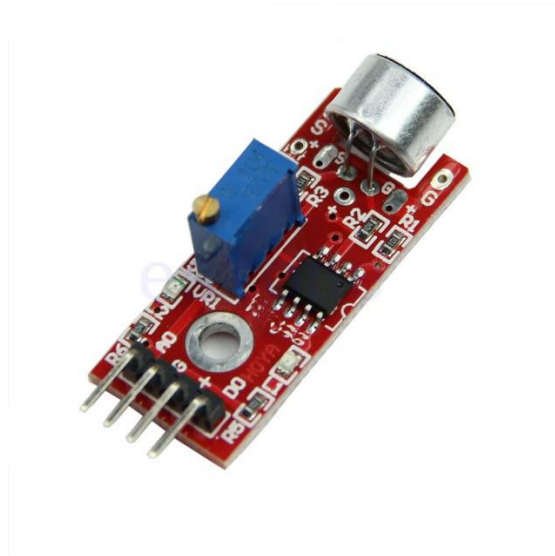# Sound/Noise Detector

Introduction

The module consists of a condenser microphone and a voltage level comparator. There is a multi-turn trimmer onboard on the red board and a single-turn trimmer on the black board. You use this to set the noise level at which the sensor will trigger.

Both modules can detect and trigger at a particular noise level however, this RED module has an advantage of having an analog output, where you can get the realtime sound intensity reading.

Interfacing with Arduino

Let's power up our module. Connect G to ground, + to 5V. Hook the module to a multimeter by connecting its analog output (red module, AO pin). Try making some noise and notice that the analog output of the module is varying with the sound intensity. Like the other sensors, this one also outputs a HIGH logic by default and a LOW logic when the noise threshold has been reached.

Lets connect the A0 pin of the module to Arduino's Analog0 input and load the following program (Noise Detector sketch)

```
int loudness;

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

void loop()
```

```
{
    loudness = analogRead(0);
    Serial.println(loudness);
    delay(50);
}
```

The sample code we loaded only reads the analog input pin 0 every 50 milliseconds and outputs it to serial port. Run the program and activate Arduino's serial plotter (Tools -> Serial Plotter)

Notice that whenever we create a loud sound (like clapping) there is a spike in the output. Also, remember that the output is inverting, meaning at zero noise, ADC output is about 500 and spike up or down whenever sound is detected. You should note this in your program to only detect the delta change in voltage

That's it. You can also connect the digital pin, DO to Arduino directly to detect if the threshold noise had been reached. We'll leave that as an exercise for you