SW-18010P Vibration Tilt Sensor

Introduction

The tilt sensor module is equipped with a tilt sensor and a potentiometer. You may attach it to any object and it will determine whether the object is tilted or not. It is simple as it returns a digital output.

It uses SW-460D or SW-520D tilt sensor. This tilt sensor is a ball rolling type, NOT the Mercury type. It comes with a M3 mounting hole for ease of attaching it to any object. A power LED and a status LED are attached to the module for visual indicator.

This module will output logic LOW when the sensor is tilted below the threshold angle; logic HIGH when it is tilted above the threshold angle. The threshold angle ranges from 45 degree to 130 degree. Aside from threshold angle, angular velocity also affect the tilt module. It can also be used as a vibration sensor, too!

This module can be interfaced with any microcontroller with digital input such as PIC, SK40C, SK28A, SKds40A SK40C, SK28A, SKds40A, Arduino series for tilt detection capability. Also, not to forget, interfacing the module with a Relay module forms a tilt switch.

In this tutorial we will see how to use tilt sensor with Arduino. When It is tilted it will turn ON the LED light. And we can use this sensor as an impact sensor by applying little force on it to turn On the LED light.

Specification

- Operating voltage: 3.3 to 5VDC
- Ball Rolling type of tilt sensor.
- PIN: VCC = 5V, GND = 0V, DO = digital output from module
- AO is not use in this module.

Image Set Up Diagram
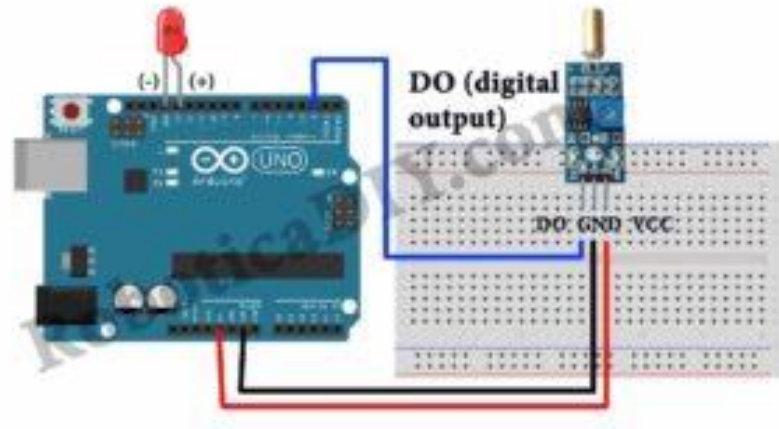
Packing List

- Arduino
- Tilt sensor (SW-520D)
- Jumper wire
- LED light
- Breadboard is optional

Pin Assignment

3 pin tilt sensor which will give digital output (DO) and 4 pin tilt sensor which will give digital output (DO) and analog output (AO). Analog output is useful when you want to do some task when it is at particular angle or position. it will do task like LED ON or turn off the motor or whatever you want depending upon your project. For this tutorial I am using 3 pin tilt sensor.
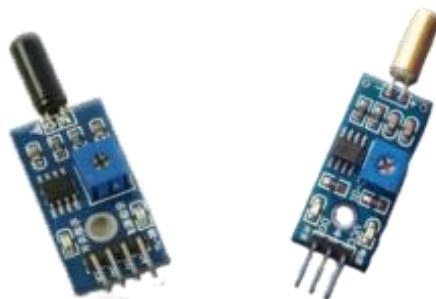
Explaination of Tilt Sensor Module

Define LED to 13 pin number, and tilt_sensor to pin number 2. Define val equal to zero initially. In setup function pinmode set LED as an output and tilt_sensor as an input. In loop function val equal to digital read tilt_sensor which will read pin number 2 and get value from sensor and assign it to val. If it is high it will turn on the LED light for 500 millisecond. Else LED light will not on. Now you can see when I tilt the breadboard equal to 90 degree it will turn on the LED light. And it can also use as an impact sensor when I tapped on breadboard it will turn on the LED light.

Example Code

This is example code for tilt sensor module.

```
int LED = 13;
int Tilt_sensor = 2;
int val = 0;
void setup(){
 pinMode (LED,OUTPUT);
 pinMode (Tilt_sensor,INPUT);
}
void loop(){
 val = digitalRead(Tilt_sensor);
 if (val == HIGH){
 digitalWrite(LED,HIGH);
 delay(500);
 }
 else {
 digitalWrite(LED,LOW);
 }
 delay(100);
}
```

Applications

1. Security devices
2. Toys
3. Electronic scales