////
void setup(){
  Wire.begin();
  Serial.begin(115200);
  lcd.begin(16, 2);
  delay(1000);
}
////////////////////////////////////////
void loop(){
  int status = DHT.read();
  switch (status){
    case DHT12_OK:
      lcd.setCursor(0, 1);
      lcd.print("OK");
  }
}
```

Done compiling.

Sketch uses 6482 bytes (20%) of program storage space. Maximum is 32256 bytes.
Global variables use 539 bytes (26%) of dynamic memory, leaving 1509 bytes for local variables.

10 Arduino/Genuino Uno on COM3

2.3.5、 simply click the “Upload” button in the environment



The screenshot shows the same Arduino IDE interface as before, but now the 'Upload' button (a right-pointing arrow icon) in the top toolbar is highlighted with a pink arrow. The status bar at the bottom indicates 'Arduino/Genuino Uno on COM3'. Below the code editor, a message box says 'Done uploading.' with a pink arrow pointing to it. The console window shows two 'Invalid version found:' error messages.

```
humidity | Arduino 1.8.5
File Edit Sketch Tools Help

#include <DHT12.h>
#include <LiquidCrystal.h>

const int rs = 7, en = 6, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

DHT12 DHT;
////////////////////////////////////////
void setup(){
  Wire.begin();
  Serial.begin(115200);
  lcd.begin(16, 2);
  delay(1000);
}
////////////////////////////////////////
void loop(){
  int status = DHT.read();
  switch (status){
    case DHT12_OK:
      lcd.setCursor(0, 1);
      lcd.print("OK");
  }
}
```

Done uploading.

Invalid version found:
Invalid version found:

10 Arduino/Genuino Uno on COM3

2.3.6、 Unplug the USB cable from the V-1 board, then connect the power module with the external power supply and turn on the power switch, 1602LCD will show the humidity and temperature of the current environment, H for humidity and T for temperature, as shown in the following figure::

