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CSE 5410
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Lab 9: Joystick PS2

Introduction

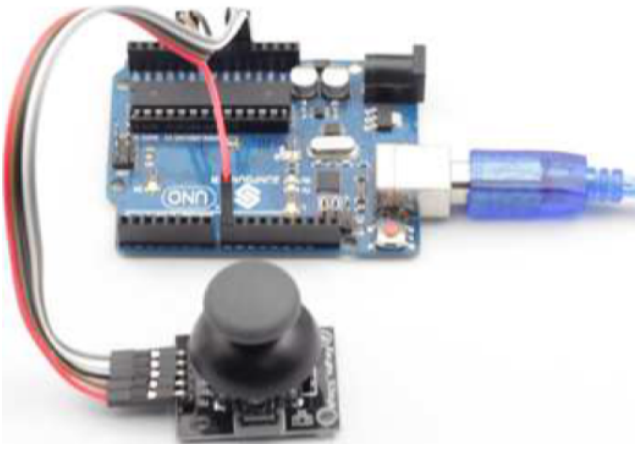
A joystick is an input device consisting of a stick that pivots on a base and reports its angle or direction to the device it is controlling. Joysticks are often used to control video games and robots. A Joystick PS2 is used here.

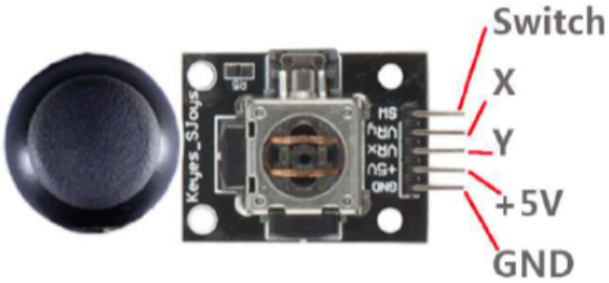
Components list: Arduino uno board, usb cable, Joystick PS2 module, and jumper wires.

Experiment

This module has two analog outputs (corresponding to X, Y biaxial offsets) and one digital output representing whether it is pressed on Z axis. The module integrates power indicator and can display operation condition.
In this experiment, we use the Arduino Uno board to detect the moving direction of the Joystick knob and pressing of the button.

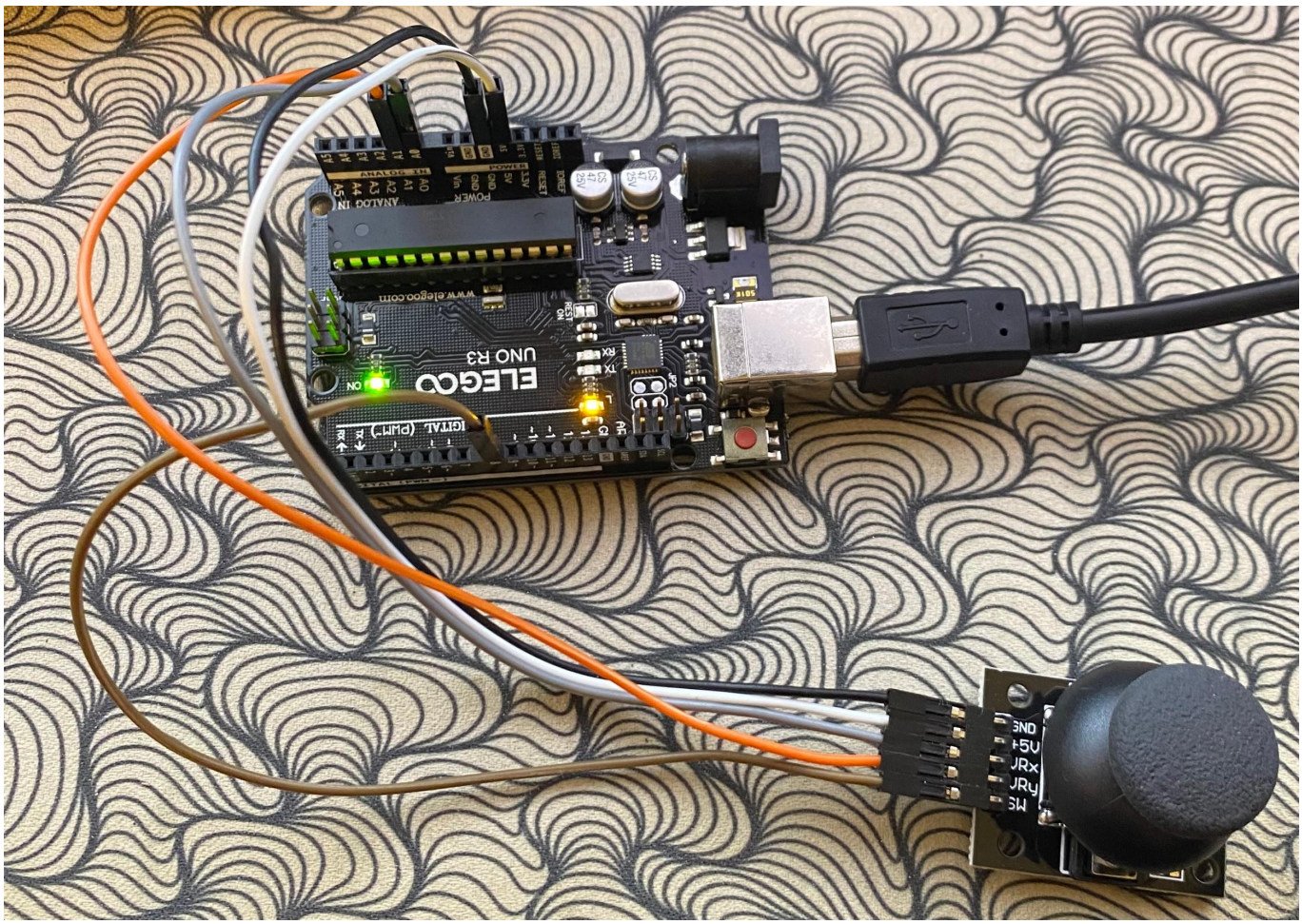
By connecting the components as shown in the diagram below we can begin uploading code to the arduino and test the Joystick PS2 module.





Test

Joystick PS2 Setup

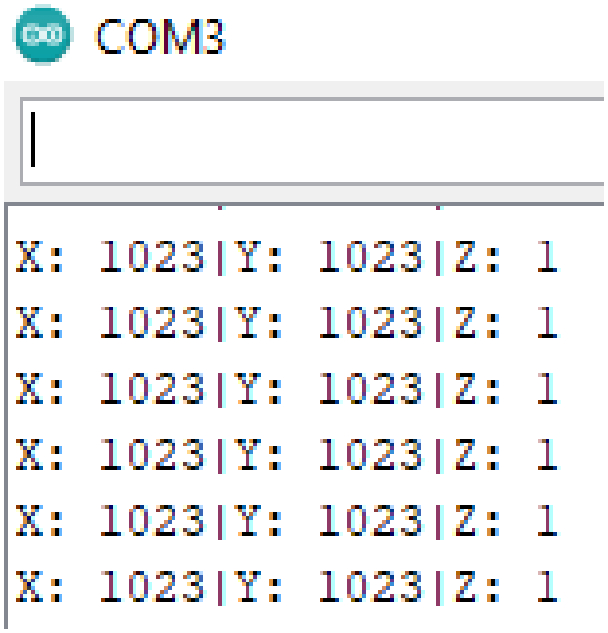


Test 1

Using the code below, The analog joystick reads the inputs of X, Y, and Z inputs every half a second.

```
const int xPin = A0;
const int yPin = A1;
const int swPin = 8;
void setup()
{
pinMode(swPin,INPUT);
digitalWrite(swPin, HIGH);
Serial.begin(9600);
}
void loop()
{
Serial.print("X: ");
Serial.print(analogRead(xPin),DEC);
Serial.print("|Y: ");
Serial.print(analogRead(yPin),DEC);
Serial.print("|Z: ");
Serial.println(digitalRead(swPin));
delay(500);
}
```

Serial monitor

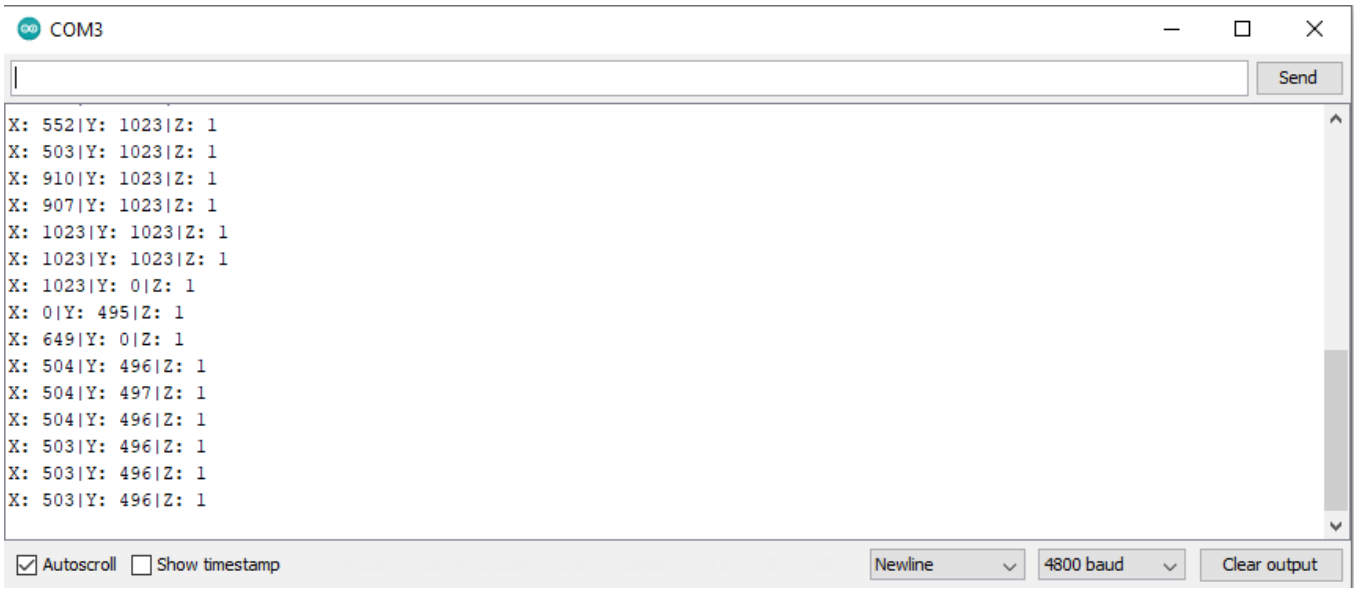


Test 2

Using the code below, The analog joystick reads the inputs of X, Y, and Z inputs every second.

```
const int xPin = A0;
const int yPin = A1;
const int swPin = 8;
void setup()
{
pinMode(swPin,INPUT);
digitalWrite(swPin, HIGH);
Serial.begin(4800);
}
void loop()
{
Serial.print("X: ");
Serial.print(analogRead(xPin),DEC);
Serial.print("|Y: ");
Serial.print(analogRead(yPin),DEC);
Serial.print("|Z: ");
Serial.println(digitalRead(swPin));
delay(1000);
}
```

Serial monitor



Test 3

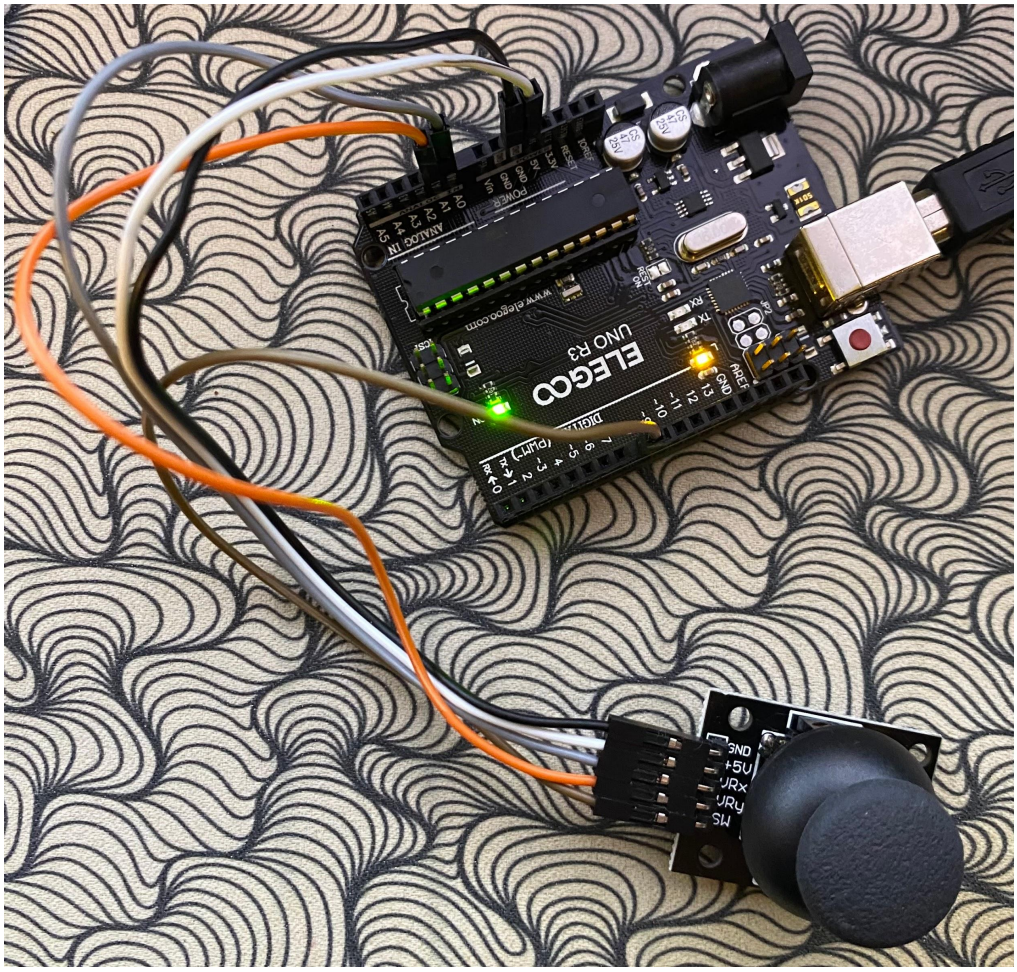
Using the code below, The analog joystick reads the inputs of X, Y, and Z inputs every half a second. If the Z input reads 1, the pin 13 LED ios on. If the Z input reads 0, the pin 13 LED is off.

```
const int xPin = A0;
const int yPin = A1;
const int swPin = 8;
void setup()
{
pinMode(swPin,INPUT);
digitalWrite(swPin, HIGH);
pinMode(13, OUTPUT);
Serial.begin(9600);
}
void loop()
{
Serial.print("X: ");
Serial.print(analogRead(xPin),DEC);
Serial.print("|Y: ");
Serial.print(analogRead(yPin),DEC);
Serial.print("|Z: ");
Serial.println(digitalRead(swPin));

if (digitalRead(swPin) == 1)
{
  digitalWrite(13, HIGH);
}
else if (digitalRead(swPin) == 0)
{
  digitalWrite(13, LOW);
}

delay(500);
}
```

If Z=1

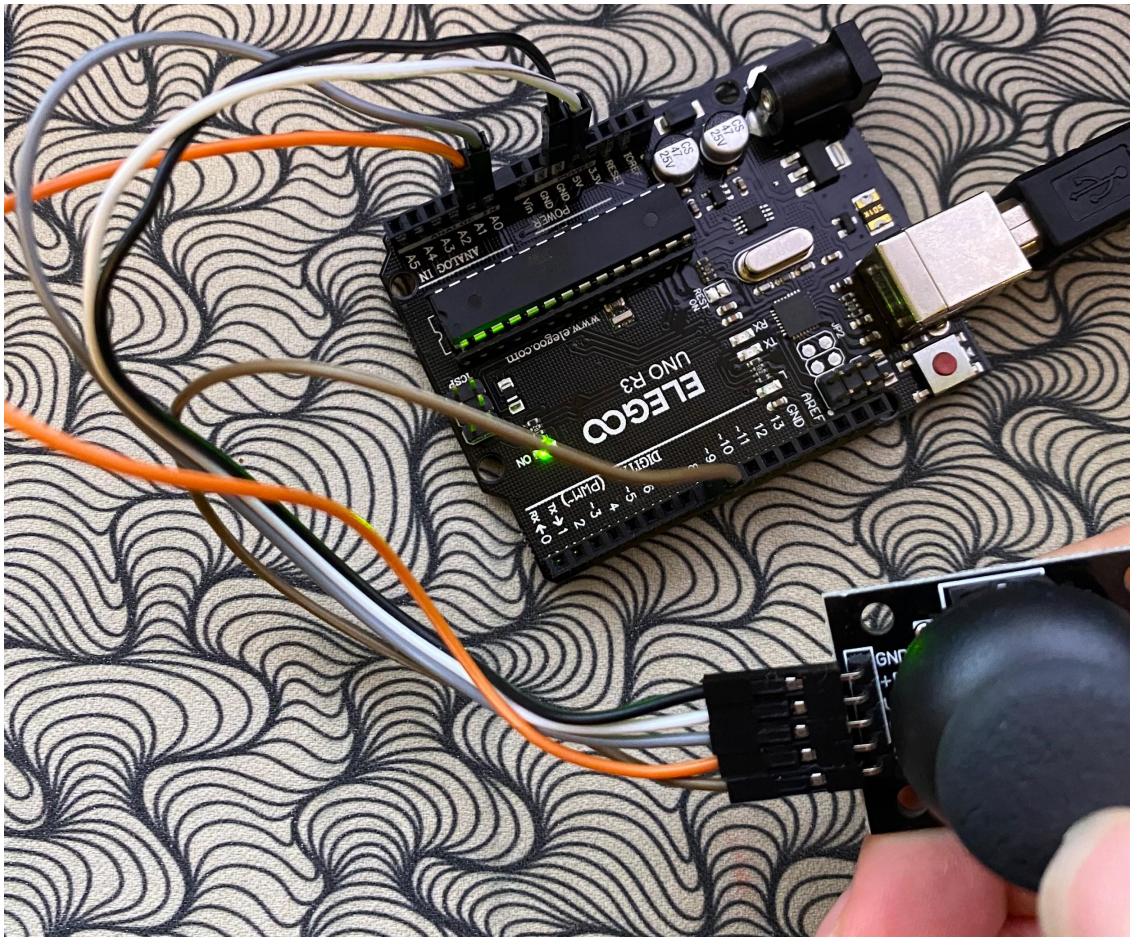


Serial monitor

COM3

```
X: 504|Y: 496|Z: 1
X: 503|Y: 496|Z: 1
X: 503|Y: 496|Z: 1
X: 503|Y: 496|Z: 1
X: 504|Y: 496|Z: 1
X: 503|Y: 496|Z: 1
```

If Z=0



Serial Monitor

COM3

```
X: 504|Y: 496|Z: 0
X: 503|Y: 497|Z: 0
X: 503|Y: 496|Z: 0
X: 503|Y: 496|Z: 0
X: 503|Y: 496|Z: 0
X: 503|Y: 497|Z: 0
```

Conclusion

In this lab, I learned about how to code a program to read the inputs of a joystick PS2 module. Using the arduino IDE, we can make a code that displays the X, Y, and Z readings of the joystick PS2 module onto the serial monitor. Overall, I thought this lab was cool.