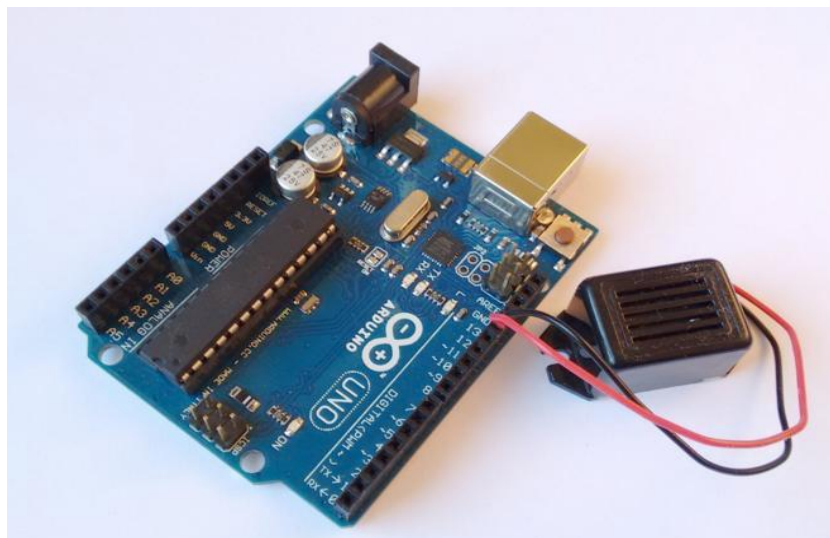
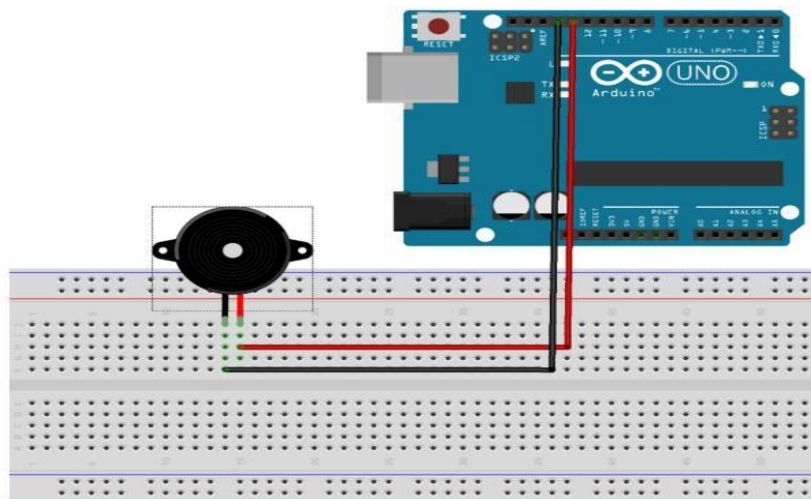


Practice 12 – Generating sounds with a buzzer

To perform this practice we will use a buzzer and an Arduino board. It is to connect it as it indicates the connection system that appears in the outline and to realize the programming so that the buzzer sounds.

For this, it is essential to know the tone function that allows you to enter High / Low values with different frequencies in the buzzer pin to produce the desired sounds. The function is: `tone (pinsalida, frequency);` And to stop it we will use the `notone` function of the form: `notone (pinsalida);`

We have to keep in mind that it is only capable of generating a single tone at a time. If we call the tone function to generate sounds in another pin without having stopped the one that is sounding nothing will happen.



Once the program is loaded, it is sent to the Arduino board and the buzzer will sound for a time with the programmed frequency, it will be turned off and then the cycle will start again.

```
sonido_zumbador$
```

```
int pinzumbador = 13;    // pin del zumbador
int frecuencia = 220;    // frecuencia correspondiente a la nota La

void setup()
{

}

void loop()
{
    tone(pinzumbador,frecuencia);    // inicia el zumbido
    delay(2000);
    noTone(pinzumbador);             // lo detiene a los dos segundos
    delay(1000);
}
```

The second practice is to program a melody. This requires the note instruction. This is programmed: note (frequency, duration);

```
sonido_zumbador$
```

```
/* declaración de variables */
```

```
int spk=13;                // Buzzer a GND y pin 13
int c[5]={131,262,523,1046,2093};    // frecuencias 4 octavas de Do
int cs[5]={139,277,554,1108,2217};   // Do#
int d[5]={147,294,587,1175,2349};    // Re
int ds[5]={156,311,622,1244,2489};   // Re#
int e[5]={165,330,659,1319,2637};    // Mi
int f[5]={175,349,698,1397,2794};    // Fa
int fs[5]={185,370,740,1480,2960};   // Fa#
int g[5]={196,392,784,1568,3136};    // Sol
int gs[5]={208,415,831,1661,3322};   // Sol#
int a[5]={220,440,880,1760,3520};    // La
int as[5]={233,466,932,1866,3729};   // La#
int b[5]={247,494,988,1976,3951};    // Si
```

```
void setup()
```

```
{
}
```

```
void nota(int frec, int t)
```

```
{
    tone(spk,frec);    // suena la nota frec recibida
    delay(t);          // para despues de un tiempo t
}
```

```
void loop()
```

```
{
    nota(d[1],150);noTone(spk);delay(50);
    nota(d[1],150);noTone(spk);delay(50);
    nota(d[1],150);noTone(spk);delay(50);
    nota(g[1],900);noTone(spk);delay(150);
    nota(d[2],900);noTone(spk);delay(50);
    nota(c[2],150);noTone(spk);delay(50);
    nota(b[1],150);noTone(spk);delay(50);
    nota(a[1],150);noTone(spk);delay(50);
    nota(g[2],900);noTone(spk);delay(150);
    nota(d[2],900);noTone(spk);delay(100);
    nota(c[2],150);noTone(spk);delay(50);
    nota(b[1],150);noTone(spk);delay(50);
    nota(a[1],150);noTone(spk);delay(50);
    nota(g[2],900);noTone(spk);delay(150);
    nota(d[2],900);noTone(spk);delay(100);
    nota(c[2],150);noTone(spk);delay(50);
    nota(b[1],150);noTone(spk);delay(50);
    nota(c[2],150);noTone(spk);delay(50);
    nota(a[1],1200);noTone(spk);delay(2000);
}
```