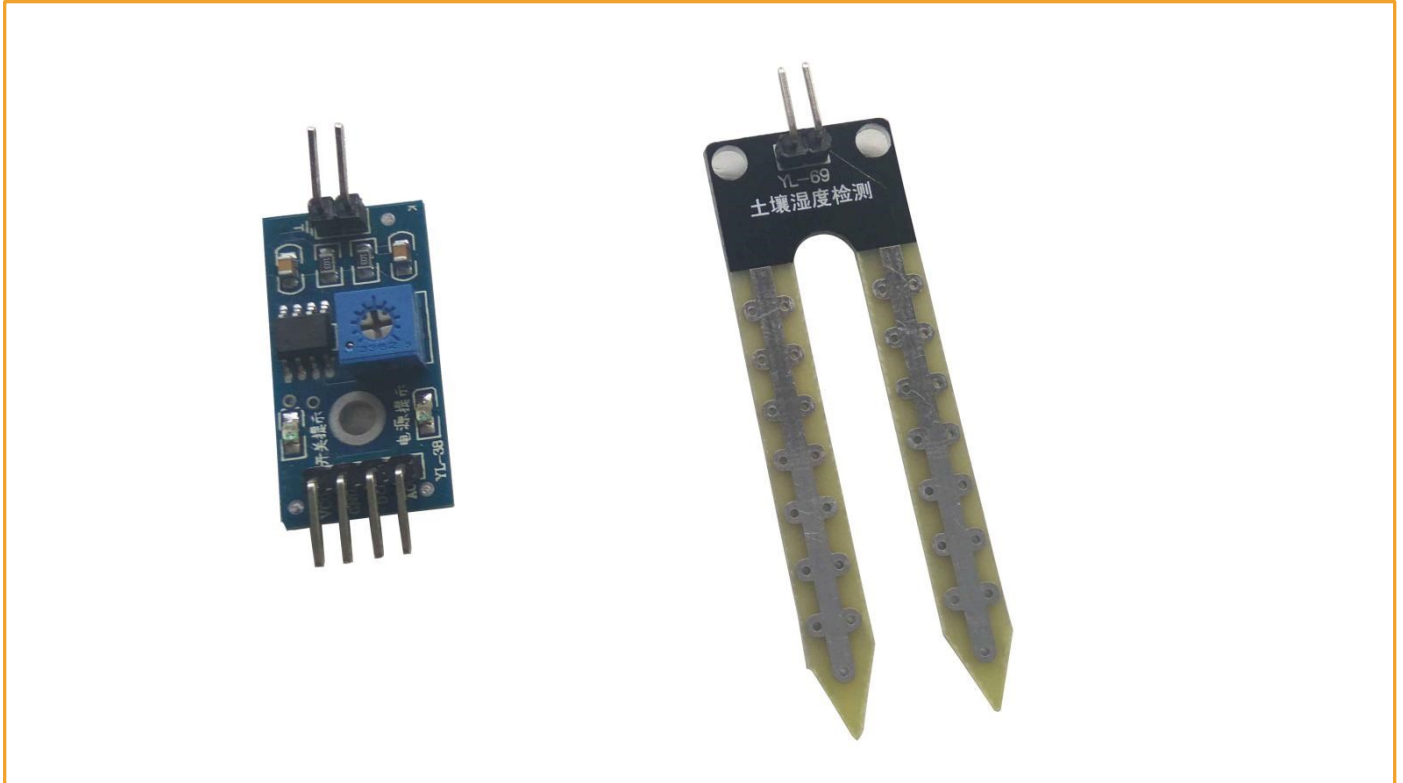


Soil Moisture Sensor

Introduction



- 1, The sensor is suitable for the soil moisture detection;
- 2, The blue potentiometer on the module is used to adjust soil moisture threshold, the controlled humidity is greater as adjusting clockwise, and smaller counterclockwise.
- 3, The digital output D0 can link directly to the microcontroller to detect the high and low level, therefore to detect soil moisture;
- 4, The analog output AO (0 ~ 1023) can link to AD modules, through the AD conversion, the soil moisture value can be obtained more accurately.

Pin Description

- 1 VCC: connect to 3.3 V-5 V
- 2 GND: connect to GND
- 3 DO: digital output interface
- 4 AO: voltage analog output

Experimental Principle

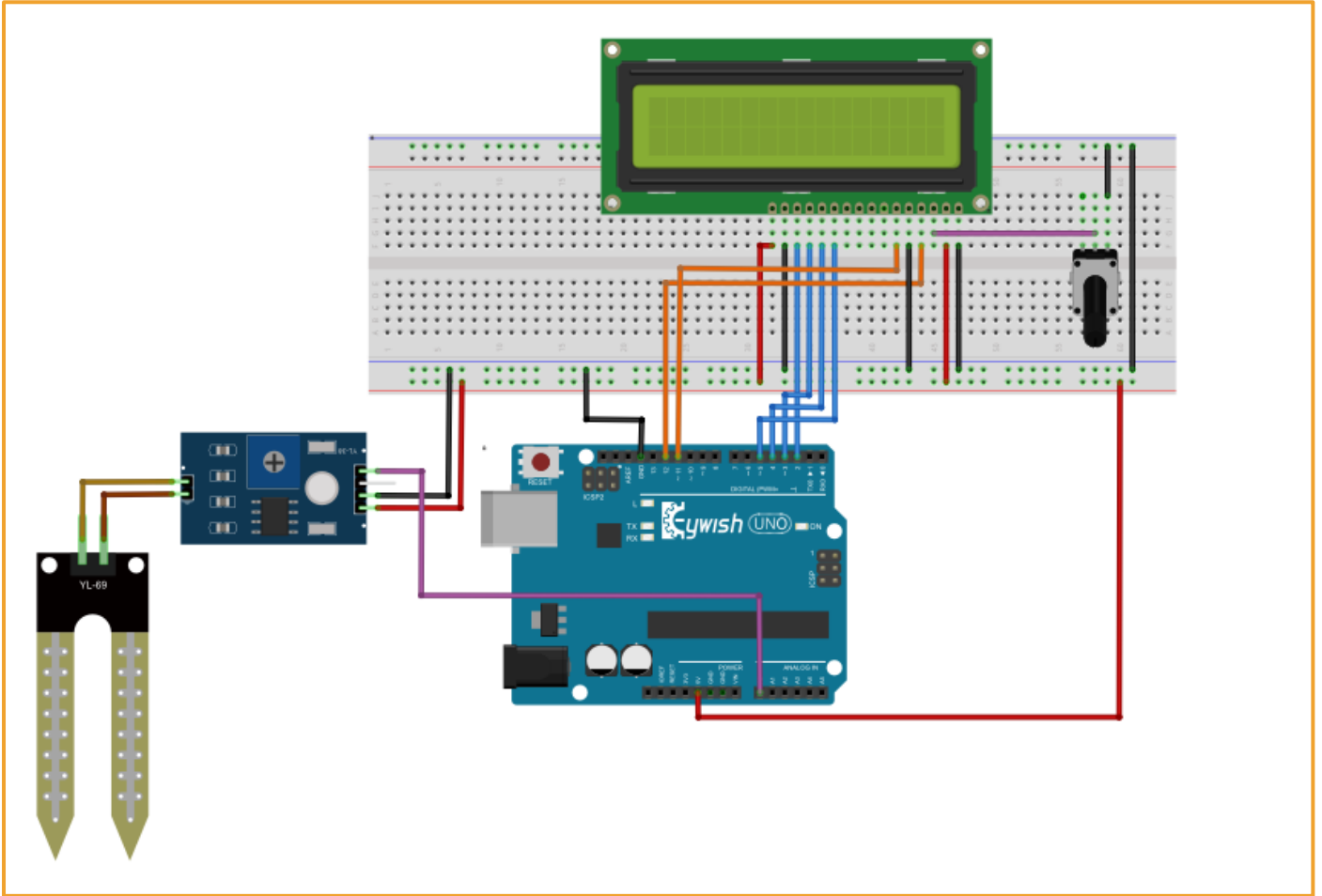
From the sensors above, we can see that the two big copper are sensor probes. When inserting them into the soil, they can detect the moisture. The moister the soil is, the better their electrical conductivity is, which reflects the lower resistance between them. It is a analog sensor, so we get the voltage value through the analog output. The drier the soil is, the greater the voltage value is, because the resistance between the probes is getting higher.

Component List

- ◆ Keywish Arduino UNO R3 Mainboard
- ◆ Breadboard
- ◆ USB cable
- ◆ LCD1602 * 1
- ◆ The soil moisture sensor * 1
- ◆ Potentiometer* 1
- ◆ Several Breadboard jumpers

Wiring of Circuit

arduino Uno	lcd1602
5	11(DB4)
4	12(DB5)
3	13(DB6)
2	14(DB7)
11	6(E)
12	4(RS)



Code

```
#define DB4 5 // lcd1602 DB4
#define DB5 4 // lcd1602 DB5
#define DB6 3 // lcd1602 DB6
#define DB7 2 // lcd1602 DB7
#define LCD1602_RS 12
#define LCD1602_E 11
#define SOIL_SENSOR_AO A0
#define SOIL_SENSOR_DO 7
```

```
#include <LiquidCrystal.h>
// initialize the library with the numbers of the interface pins
LiquidCrystal lcd(LCD1602_RS,LCD1602_E,DB4,DB5,DB6,DB7); // lcd init
float i=0;
float j=0;
void setup() {
    pinMode(SOIL_SENSOR_AO, INPUT);
    pinMode(SOIL_SENSOR_DO, INPUT);
    // set up the LCD's number of columns and rows:
    lcd.begin(16, 2);
}
void loop()
{
    float data=analogRead(SOIL_SENSOR_AO);
    i=data/1023;
    j=(1-i)*100;
    lcd.setCursor(0, 0);
    lcd.print("The hum is: ");
    // set the cursor to column 0, line 1
    // (note: line 1 is the second row, since counting begins with 0):
    lcd.setCursor(0, 1);
    // print the number of seconds since reset:
    lcd.print((float)j, 2);
    lcd.print("%");
    delay(200);
}
```

Experiment Result

