

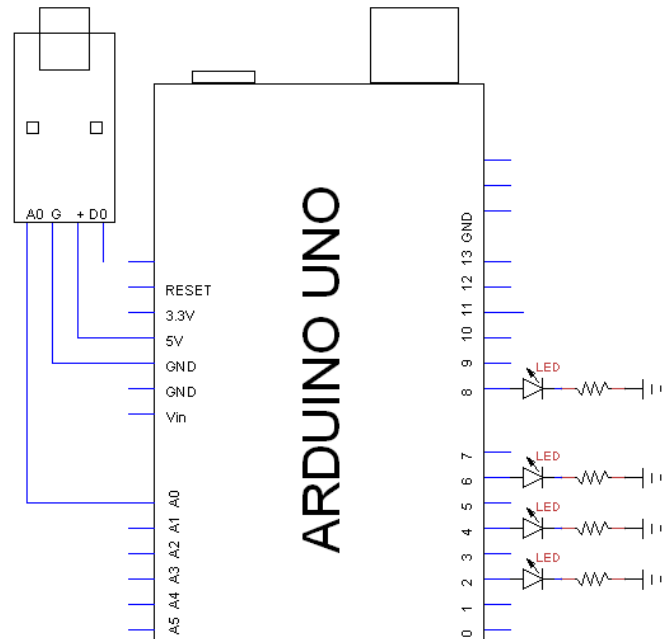
# The Music Reacting Circuit

## What is it?

Ever seen a stereo or a sound system with bars that reflect the beat of the music. This circuit does much the same thing.

## How does it work?

Firstly the microphone needs power to turn on and start working. Once it is working it provides a value for loudness between 0 and 1024. We load the Arduino a program that makes 4 LED's react to the loudness of the music in a way that the louder the music gets the more LED's are turned on



## How to make it?

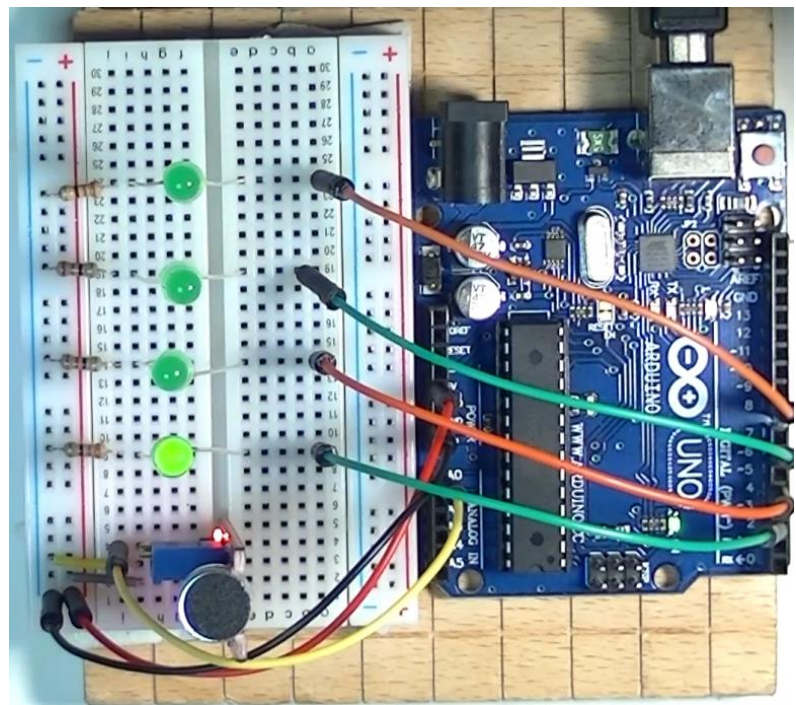
*Components:* breadboard, breadboard wire, LED X 4, Microphone, Music\_4\_Pin program

**Step 1:** Connect the (+) on the mic to the 5V pin and the (G) to the GND pin on the Arduino

**Step 2:** Connect the A0 pin on the mic to the A0 pin on the Arduino (yellow cable)

**Step 3:** Add the four LED's as per the diagram on the right and the picture below

**Step 4:** Load the Music\_Reacting\_Program into the Arduino and test it with some sounds/ music if it works try changing some the circled sections of the code below:



```

int MicPin = A0;           // pin that the mic is attached to
int MicValue1 = 0;
int MicValue2 = 0; // the Microphone value

int led1 = 2;
int led2 = 4;
int led3 = 6;
int led4 = 8;

void setup() {
  pinMode(led1, OUTPUT);
  pinMode(led2, OUTPUT);
  pinMode(led3, OUTPUT);
  pinMode(led4, OUTPUT);
  pinMode(MicPin, INPUT);
  Serial.begin(9600); //for test the input value initialize serial
}

void loop() {
  MicValue1 = analogRead(MicPin); // read pin value
  Serial.println(MicValue1);
  delay(1);
  MicValue2 = analogRead(MicPin);
  Serial.println(MicValue2);

  if (MicValue1-MicValue2 == 1){
    digitalWrite(led1, HIGH); // turn lights on
    delay(100);
  }
  else{
    digitalWrite(led1, LOW);
  }

  if (MicValue1 - MicValue2 == 2){
    digitalWrite(led1, HIGH); // turn lights on
    digitalWrite(led2, HIGH); // turn lights on
    delay(100);
  }
  else{
    digitalWrite(led1, LOW);
    digitalWrite(led2, LOW);
  }
}

```

### Extension

- Create this circuit using at least 7 LED's and adjust the ranges so that all seven are used up at different sound levels.