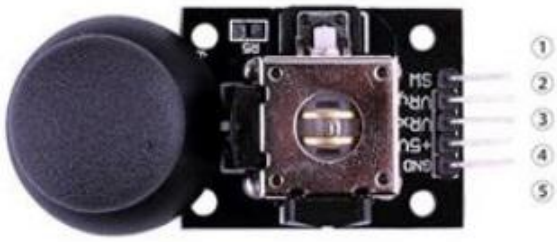
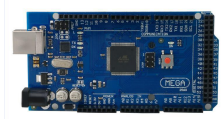
Joystick test experiment

Overview



This experiment is to learn how to use the joystick of the analog output and digital output.
Just like a joystick on game console. You can control x, y and z dimensions input by this joystick module. It can be considered as combination of potentiometers and one button.
Data type of the x, y dimensions are analog input signals and z dimension is digital input signal. thus the x and y ports connect to analog pins of Sensor Shield, while z port connects to digital pin.

Hardware required

Material diagram	Material name	Number
	LCD1602	1
	Joystick Module	1
	220/330Ω resistor	1
	10KΩ Potentiometer	1
	USB Cable	1
	MEGA 2560	1
	Breadboard	1
	Jumper wires	Several

Component Introduction

Joystick sensor

Lots of robot projects need joystick. This module provides an affordable solution. By simply connecting to two analog inputs, the robot is at your commands with X, Y control. It also has a switch that is connected to a digital pin. This joystick module can be easily connected to Arduino by IO Shield. This module is for Arduino (V5) with cables supplied.

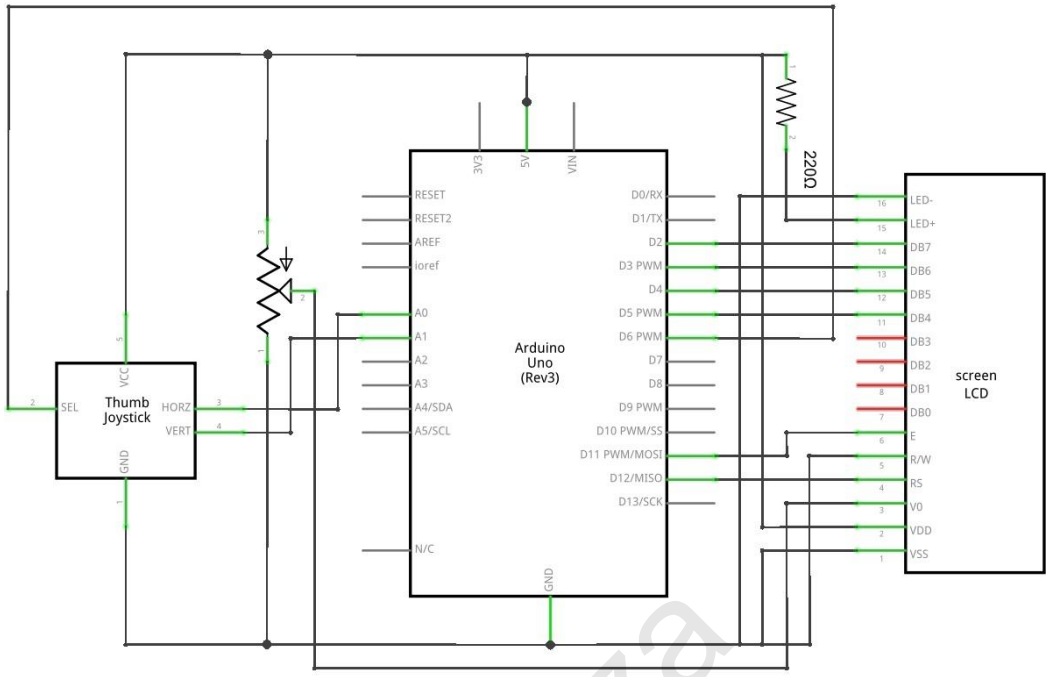
Specification
Supply Voltage: 3.3V to 5V
Interface: Analog x2, Digital x1
Size: 40*28mm
Weight: 12g

The module has 5 pins: Vcc, Ground, X, Y, Key. Note that the labels on yours may be slightly different, depending on where you got the module from. The thumb stick is analog and should provide more accurate readings than simple ‘directional’ joysticks tact use some forms of buttons, or mechanical switches. Additionally, you can press the joystick down (rather hard on mine) to activate a ‘press to select’ push-button.

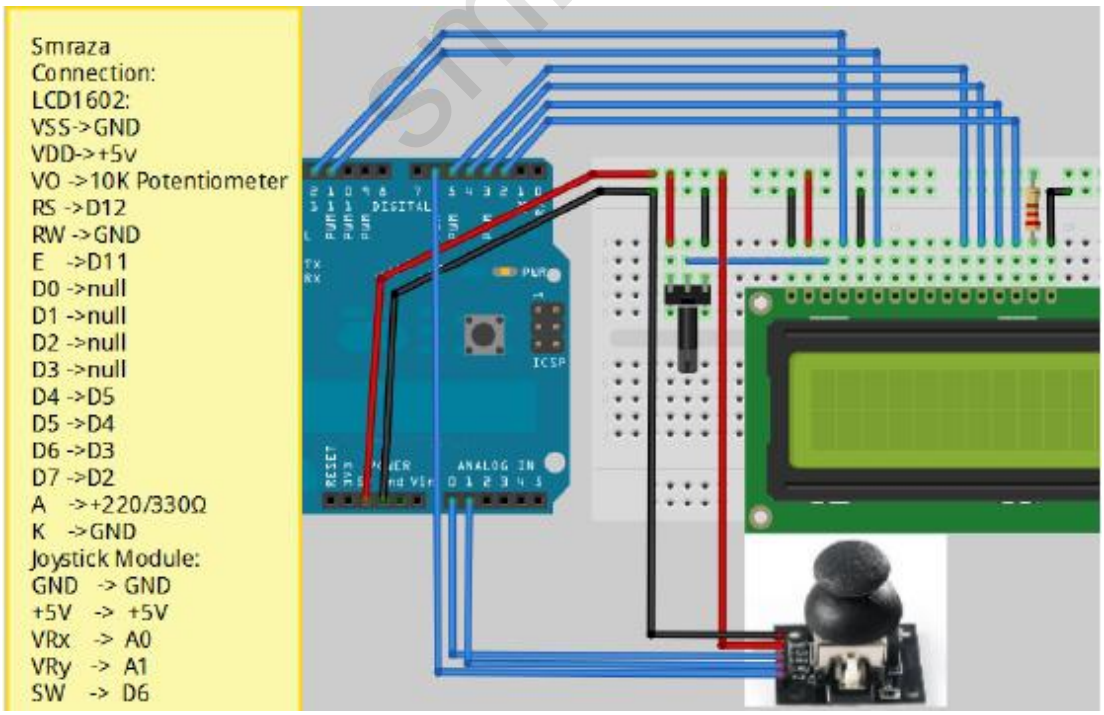
We have to use analog Arduino pins to read the data from the X/Y pins, and a digital pin to read the button. The Key pin is connected to ground, when the joystick is pressed down, and is floating otherwise. To get stable readings from the Key /Select pin, it needs to be connected to Vcc via a pull-up resistor. The built in resistors on the Arduino digital pins can be used. For a tutorial on how to activate the pull-up resistors for Arduino pins, configured as inputs.

Connection

Schematic



Connection diagram



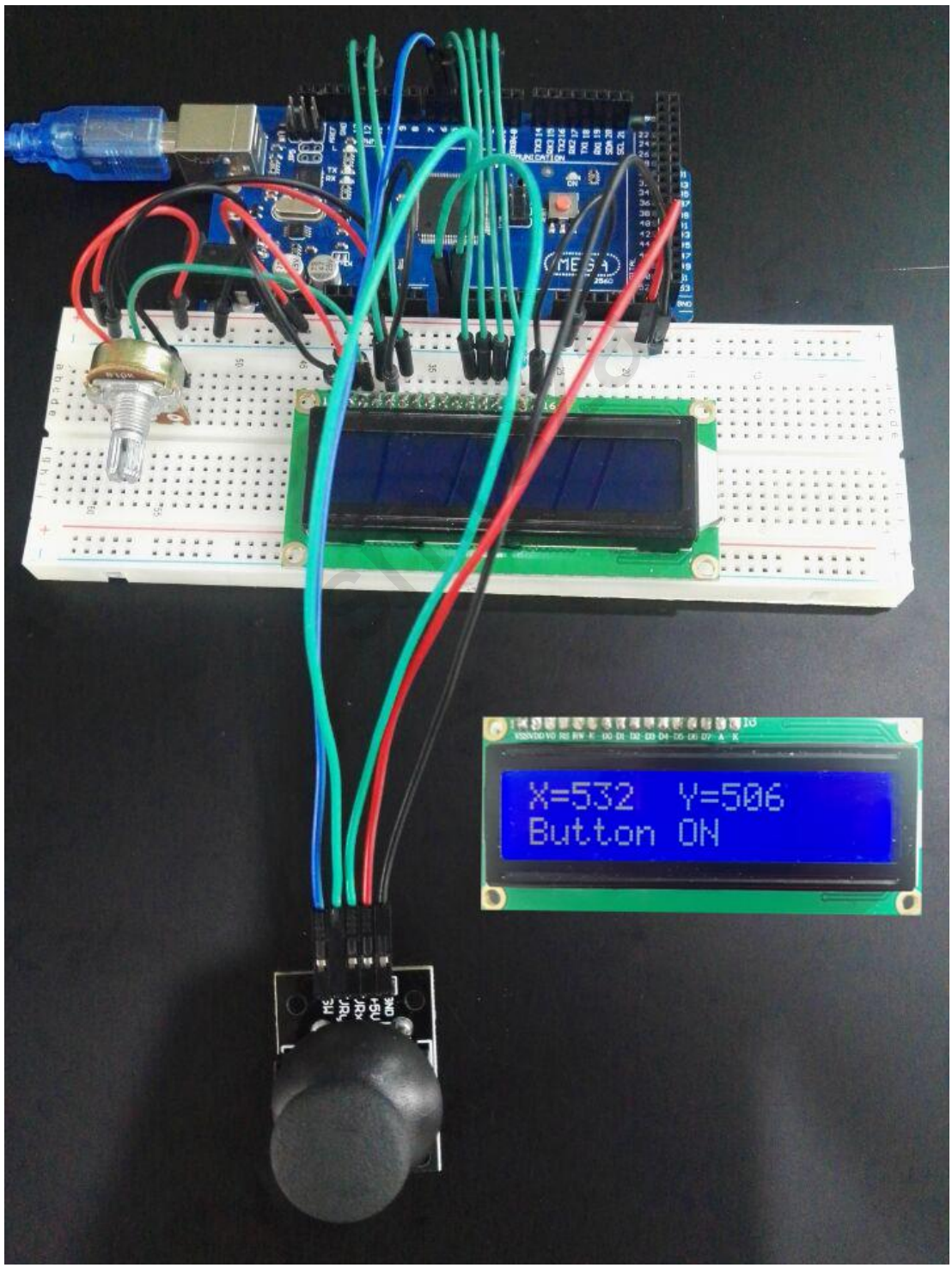
Sample code

Note: sample code under the **Sample code** folder

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
int xpotPin = A0;
int ypotPin = A1;
int bpotPin = 6;
int xval=0;
int yval=0;
int bval=0;
void setup()
{
      lcd.begin(16,2);   //Display Address
      pinMode(xpotPin,INPUT);
      pinMode(ypotPin,INPUT);
      pinMode(bpotPin,INPUT);
      lcd.print(" Welcome to ");
      lcd.setCursor(0,1);
      lcd.print("       Smraza");
      delay(2000);
      lcd.clear();
}
void loop()
{
      xval = analogRead(xpotPin);   //Read Values from the xpotPin
      yval = analogRead(ypotPin);
      bval = digitalRead(bpotPin);
      lcd.clear();                  //clear display
      lcd.setCursor(0, 0) ;
      lcd.print("X=");               //Display "X="
      lcd.print(xval);
      lcd.setCursor(7, 0) ;
      lcd.print("Y=");
      lcd.print(yval);
      if (bval==LOW)
      {
            lcd.setCursor(0, 1) ;
            lcd.print("Button ON");
      }
      else
      {
            lcd.setCursor(0, 1) ;
            lcd.print("Button OFF");
      }
      delay(150); //After 150ms the screen will be refreshed
```

```
}
/*Tips:
X, Y-axis output of two potentiometers can be read through the AD converter twist angle.
Press down on the joystick, touch switches can be deployed all the way, as a digital output, has a pull-up.
*/
```

Example picture



Language reference

Tips：click on the following name to jump to the web page.
If you fail to open, use the Adobe reader to open this document.
analogRead()

Application effect

By rotating or pressing the joystick, you will see the change in value.

****
* About Smraza:
* We are a leading manufacturer of electronic components for Arduino and Raspberry Pi.
* Official website: http://www.smraza.com/
* We have a professional engineering team dedicated to providing tutorials and support to help you get started.
* If you have any technical questions, please feel free to contact our support staff via email at support@smraza.com
* We truly hope you enjoy the product, for more great products please visit our
Amazon US store: http://www.amazon.com/shops/smraza
Amazon CA store: https://www.amazon.ca/shops/AMIHZKLK542FQ
Amazon UK store: http://www.amazon.co.uk/shops/AVEAJYX3AHG8Q
Amazon DE store: http://www.amazon.de/shops/AVEAJYX3AHG8Q
Amazon FR store: http://www.amazon.fr/shops/AVEAJYX3AHG8Q
Amazon IT store: http://www.amazon.it/shops/AVEAJYX3AHG8Q
Amazon ES store: https://www.amazon.es/shops/AVEAJYX3AHG8Q
****