**Smoke Ring Creator**

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**Using a microphone to sense a human "blow" that triggers a solenoid to "hit". This set-up was used in our case to hit the membrane of a chamber filled with smoke, which resulted in smoke rings!**

int soundDetectedPin = A0; // Use Pin A0 as our Input (Microphone sensor)

int soundDetectedVal = HIGH; //

boolean bAlarm = false; // Either false or true (it has two variable values)

int solenoidPin = 6; // Use Pin 6 as our Output (Solenoid)

void setup ()

{

Serial.begin(9600); // Data rate in bits per second for serial data transmission to computor

pinMode (A0, INPUT\_PULLUP) ; // Input from the Sound Detection Module, "pullup" in pin A0 is activated

pinMode(solenoidPin, OUTPUT); // Output from solonoid (pin 6)

}

void loop ()

{

soundDetectedVal = digitalRead(A0); // Read the sound value

Serial.println(soundDetectedVal);

if (soundDetectedVal == LOW) //If we hear a sound

{

Serial.println(bAlarm);

if (!bAlarm) {

Serial.println("LOUD, LOUD");

digitalWrite(solenoidPin, HIGH); //Switches Solenoid ON

delay(500); //Delay provides correct time that the Solenoid hits the membrane

bAlarm = true;

}

}

else

{

Serial.println("QUIET");

bAlarm = false;

digitalWrite(solenoidPin, LOW);

digitalWrite(solenoidPin, LOW); //Switches Solenoid OFF

//delay(400); //Sensor experiences no delay to have a more accurate reaction time

}

}

Code sources:

http://henrysbench.capnfatz.com/henrys-bench/arduino-sensors-and-input/arduino-sound-detection-sensor-tutorial-and-user-manual/

https://www.bc-robotics.com/tutorials/controlling-a-solenoid-valve-with-arduino/ (by Chris @ BCR, July 2015)