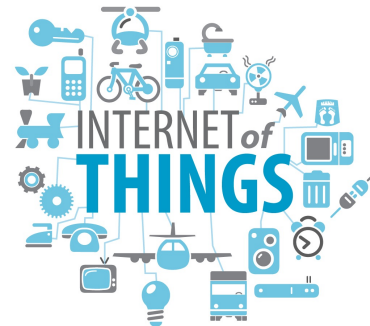


# INTERNET OF THINGS

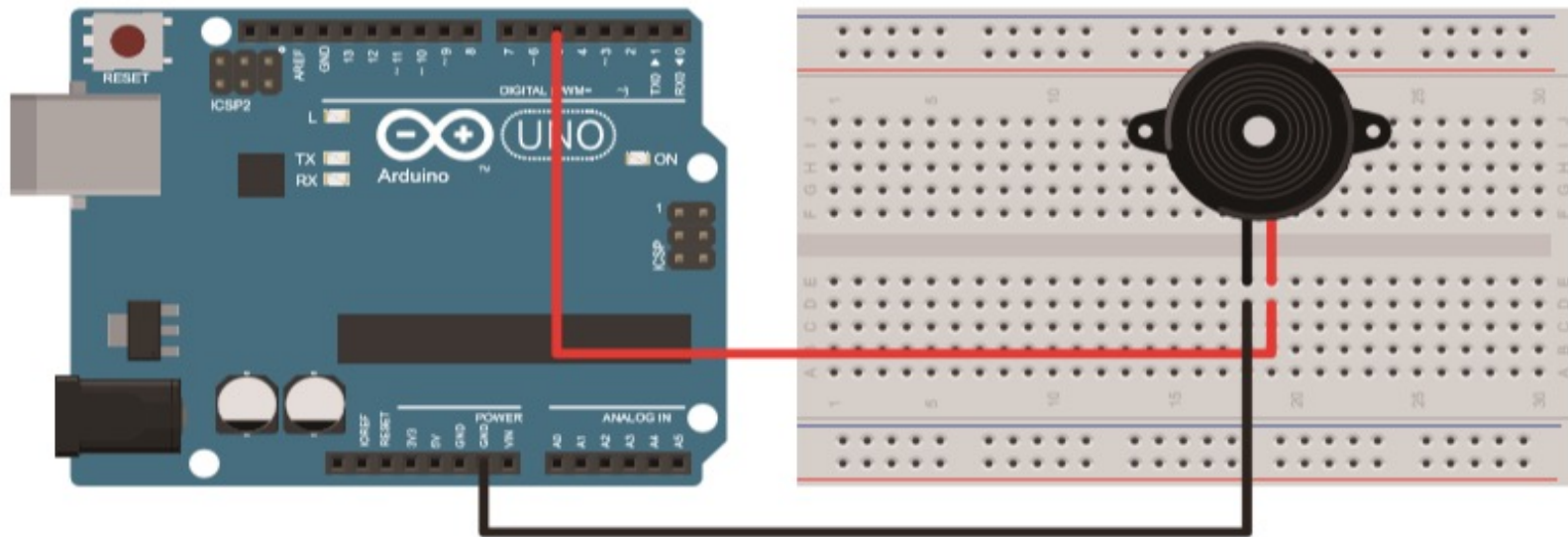
# 1.5

# BUZZER





BUZZER



Buzzer	Arduino
+	5
-	GND

```
int buzzer_pin = 5;

void setup(){
    pinMode(buzzer_pin, OUTPUT);
}

void loop(){
    for(int x=0; x<180; x++){
        // convert degrees to radians then obtain value
        float sinVal = (sin(x*(3.1412/180)));
        // generate a frequency from the sin value
        int toneVal = 2000+(int(sinVal*1000));
        tone(buzzer_pin, toneVal);
        delay(2);
    }
}
```

tone(pin, frequency)

tone(pin, frequency, duration)

//duration value in millisecond

noTone(pin)



Playing the  
song with  
buzzer

---

<b>Frequency (Hz)</b>	<b>262</b>	<b>262</b>	<b>294</b>	<b>262</b>	<b>349</b>	<b>330</b>	<b>262</b>	<b>262</b>	<b>294</b>
<b>Duration (s)</b>	0.5	0.5	1	1	1	2	0.5	0.5	1
<b>Frequency (Hz)</b>	<b>262</b>	<b>392</b>	<b>349</b>	<b>262</b>	<b>262</b>	<b>523</b>	<b>440</b>	<b>349</b>	<b>330</b>
<b>Duration (s)</b>	1	1	2	0.5	0.5	1	1	1	1
<b>Frequency (Hz)</b>	<b>294</b>	<b>466</b>	<b>466</b>	<b>440</b>	<b>349</b>	<b>392</b>	<b>349</b>		
<b>Duration (s)</b>	3	0.5	0.5	1	1	1	2		

```
int buzzer_pin = 5;

void setup(){
  pinMode(buzzer_pin, OUTPUT);
}

void loop(){
  int notes_len = 25;
  int frequency[] = {262, 262, 294, 262, 349, 330, 262, 262, 294, 263,
392, 349, 262, 262, 523, 440, 349, 330, 294, 466, 466, 440, 349, 392, 349};
  float duration[] = {0.5, 0.5, 1, 1, 1, 2, 0.5, 0.5, 1, 1, 1, 2, 0.5,
0.5, 1, 1, 1, 1, 3, 0.5, 0.5, 1, 1, 1, 2};

  for (int i=0; i<notes_len; i++) {
    tone(buzzer_pin, frequency[i], duration[i]*1000);
    delay(500);
  }
  noTone(buzzer_pin);
}
```



	Octave 1	Octave 2	Octave 3	Octave 4	Octave 5	Octave 6	Octave 7
<b>C</b>	32.7	65.4	130.8	261.6	523.3	1046.5	2093.0
<b>C#</b>	34.6	69.3	138.6	277.2	554.4	1108.7	2217.4
<b>D</b>	36.7	73.4	146.8	293.7	587.3	1174.6	2349.3
<b>D#</b>	38.9	77.8	155.6	311.1	622.3	1244.5	2489.0
<b>E</b>	41.2	82.4	164.8	329.6	659.3	1318.5	2637.0
<b>F</b>	43.7	87.3	174.6	349.2	698.5	1397.0	2793.8
<b>F#</b>	46.2	92.5	185.0	370.0	740.0	1480.0	2960.0
<b>G</b>	49.0	98.0	196.0	392.0	784.0	1568.0	3136.0
<b>G#</b>	51.9	103.8	207.6	415.3	830.6	1661.2	3322.4
<b>A</b>	55.0	110.0	220.0	440.0	880.0	1760.0	3520.0
<b>A#</b>	58.3	116.5	233.1	466.2	932.3	1864.6	3729.3
<b>B</b>	61.7	123.5	246.9	493.9	987.8	1975.5	3951.0