

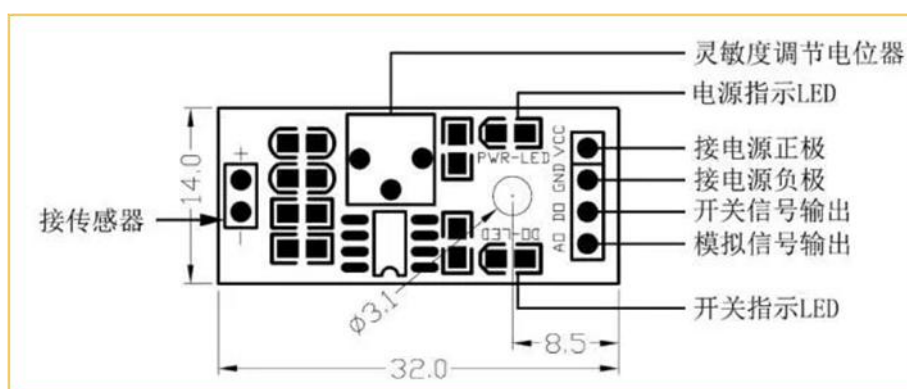
Raindrop Sensor Experiment

Introduction to Raindrop Sensor

Arduino rain sensor can be used in a variety of weather monitoring, and translated into digital signals and AO output.

- 1, The sensor adopts the high quality FR-04 double material, large area of 5.0*4.0 CM, and nickel plating treatment surface. It has anti-oxidation, electrical conductivity and more outstanding durability performance;
- 2, The comparator output, clean signal , superb waveform, strong driving ability, for more than 15 mA;
- 3, With a potentiometer to adjust the sensitivity;
- 4, The working voltage is from 3.3 V to 5 V;
- 5, The output form: digital value output (0 and 1) and analog value AO voltage output;
- 6, Using the LM393 wide voltage comparator.

We use a potentiometer during the experiment.



Function Introduction

When the sensor is connected to 5v power supply, the power light will be on, and there is no water droplets on the sensory boards, the DO output is at high level and the switch light is off. When dropping a droplet, the DO output is at low level, the switch light will be on. If we brush off the water droplet, the output return will return to high level state. AO analog output can be connected to the AD interface on the microcontroller to detect the size raindrop above. DO digital output can also be connected the microcontroller to detect whether there is rain.

Experimental Principle

We connect the circuit and burn the program. When we drip onto the sensor, the sensor will transfer the data into arduino through analog interface on the potentiometer. After the process, the current size of rain will be displayed on the LCD. When there is no rain or after we brush the raindrop, the LCD will show the current raindrop is zero.

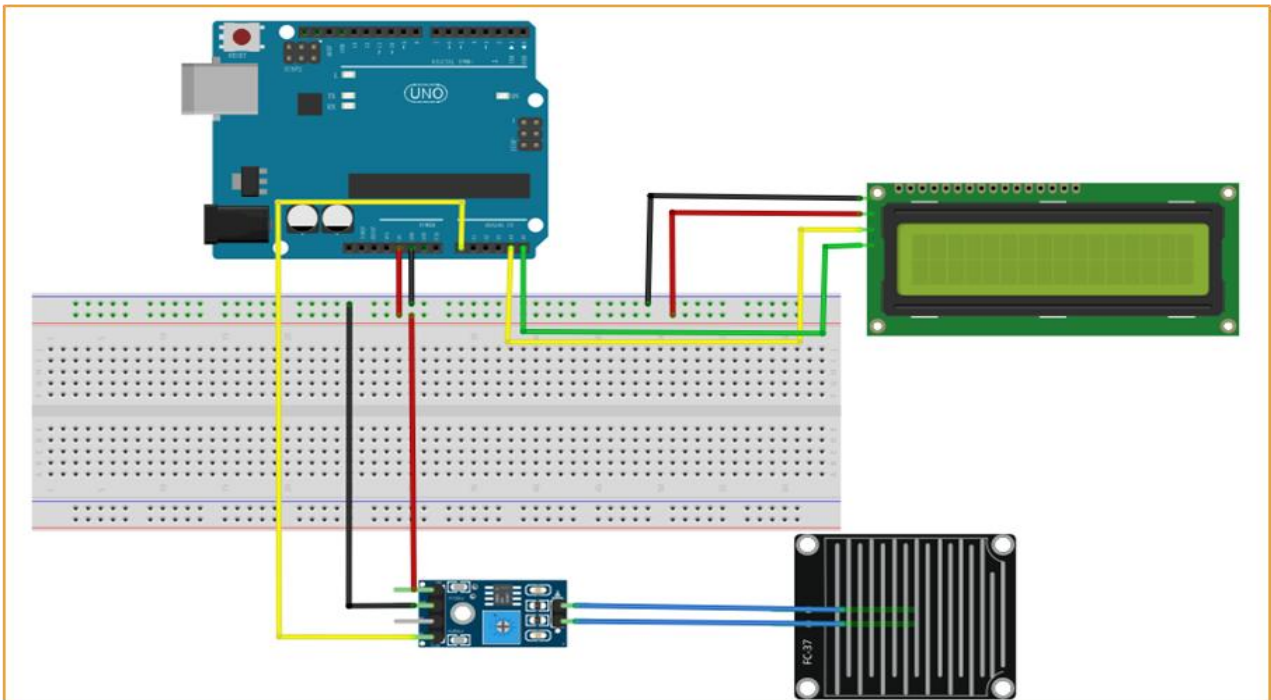
Component List

- ◆ Keywish Arduino UNO R3 mainboard
- ◆ Breadboard
- ◆ USB cable
- ◆ 1602 LCD * 1
- ◆ The rain sensor suite * 1
- ◆ Several breadboard jumpers

Wiring of Circuit

- 1, VCC: connect to positive power supply(3-5 v)
- 2, GND: connect to negative power supply
- 3, DO: digital signal output
- 4, AO: analog signal output

| LCD DISPLAY | Arduino |
|-----------------|---------|
| GND | GND |
| VCC | 5V |
| SDA | A4 |
| SCL | A5 |
| Raindrop Sensor | Arduino |
| GND | GND |
| VCC | 5V |
| DO | A0 |



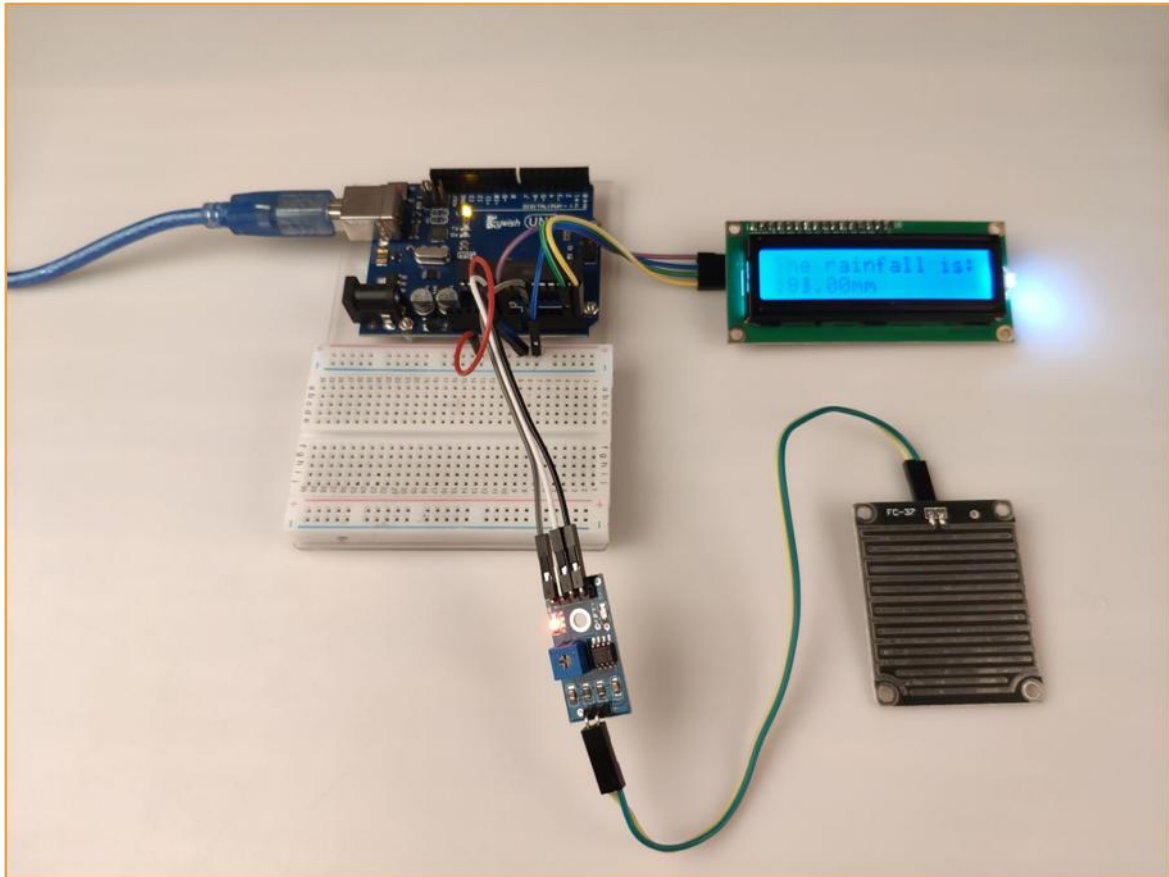
Code

```
#include <Wire.h>
#include "LiquidCrystal_I2C.h"
int analogPin=A0;
int j=0;
LiquidCrystal_I2C lcd(0x27, 16, 2); // 0x27 is the I2C bus address for an unmodified backpack
void setup()
{
  lcd.init();
  lcd.backlight();
  pinMode(analogPin, INPUT);
  Serial.begin(9600);
}

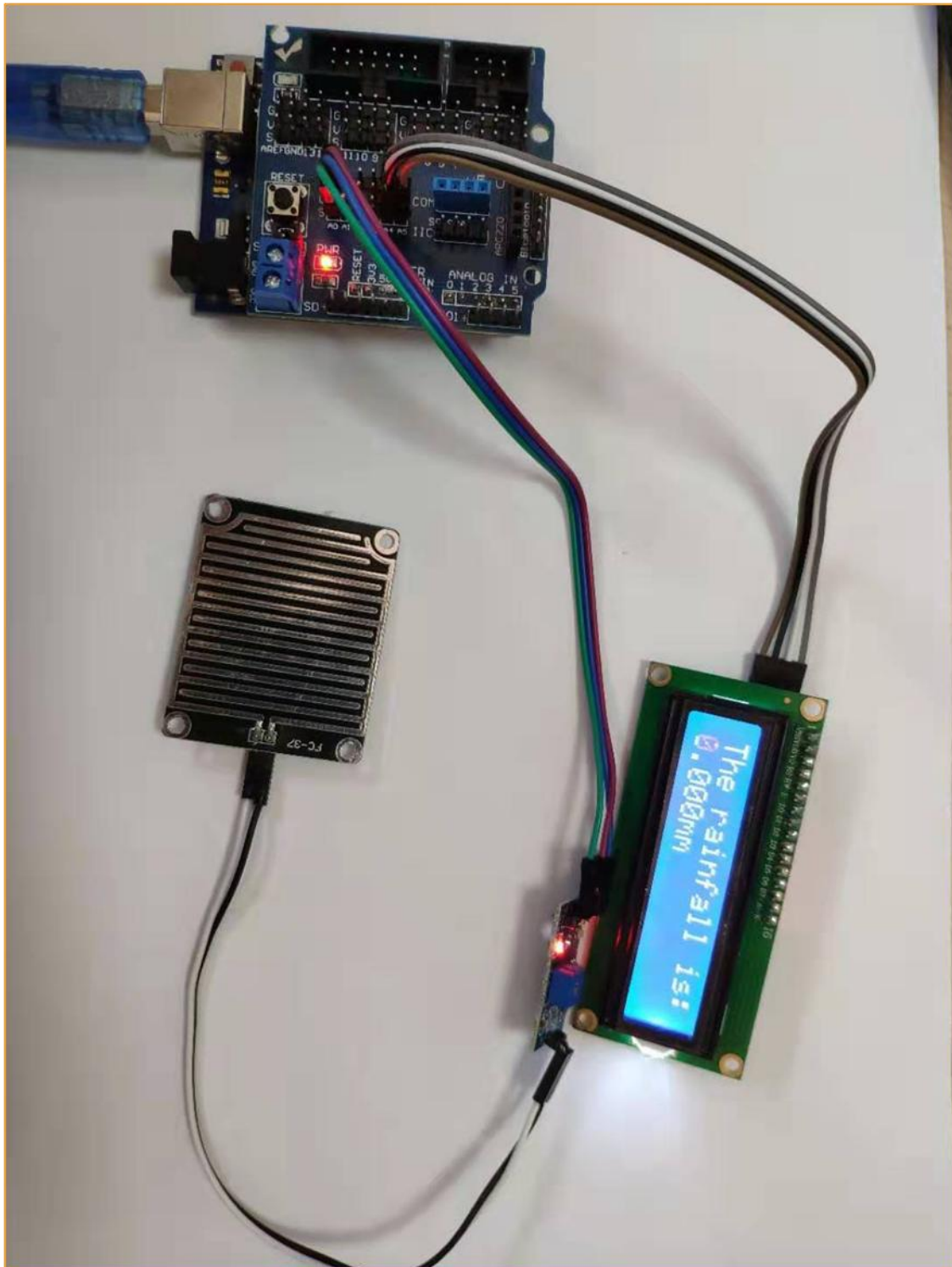
void loop() {
  int data= analogRead(analogPin);
  j=1023-data;
  lcd.setCursor(0, 0);
  lcd.print("The rainfall is: ");
  // set the cursor to column 0, line 1
  // (note: line 1 is the second row, since counting begins with 0):
  lcd.setCursor(0, 1);
  // print the number of seconds since reset:
  lcd.print((float)j, 2);
```

```
lcd.print("mm");  
delay(200);  
}
```

Experiment Result



If there is a Sensor V5.0 expansion board in the kit, you can connect the Sensor according to the following wiring method, which is more convenient.



MBlock graphical programming program

MBlock writes the raindrop sensor program as shown in the figure below:

