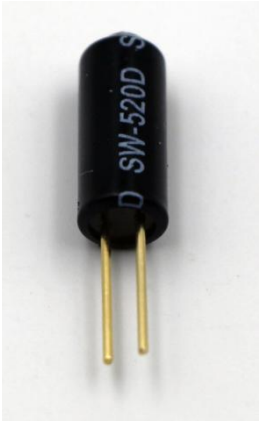
Lesson 10 Tilt Ball Switch

Introduction

In this lesson, you will learn how to use a tilt ball switch in order to detect small angle of inclination.

Hardware Required

- ✓ 1 * RexQualis UNO R3
- ✓ 1 * Breadboard
- ✓ 2 * 220 ohm Resistors
- ✓ 1 * Tilt Ball switch
- ✓ 1 * 5MM LED
- ✓ 4 * M-M Jumper Wires



Principle

Tilt Ball switch

Tilt Switch with internal ball that will switch to ON state of approx. 15 degrees tilt. Also great for sensing excessive vibration

Material: Housing and cover: PE heat shrinkable tubing

Ball: Stainless steel

Shape: Round

Color: Black

Contact Rating:12V

Contact Resistance: <10 ohm

Insulation Resistance:>10M ohm

Capacitance:5PF

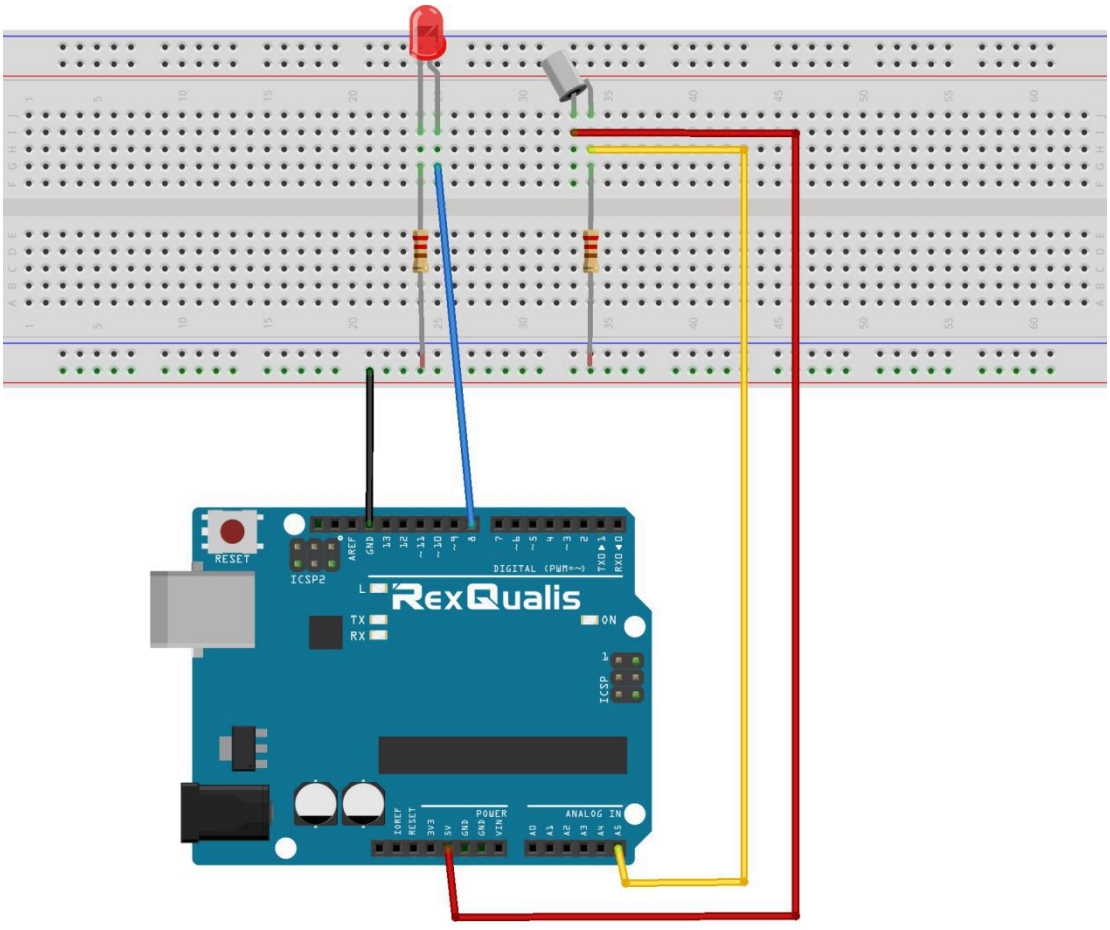
Code interpretation

```
const int LedPin=8;//the led attach to

void setup()

{

    pinMode(LedPin,OUTPUT);//initialize the LedPin as an output

}

void loop()

{

    int i;

    while(1)

    {

        i=analogRead(5);//Read the simulation 5 voltage value

        if(i>1000)//If it's greater than 512 (2.5v)

        {

            digitalWrite(LedPin,HIGH);//turn led on

        }
```

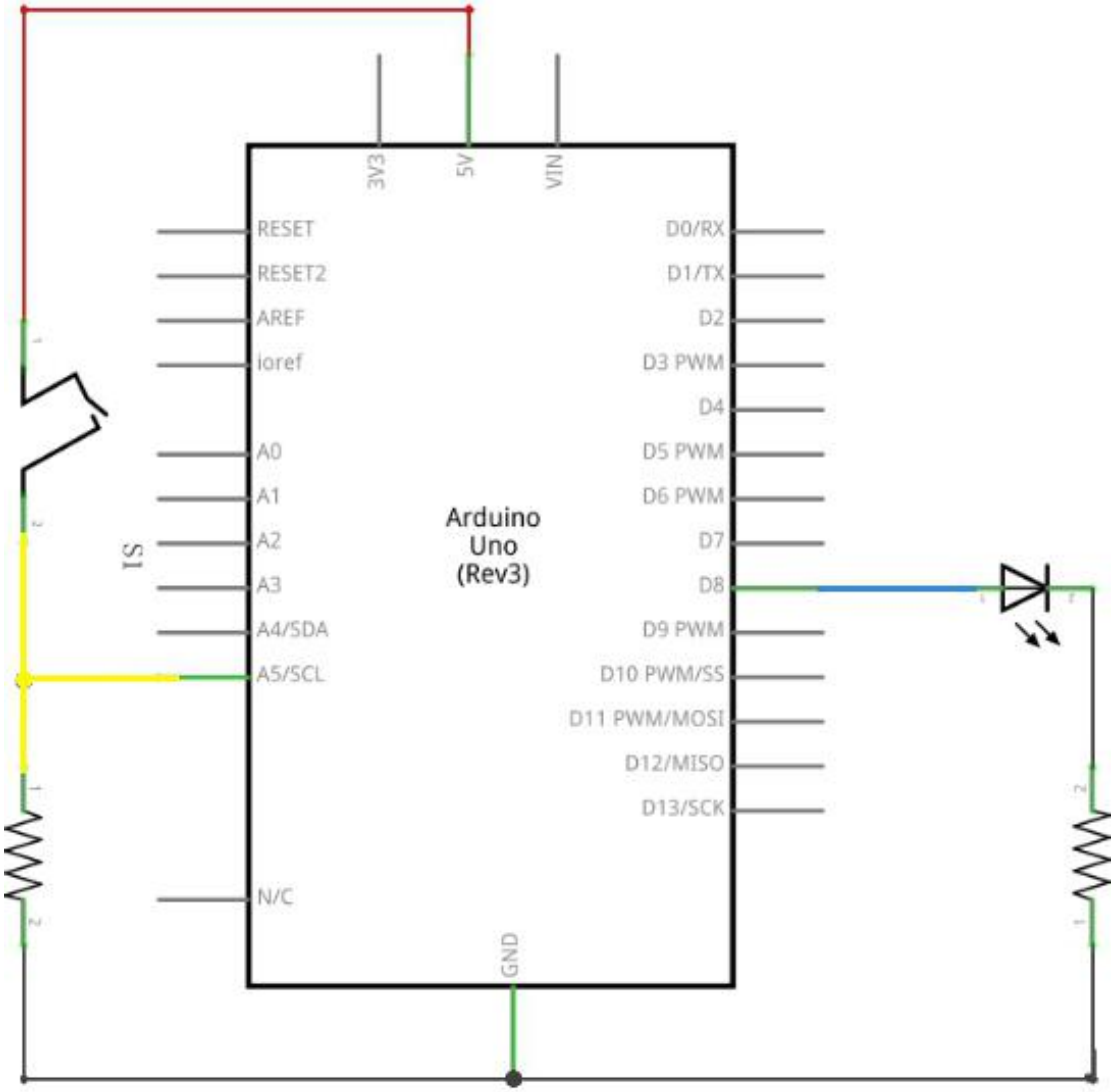
```
        else
        {
            digitalWrite(LedPin,LOW);//turn led off
        }
    }
}
```

Experimental Procedures

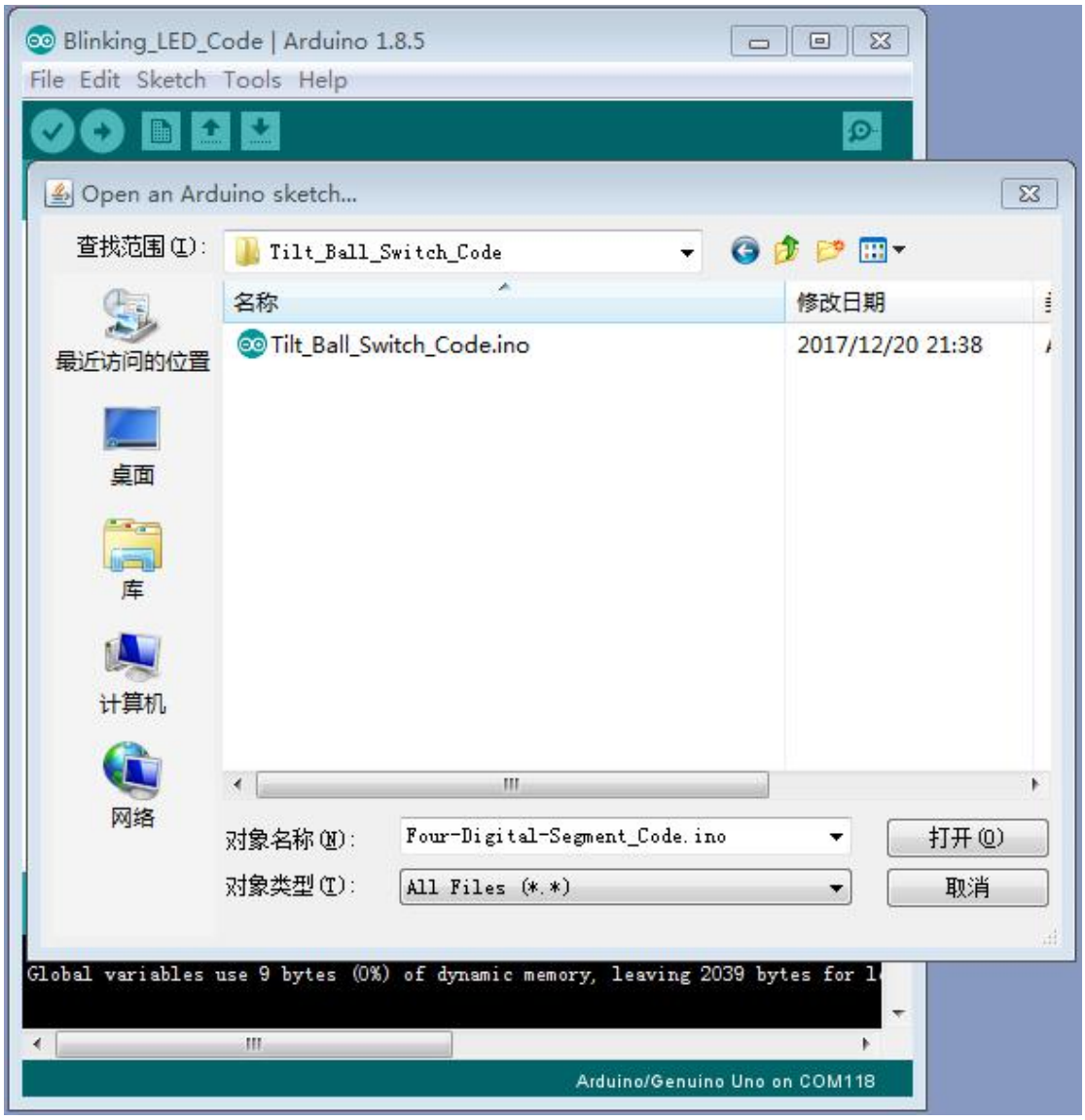
Step 1:Build the circuit



Schematic Diagram



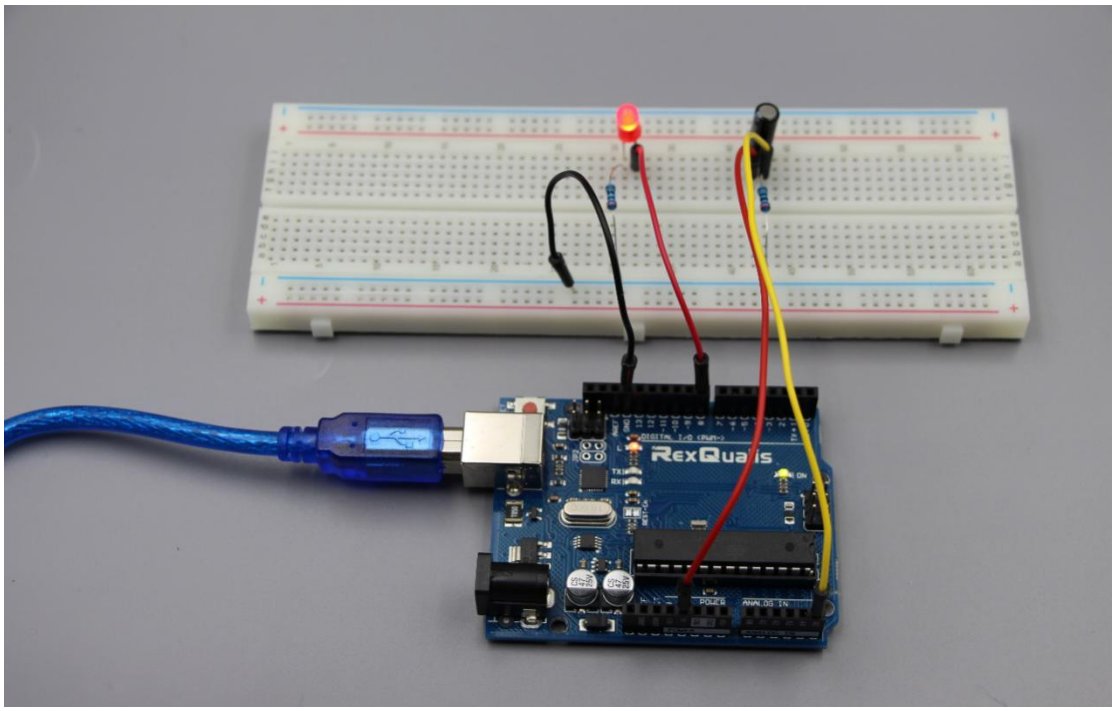
Step 2:Open the code:Tilt_Ball_Switch_Code



Step 3:Attach Arduino UNO R3 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 UNO R3 board.

Then, You can control the LED by controlling the balance of the Tilt Ball Switch.



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

https://youtu.be/bLppccCkrLo

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.