

# Lesson 5 Passive Buzzer

## Introduction

In this lesson, you will learn how to use a passive buzzer to generate eight different sounds, each sound lasting 0.5 seconds: from Alto Do (262Hz), Re (294Hz), Mi (330Hz), Fa (349Hz), So (392Hz), La (440Hz), Si (494Hz) to Treble Do (524Hz).

## Hardware Required

- ✓ 1 \* RexQualis Mega 2560
- ✓ 1 \* Breadboard
- ✓ 1 \* Passive buzzer
- ✓ 2 \* M-M Jumper Wires

## Principle

### Passive Buzzer

a passive buzzer does not have such source, so it will not beep if DC signals are used; instead, you need to use square waves whose frequency is between 2K and 5K to drive it. The active buzzer is often more expensive than the passive one because of multiple built-in oscillating circuits.



## Code interpretation

**//The purpose of the experiment is to generate eight different sounds, each sound**

lasting 0.5 seconds: from Alto Do (262Hz), Re (294Hz), Mi (330Hz), Fa (349Hz), So

(392Hz), La (440Hz), Si (494Hz) to Treble Do (524Hz).

int Do = 262, Re = 294 , Mi = 330 , Fa = 349 , Sol = 392 ,

La = 440 , Si = 494, Do2 = 524;

int buzz = 12; **//Not necessarily a PWM pin, any digital pin will work!!!**

int wait = 0;

void setup()

{

pinMode(buzz, OUTPUT);**//initialize the buzzer pin as an output**

}

void loop()

{

wait = 500;

tone(buzz, Do, wait);

delay(1000);**//wait for 1s**

tone(buzz, Re, wait);

delay(1000);**//wait for 1s**

tone(buzz, Mi, wait);

delay(1000);**//wait for 1s**

tone(buzz, Fa, wait);

delay(1000);**//wait for 1s**

tone(buzz, Sol, wait);

delay(1000);**//wait for 1s**

```

tone(buzz, La, wait);

delay(1000);//wait for 1s

tone(buzz, Si, wait);

delay(1000);//wait for 1s

tone(buzz, Do2, wait);

delay(1000);//wait for 1s

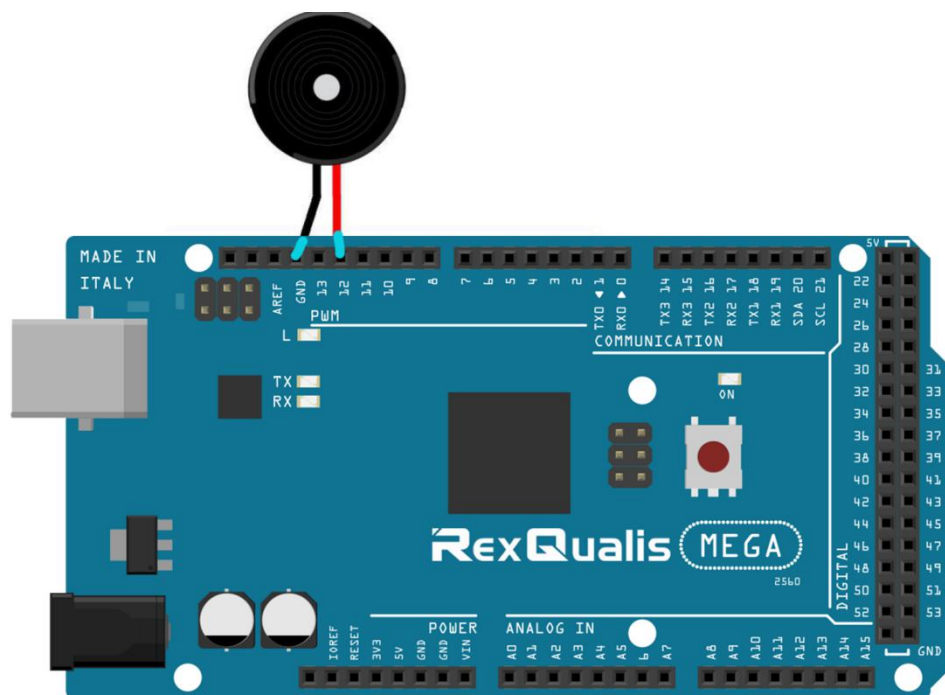
    noTone(buzz);

}

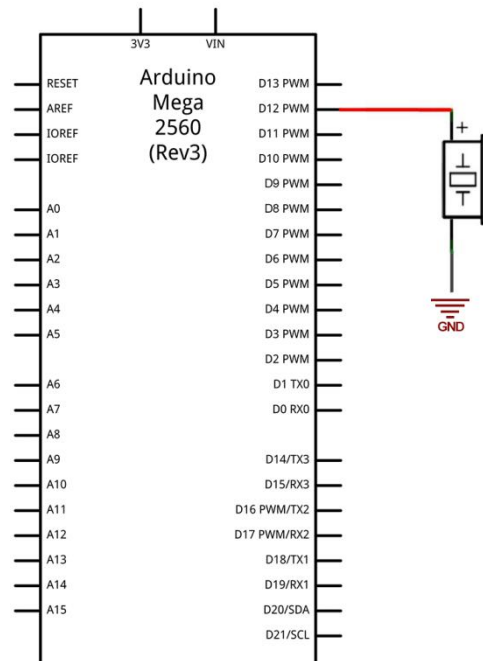
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## Experimental Procedures

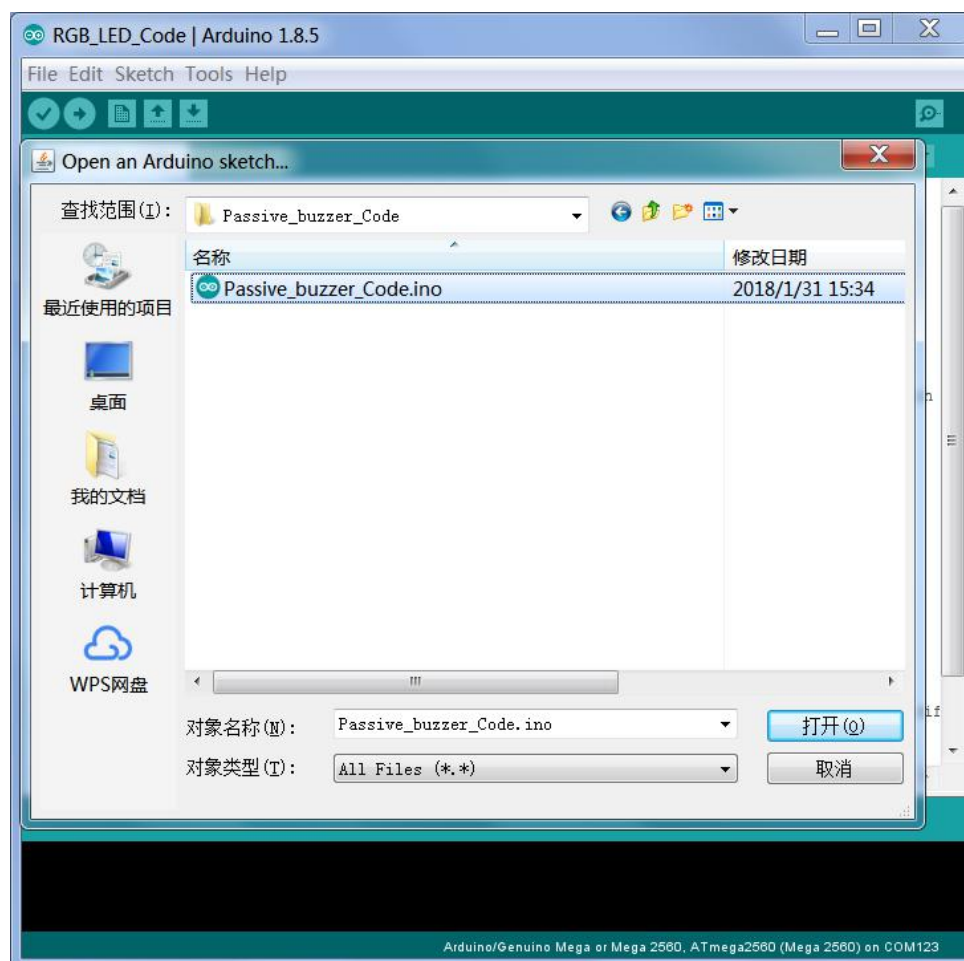
### Step 1: Build the circuit



## Schematic Diagram



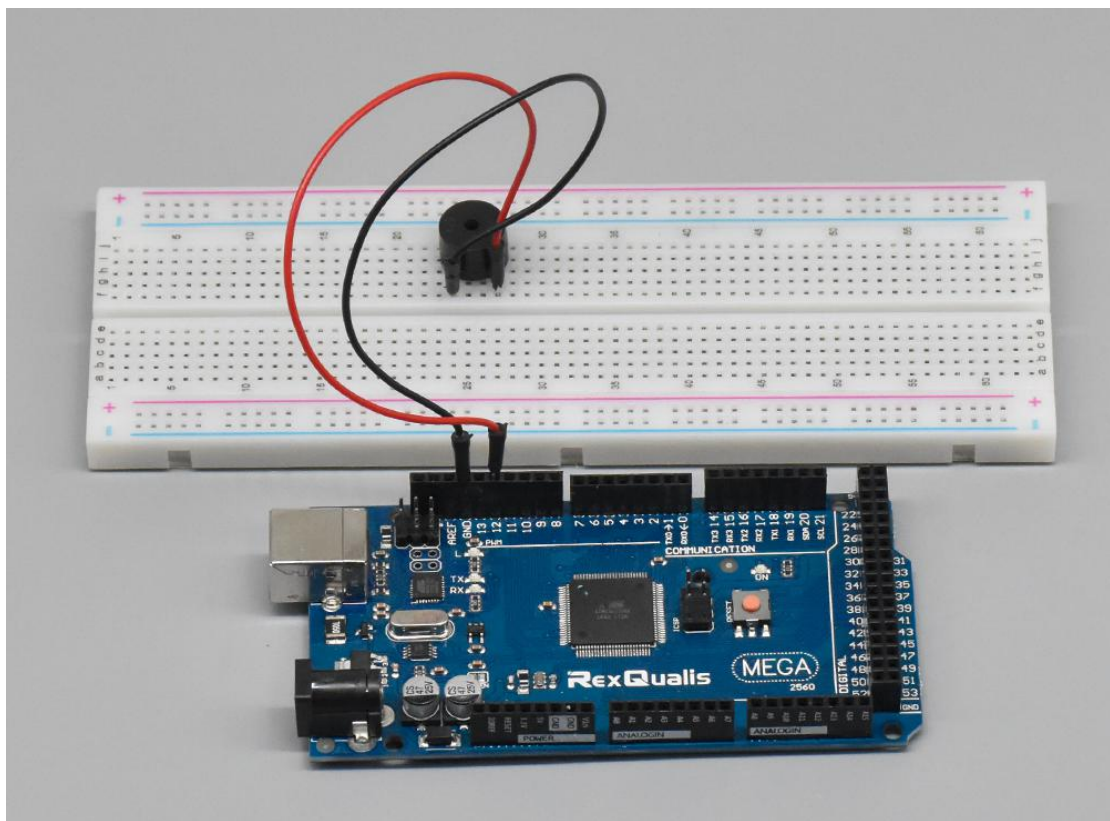
## Step 2: Open the code: Passive\_buzzer\_Code



**Step 3: Attach Arduino Mega 2560 board to your computer via USB cable and check that the 'Board Type' and 'Serial Port' are set correctly.**

**Step 4: Upload the code to the RexQualis Mega 2560 board.**

**Now, Listen carefully, You can hear the passive buzzer sounding Alto Do, Re, Mi, Fa, So, La, Si, Treble Do.**



**You can see the video of the experiment results on YouTube:**

**<https://youtu.be/GYvgP4cqok0>**

**If it isn' t working, make sure you have assembled the circuit correctly, verified and uploaded the code to your board. For how to upload the code and install the library, check Lesson 0 Preface.**