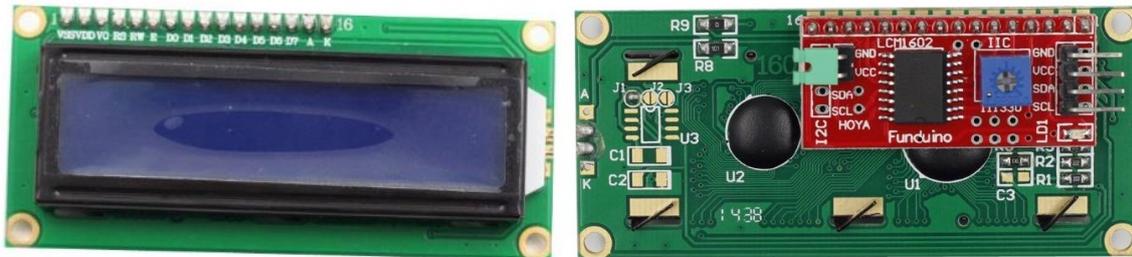


I2C LCD1602

Introduction

As we all know, though LCD and some other displays greatly enrich the man-machine interaction, they share a common weakness. When they are connected to a controller, multiple IOs will be occupied of the controller which has no so many outer ports. Also it restricts other functions of the controller. Therefore, LCD1602 with an I2C bus is developed to solve the problem.

I2C bus is a type of serial bus invented by PHILIPS. It is a high performance serial bus which has bus ruling and high or low speed device synchronization function required by multiple host system. I2C bus has only two bidirectional signal lines, Serial Data Line (SDA) and Serial Clock Line (SCL). The blue potentiometer on the I2C LCD1602 is used to adjust backlight to make it easier to display on the I2C LCD1602.



Components

- 1 * SunFounder Uno board
- 1 * I2C LCD1602 module
- 1 * USB cable
- Several jump wires

Experimental Principle

In this experiment, we will let I2C LCD1602 display "SUNFOUNDER" and "hello, world" by programming.

I²C (Inter-Integrated Circuit), pronounced I-squared-C, is a multi-master, multi-slave, single-ended, serial computer bus invented by Philips Semiconductor (now NXP Semiconductors). It is typically used for attaching lower-speed peripheral ICs to processors and microcontrollers. Alternatively I²C is spelled I2C (pronounced I-two-C) or IIC (pronounced I-I-C).

I²C uses only two bidirectional open-drain lines, Serial Data Line (SDA) and Serial Clock Line (SCL), pulled up with resistors. Typical voltages used are +5 V or +3.3 V although systems I²C (Inter-Integrated Circuit), pronounced I-squared-C, is a multi-master, multi-slave, single-ended, serial computer bus invented by Philips Semiconductor (now NXP Semiconductors).

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I²C uses only two bidirectional open-drain lines, Serial Data Line (SDA) and Serial Clock Line (SCL), pulled up with resistors. Typical voltages used are +5 V or +3.3 V although systems with other voltages are permitted.

For more information about I²C operation principle, please visit <https://en.wikipedia.org/wiki/I²C>.

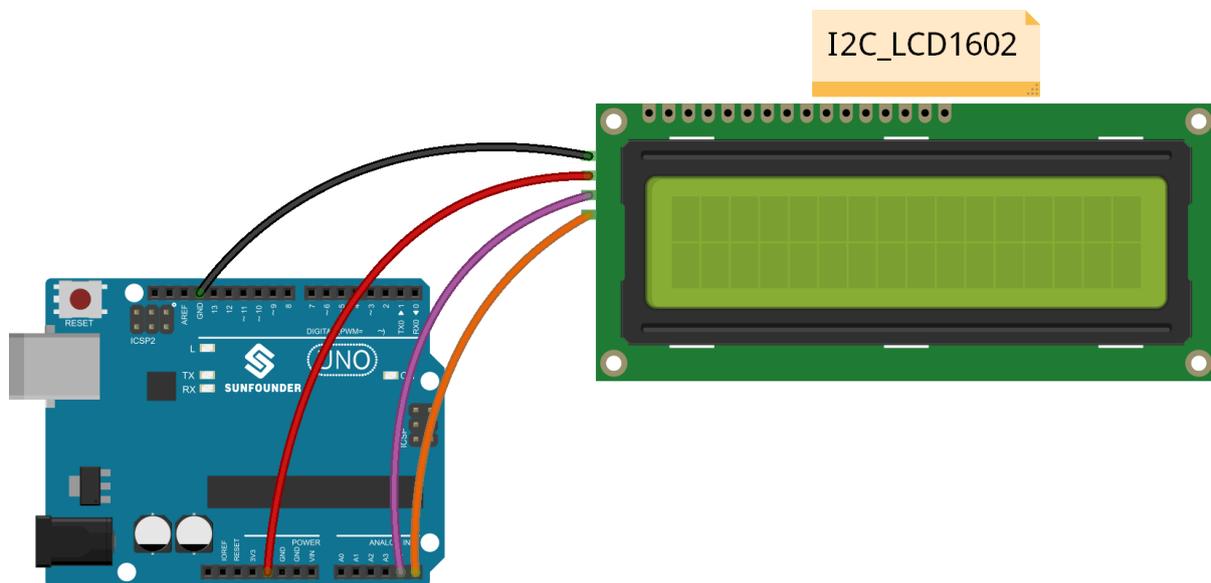
Experimental Procedures

Step 1: Connect the circuit

See the following table for connection between the I2C LCD1602 and the SunFounder Uno board:

I2C LCD1602	SunFounder Uno
GND	GND
VCC	5V
SDA	A4
SCL	A5

Note: The wiring of I2C LCD1602 is the same through the following lessons.



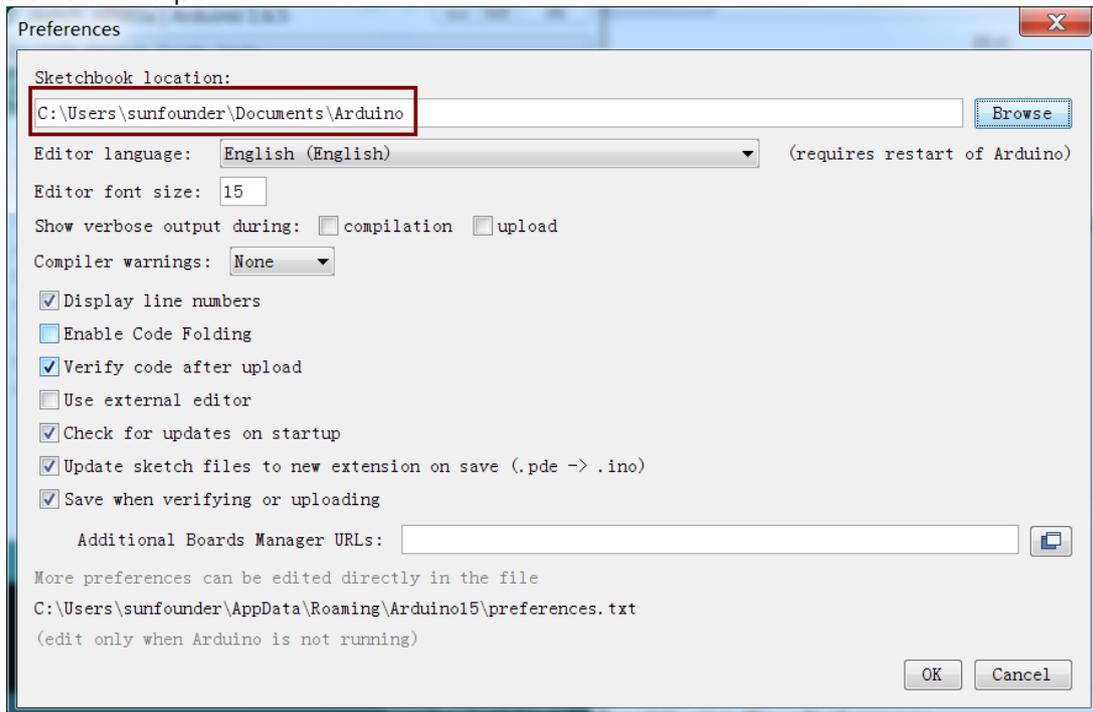
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Step 2: Program (Please refer to the example code in [LEARN -> Get Tutorial](#) on our [website](#))

Step 3: Compile the code

Before compiling the code, you need to add the **LiquidCrystal_I2C** file to the **libraries** of Arduino. If you don't know the **libraries** path, you can open Arduino IDE ,click **File**

->**Preferences**, as shown in the following diagram. Then add **LiquidCrystal_I2C** to the folder **Libraries** under the path



Step 4: Upload the sketch to the SunFounder Uno board

You should now see your I2C LCD1602 display the flowing characters "SunFounder" and "hello, world".

