Lesson 12 Analog Joystick Module

Introduction

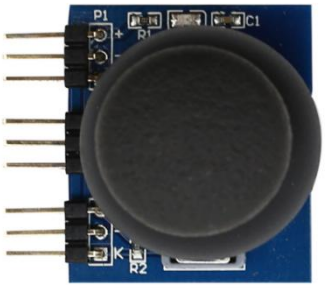
In this lesson, you will learn how to use the analog joystick module to add some control in your projects.

Hardware Required

- ✓ 1 * RexQualis Mega 2560
- ✓ 1 * Breadboard
- ✓ 1 * Joystick module
- ✓ 9 * F-M Jumper Wire

Principle

Analog Joystick Module



The module has 9 pins: 3VCC, 3Ground, X, Y, K.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 can use the analog Arduino pin to read the data separately from the X/Y/K pins, Or put it together. The K pin is connected to ground, when the joystick is pressed down, and is floating otherwise. To get stable readings from the K /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

Code interpretation

//74HC595 pin 9 STCP

const int SW_pin = 3; **// input for detecting whether the jotstick/button is pressed**

const int X_pin = A0; **// analog pin connected to X output**

const int Y_pin = A1; **// analog pin connected to Y output**

void setup() {

  pinMode(SW_pin, INPUT); **//setup SW input**

  digitalWrite(SW_pin, HIGH); **//reading button state:1=not pressed,0=pressed**

  Serial.begin(9600); **//Seput serical connection for print out to console**

} **//print out values**

void loop() {

  Serial.print("Switch: ");

  Serial.print(digitalRead(SW_pin));

  Serial.print("\n");

  Serial.print("X-axis: ");

  Serial.print(analogRead(X_pin));

  Serial.print("\n");

  Serial.print("Y-axis: ");

  Serial.println(analogRead(Y_pin));

```
    Serial.print("\n\n");

    delay(2000);

}
```

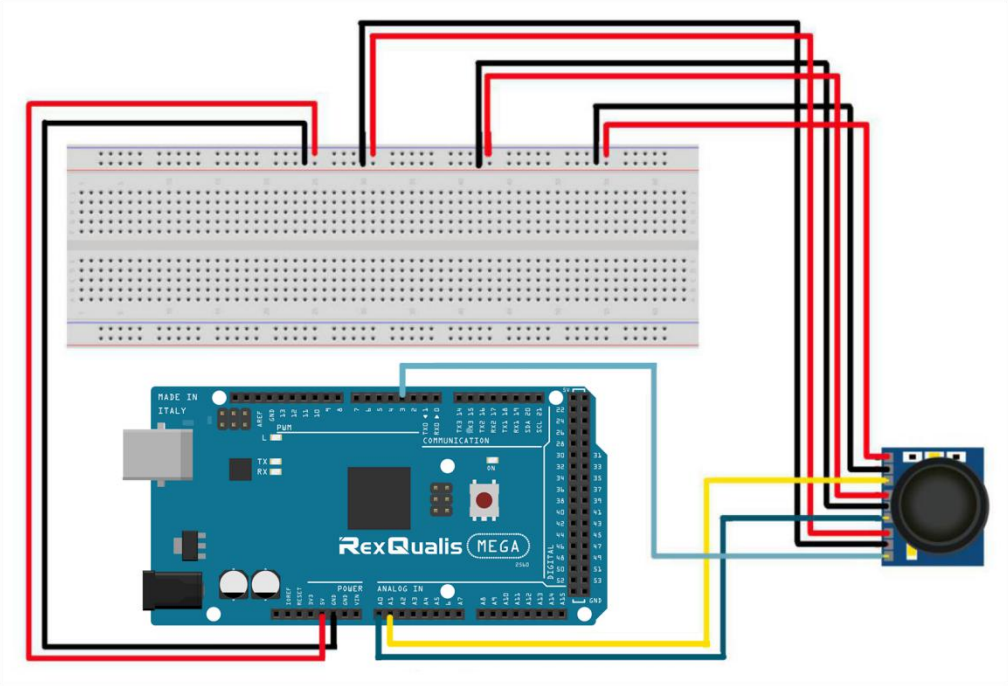
Experimental Procedures

Step 1:Build the circuit

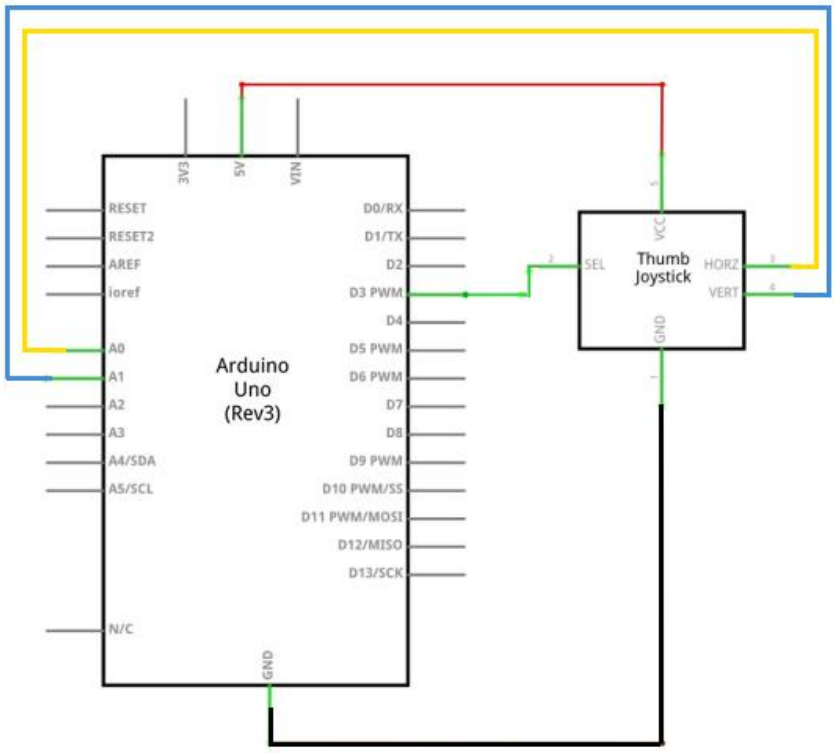
We need 9 connections to the joystick.

The connections are: K, Y, X, Voltage and Ground.

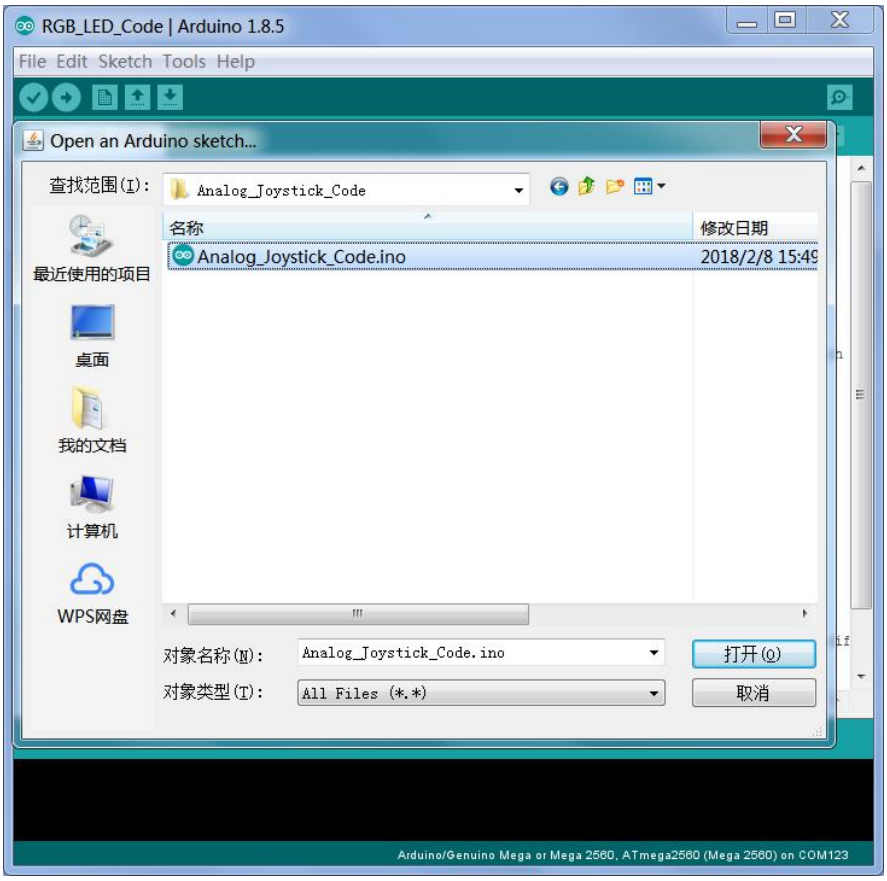
“Y and X” are Analog and “K” is Digital. If you only need Any one switch then you can use only 3 pins.



Schematic Diagram



Step 2:Open the code:Analog_Joystick_Code

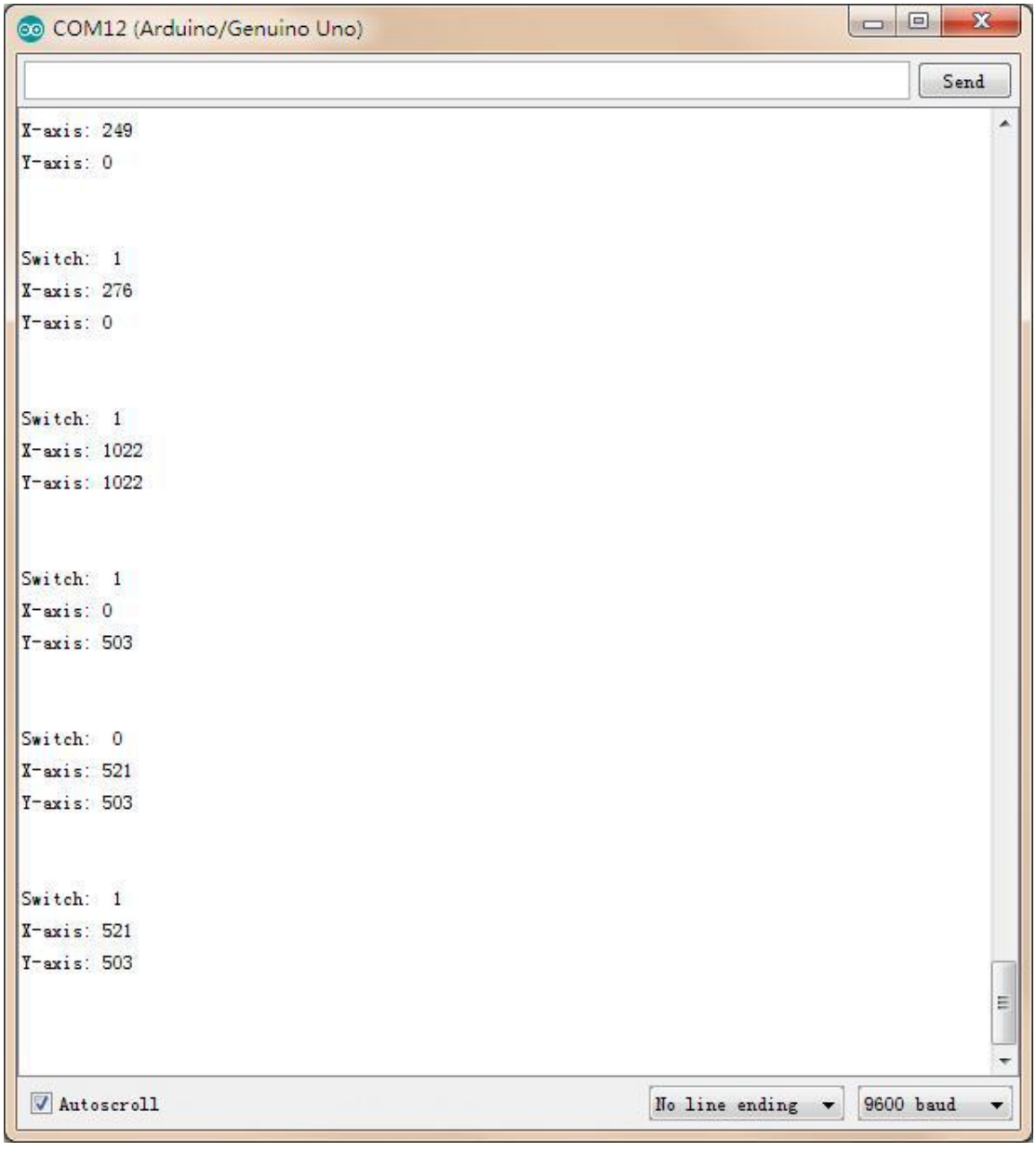


Step 3:Attach Arduino Mega 2560 board to your computer via USB cable and check that the 'Board Type' and 'Serial Port' are set correctly.

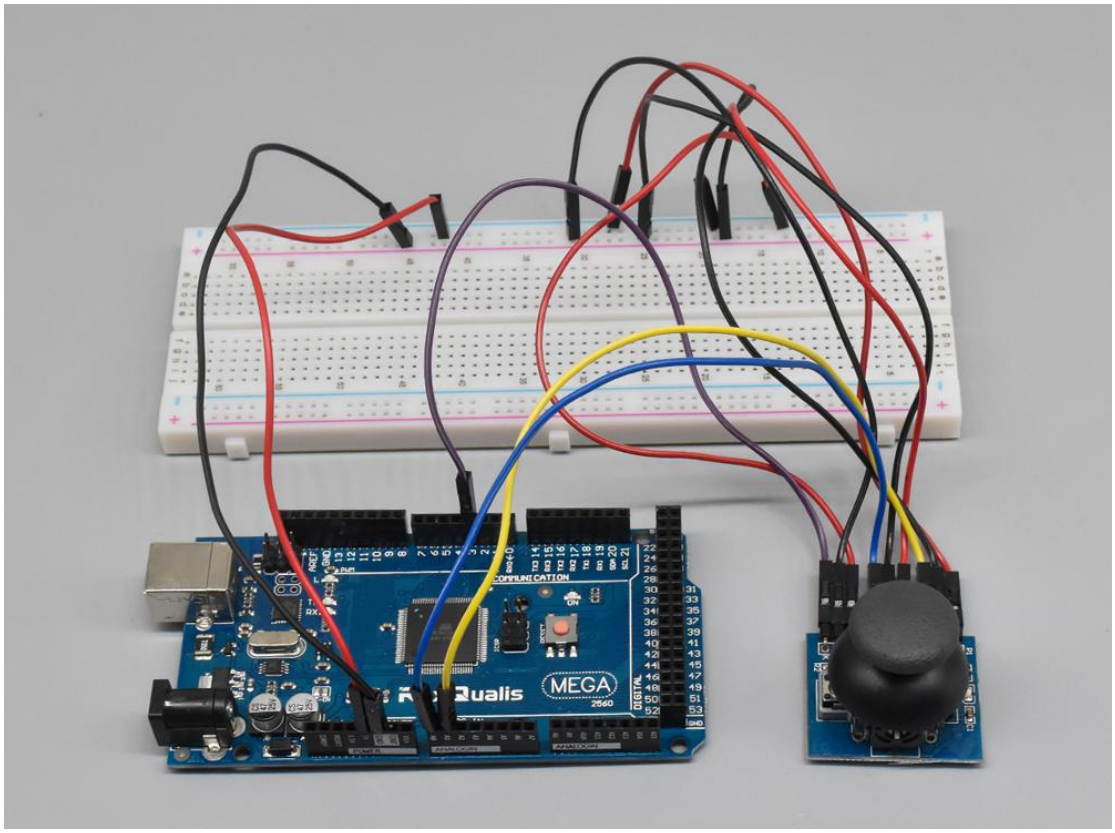
Step 4:Upload the code to the RexQualis Mega 2560 board.

Step 5:Open the Serial Monitor then you can see the data as blow:

(How to use the Serial Monitor is introduced in details in Lesson 0 Preface)



Then, Turn the joystick so you can see the data changes on the monitor.



You can see the video of the experiment results on YouTube:

https://youtu.be/WjFCCRq4SrA

If it isn’ t working, make sure you have assembled the circuit correctly, verified and uploaded the code to your board.For how to upload the code and install the library, check Lesson 0 Preface.