EX NO.:	DETECT THE VIBRATION OF AN OBJECT WITH SENSOR USING ARDUINO UNO
Date:	

AIM:

To write a program detect the vibration of an object with sensor using arduino

COMPONENTS REQUIRED:

COMPONENTS	NOS
Arduino uno	1
Vibration Sensor SW-420	1
LED	1
Virtual Terminal	1

PROCEDURE:

Step 1: Download the Arduino IDE software from the official Arduino website.

Step 2: Install the Arduino IDE software and launch it.

Step 3: Place the Arduino board and all the required components in the Proteus workspace

step 4: Connect the vibration sensor to the Arduino board:

- VCC pin of the sensor to the 5V pin of Arduino.
- GND pin of the sensor to the GND pin of Arduino.
- Output pin of the sensor to the D2 pin (digital pin 2) of Arduino.

Step 5: Connect an LED to the Arduino:

- Anode (long leg) of the LED to D13 pin (digital pin 13).
- Cathode (short leg) of the LED to GND via a 220-ohm resistor.

Step 6: Open the Arduino IDE software.

step 7: Write the Arduino program (code) to detect vibration and control the LED.

Step 8: Upload the program to the Arduino board.

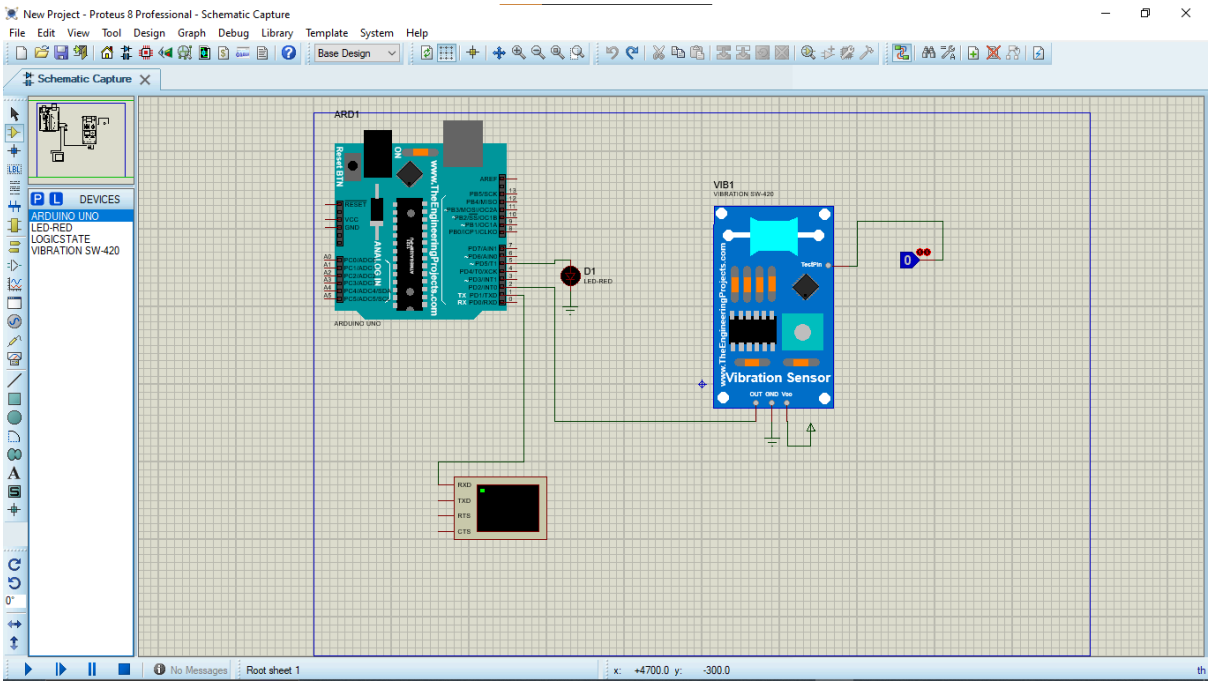
step 9: Run the simulation in Proteus or test the hardware setup physically.

Step 10: Trigger the vibration sensor by tapping or shaking it lightly. Observe:.

Step 11: Debug using the serial monitor (optional) to verify vibration data.

Step 12: Complete the process by validating the functionality and optimizing the design as needed.

SCHEMATIC DIAGRAM:

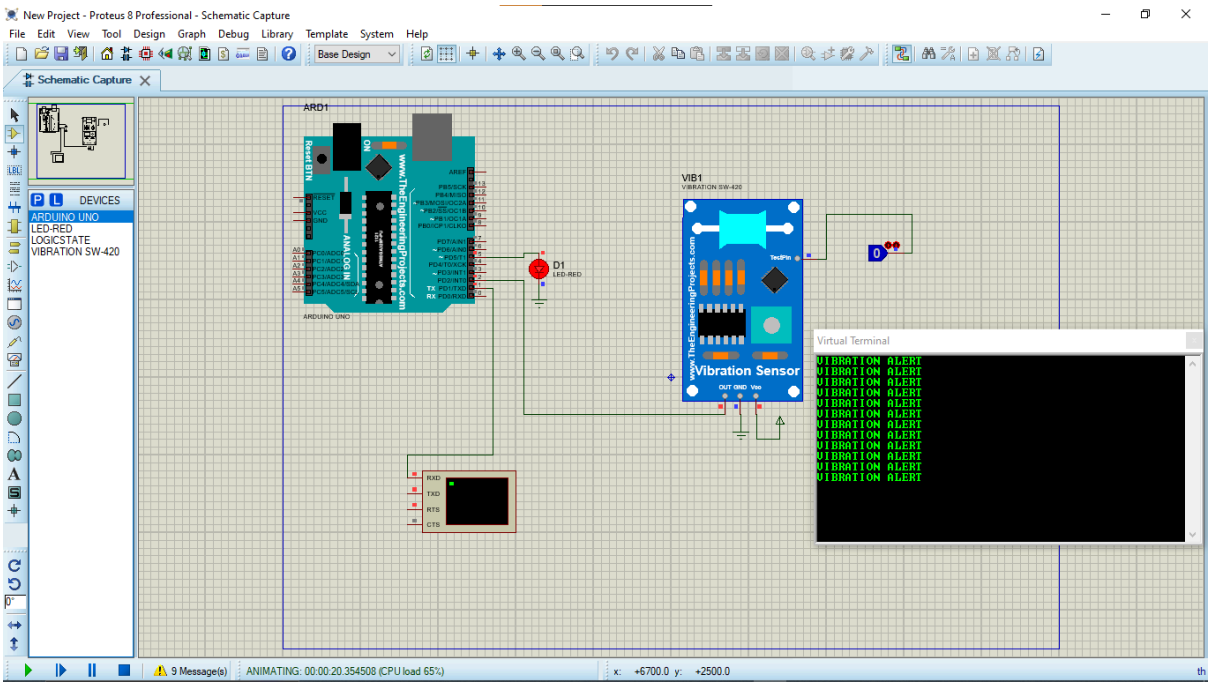


PROGRAM:

```
int b1 = 2;
int d1 = 5;


int cnt=0,cnt2;
int timer=0;
                    // a maximum of eight servo objects can be created
int pos = 0;    // variable to store the servo position
void setup() {
Serial.begin(9600);      //initialize serial
pinMode(b1, INPUT_PULLUP);
pinMode(d1, OUTPUT);
digitalWrite(d1, HIGH);
digitalWrite(d1,LOW);
delay(300);              // wait for a second
cnt=0;
}
 void loop() {
   if(digitalRead(b1) == HIGH){
 Serial.println("VIBRATION ALERT");
 digitalWrite(d1, HIGH);
 delay(300);              // wait for a second
 digitalWrite(d1, LOW);
 delay(300);              // wait for a second
 digitalWrite(d1, HIGH);
  delay(300);              // wait for a second
```

```
digitalWrite(d1, LOW);
delay(300);              // wait for a second

digitalWrite(d1, HIGH);
delay(300);              // wait for a second
digitalWrite(d1, LOW);
delay(300);              // wait for a second

  }
}
```

OUTPUT:


New Project - Proteus 8 Professional - Schematic Capture
File Edit View Tool Design Graph Debug Library Template System Help
Schematic Capture
DEVICES
ARDUINO UNO
LED-RED
LOGICSTATE
VIBRATION SW-420
ARD1
VIB1
D1
LED-RED
Vibration Sensor
Virtual Terminal
VIBRATION ALERT
9 Message(s)
ANIMATING: 00:00:20.354508 (CPU load 65%)

RESULT:

Thus the above program to detect the vibration of an object with sensor using arduino uno board and proteus 8 was executed and the output verified successfully.