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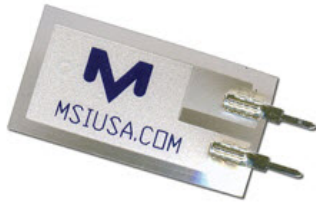Tech Support: (888) 997-8267

Vibra Tab (#605-00004) Demo for Arduino

Please note: This demo was created to support the 2013 National microMedic Contest kits, which are no longer available.

The Vibra Tab is a transducer made of piezoelectric film that is able to detect vibration and motion. Bending the film produces a voltage, which is provided at the output. This demo connects the Vibra Tab to a Board of Education Shield for Arduino.
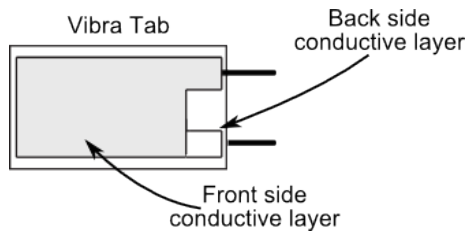
The Vibra Tab consists of two short leads bonded to a front and back coating applied to a plastic film. Exercise caution that you do not break off the leads. Avoid touching the coated sides of the film while taking a voltage measurement, as this could affect the reading.

Don't solder wires to the Vibra Tab leads, as the heat will cause the plastic film to melt. Instead use female jumper wires. If the connection is loose use a pair of pliers to gently squeeze the jumper onto the leads.

Connections
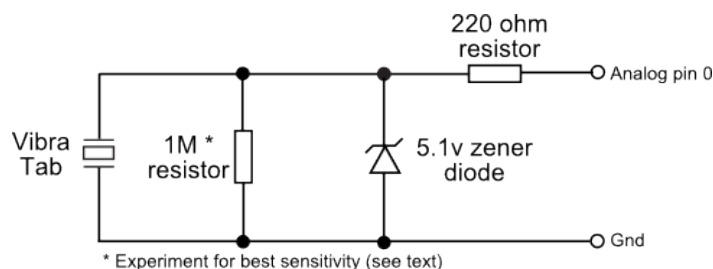
To connect the Vibra Tab to the Arduino Shield, attach the two leads of Vibra Tab as shown in the figure. Some additional parts are needed:

- The 1 megohm (or thereabouts) resistor prevents a charge from developing across the piezo film, causing an uneven voltage output. Experiment with this value -- a higher value makes the circuit more sensitive, but also more prone to voltage fluctuations. A lower value does the reverse.
- The 5.1 zener diode prevents over-volting the Arduino's input pin. The Vibra Tab can produce upwards of 70 volts if quickly bent or struck with a hard object. The zener diode is added as a precaution and is considered optional. The Arduino's input pins already provide protection, but the diode is recommended as extra precaution.
- The 220 ohm resistor limits current into the Arduino input pin. It is likewise considered optional, but recommended.

Programming

To use this example, upload the following sketch to your Arduino, then open the Serial Monitor window. Ensure that the Baud Rate is set at 9600. Hold the film by the wire leads, and gently brush across it. Larger values indicate higher voltages produced by the film.

```
// Vibra Tab connected to analog pin A0
const int filmSensor = A0;

void setup() {
 Serial.begin(9600);
}

void loop() {
  Serial.println(analogRead(filmSensor), DEC);
  delay(300);
}
```