

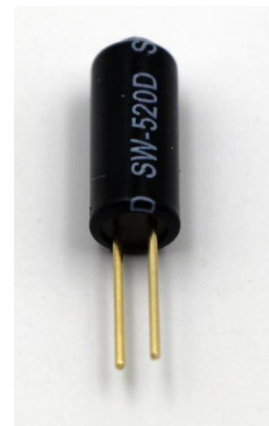
# Lesson 10 Tilt Ball Switch

## 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 \* 220ohm 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

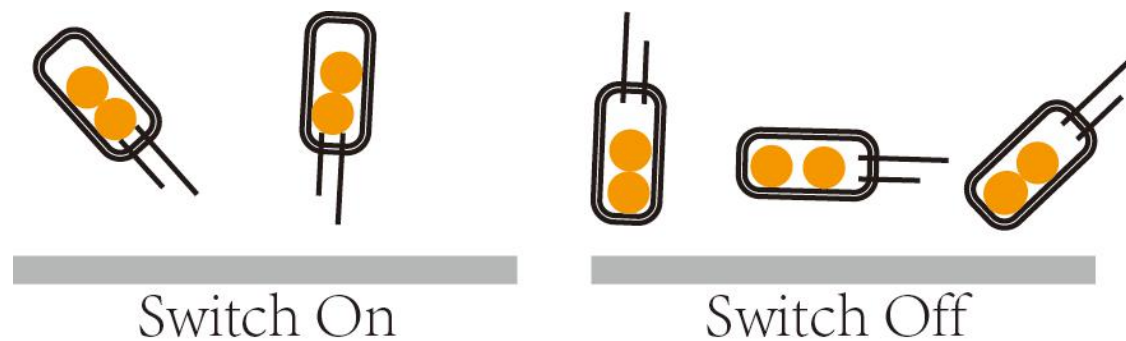
Color: Black

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

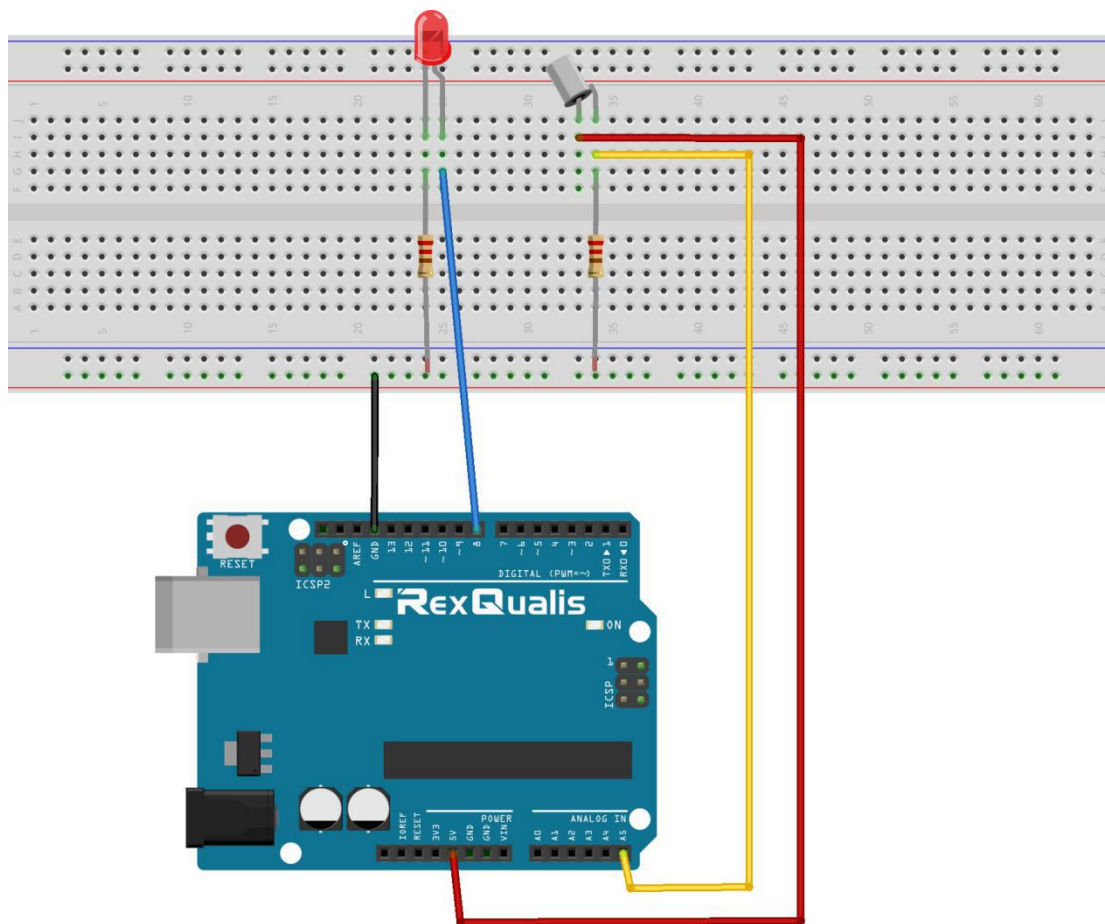
}

}

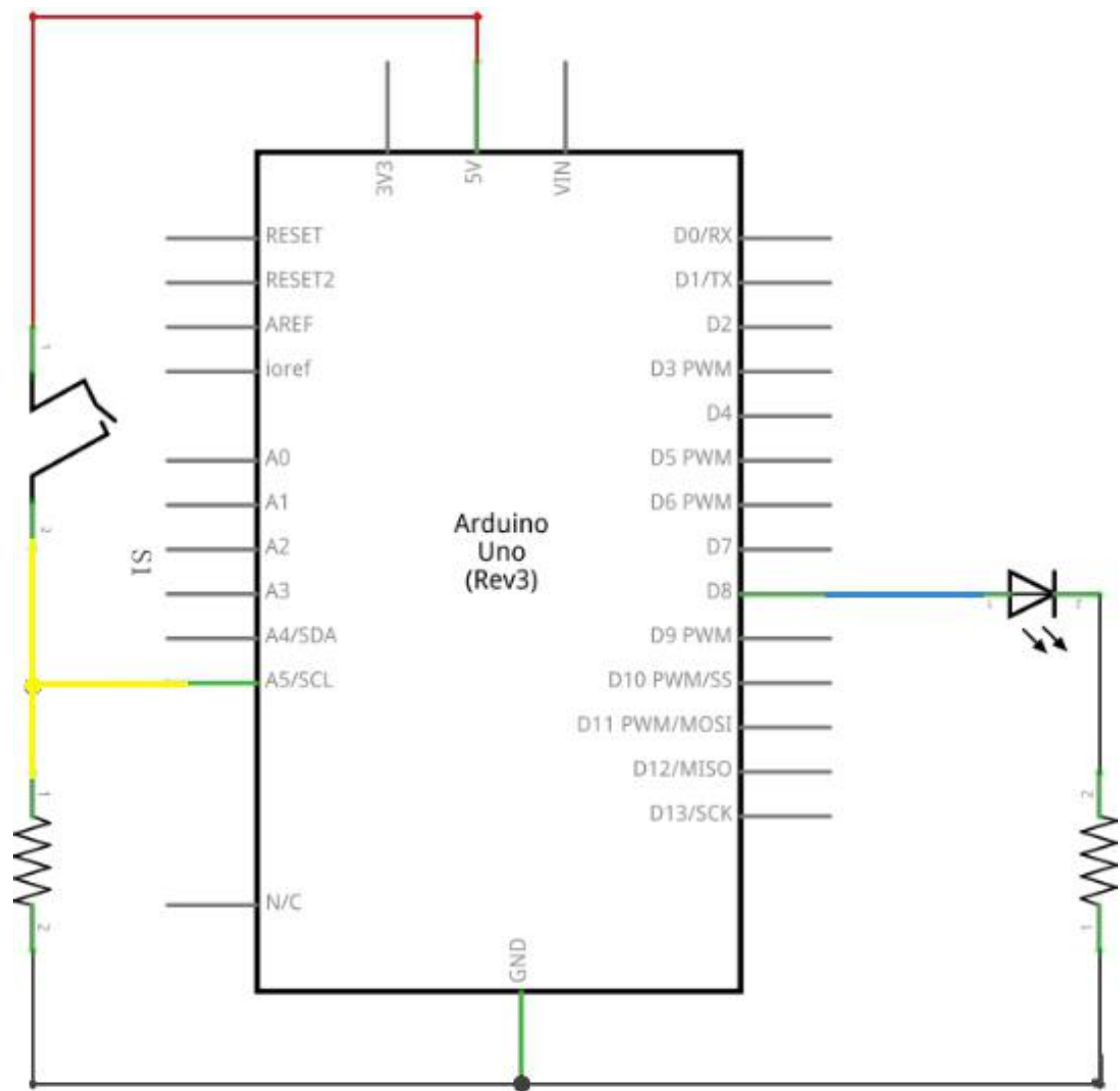
```

## } Experimental Procedures

### Step 1: Build the circuit



### Schematic Diagram



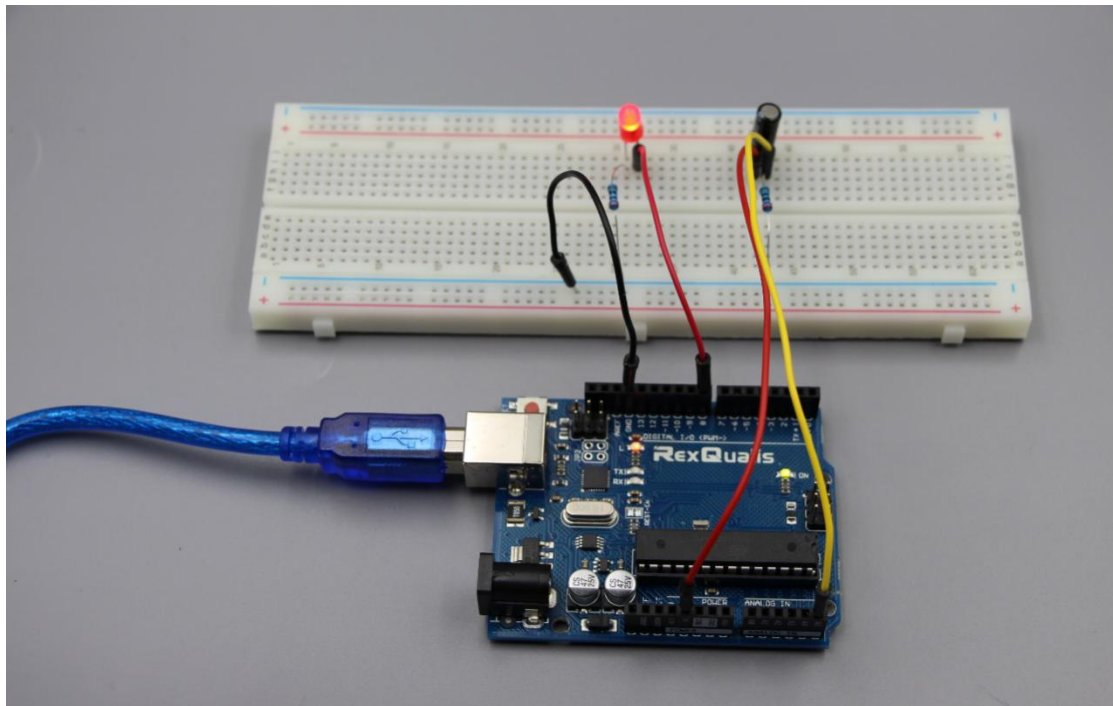
**Step 2:Open the code:Tilt\_Ball\_Switch\_Code**



**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.**



**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.**