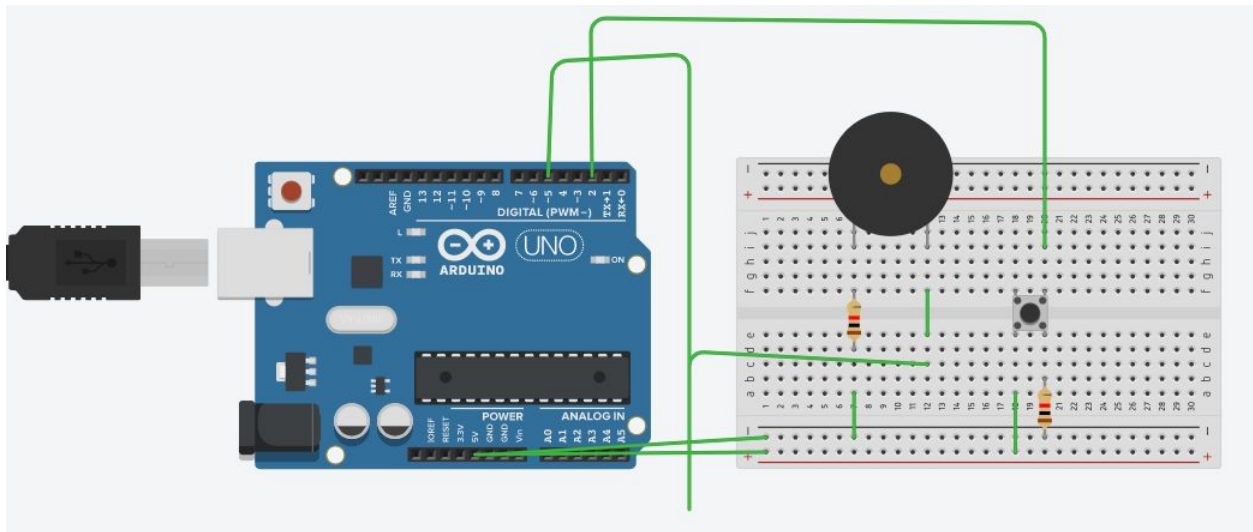


COMP 1045 Lab 7

Circuit diagram: Today we will be using the buzzer connected to pin 5 and a button connected to pin 2.



Level 1: Copy and paste the source code to check if your buzzer works.

```
int buzzerPin = 5 ; //The buzzerPin is connected to pin 5 of the Arduino.
int button1Pin = 2; //The SW1 button is connect to pin 2 of the Arduino.

void setup() { //The Setup function runs once.
  pinMode(buzzerPin, OUTPUT); //Setup red LED pin as an output pin.
  pinMode(button1Pin, INPUT); //Setup button1 pin as an input pin.
}

void loop() { //The loop function runs forever.
  if (digitalRead(button1Pin) == HIGH) { //Check to see if button1 is pressed.
    tone(buzzerPin, 1000,50);          //Play a tone of 1000Hz for 50 milliseconds.
  }
}
```

Level 2: We will create a library, in the online version just copy and paste at top of code.

```
/******
```

```
 * Public Constants
```

```
*****/
```

```
#define NOTE_B0 31
#define NOTE_C1 33
#define NOTE_CS1 35
#define NOTE_D1 37
#define NOTE_DS1 39
#define NOTE_E1 41
#define NOTE_F1 44
#define NOTE_FS1 46
#define NOTE_G1 49
#define NOTE_GS1 52
#define NOTE_A1 55
#define NOTE_AS1 58
#define NOTE_B1 62
#define NOTE_C2 65
#define NOTE_CS2 69
#define NOTE_D2 73
#define NOTE_DS2 78
#define NOTE_E2 82
#define NOTE_F2 87
#define NOTE_FS2 93
#define NOTE_G2 98
#define NOTE_GS2 104
#define NOTE_A2 110
#define NOTE_AS2 117
#define NOTE_B2 123
#define NOTE_C3 131
#define NOTE_CS3 139
#define NOTE_D3 147
#define NOTE_DS3 156
#define NOTE_E3 165
#define NOTE_F3 175
#define NOTE_FS3 185
#define NOTE_G3 196
#define NOTE_GS3 208
#define NOTE_A3 220
#define NOTE_AS3 233
```

```
#define NOTE_B3 247
#define NOTE_C4 262
#define NOTE_CS4 277
#define NOTE_D4 294
#define NOTE_DS4 311
#define NOTE_E4 330
#define NOTE_F4 349
#define NOTE_FS4 370
#define NOTE_G4 392
#define NOTE_GS4 415
#define NOTE_A4 440
#define NOTE_AS4 466
#define NOTE_B4 494
#define NOTE_C5 523
#define NOTE_CS5 554
#define NOTE_D5 587
#define NOTE_DS5 622
#define NOTE_E5 659
#define NOTE_F5 698
#define NOTE_FS5 740
#define NOTE_G5 784
#define NOTE_GS5 831
#define NOTE_A5 880
#define NOTE_AS5 932
#define NOTE_B5 988
#define NOTE_C6 1047
#define NOTE_CS6 1109
#define NOTE_D6 1175
#define NOTE_DS6 1245
#define NOTE_E6 1319
#define NOTE_F6 1397
#define NOTE_FS6 1480
#define NOTE_G6 1568
#define NOTE_GS6 1661
#define NOTE_A6 1760
#define NOTE_AS6 1865
#define NOTE_B6 1976
#define NOTE_C7 2093
#define NOTE_CS7 2217
#define NOTE_D7 2349
#define NOTE_DS7 2489
#define NOTE_E7 2637
#define NOTE_F7 2794
```

```
#define NOTE_FS7 2960
#define NOTE_G7 3136
#define NOTE_GS7 3322
#define NOTE_A7 3520
#define NOTE_AS7 3729
#define NOTE_B7 3951
#define NOTE_C8 4186
#define NOTE_CS8 4435
#define NOTE_D8 4699
#define NOTE_DS8 4978
```

Level 2 continued: Copy the following code inside the main loop:

```
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_A4,408);
delay(408);
tone(buzzerPin, NOTE_G4,408);
delay(408);
tone(buzzerPin, NOTE_A4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
delay(408);
tone(buzzerPin, NOTE_B4,408);
```

Level 3: Create or find a song online and use arrays to store the notes and durations. Then add a light show. The lights can be linked to a specific tone or you can just make a random colour.

Level 4: Menu system. Create a menu on the monitor that gives the user an option between 3 songs. Have each song and the menu stored in different methods where the only line in your main function is `runMenu();`

Level 5(optional): Make a game that keeps track of how much time it takes a user to guess the name of a song. The code should look something like this:

1. Create an array of 5 songs 10 seconds each(approx).
2. Create a loop that goes through the songs, when the song starts a timer starts, if the user hits a button it will stop the timer and add the time to a running total.
3. After all the songs play the total score will be printed to the screen with a message.