Lesson 4 Active buzzer

Introduction

In this lesson, you will learn how to generate a sound with an active buzzer.

Hardware Required

- ✓ 1 * RexQualis UNO R3
- ✓ 1 * Breadboard
- ✓ 1 * Active buzzer
- ✓ 2 * M-M Jumper Wires

Principle

Active Buzzer

An active buzzer will generate a tone using an internal oscillator, so all that is needed is a DC voltage. A passive buzzer requires an AC signal to make a sound. It is like an electromagnetic speaker, where a changing input signal produces the sound, rather than producing a tone automatically.

To identify them, if you apply a DC voltage to them and it buzzes, it's active.

As far as commands go if you want to control the pitch, you would need a passive buzzer. PWM on the Arduino can be used to control the pitch and the volume at the same time (which may or may not be what you want). If you wanted to change just volume or just pitch I suppose some external circuitry would be required to change the amplitude without changing the voltage, and vice versa.

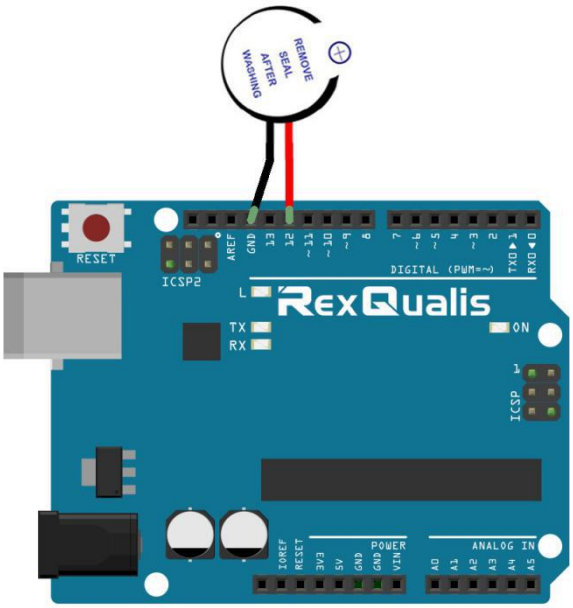
Code interpretation

```
int buzzer = 12;//the pin of the active buzzer
void setup()
{
  pinMode(buzzer,OUTPUT);//initialize the buzzer pin as an output
}
void loop()
{
  unsigned char i;
  while(1)
  {
    //output an frequency
    for(i=0;i<80;i++)
    {
      digitalWrite(buzzer,HIGH);
      delay(1);//wait for 1ms
      digitalWrite(buzzer,LOW);
      delay(1);//wait for 1ms
      }
      //output another frequency
       for(i=0;i<100;i++)
```

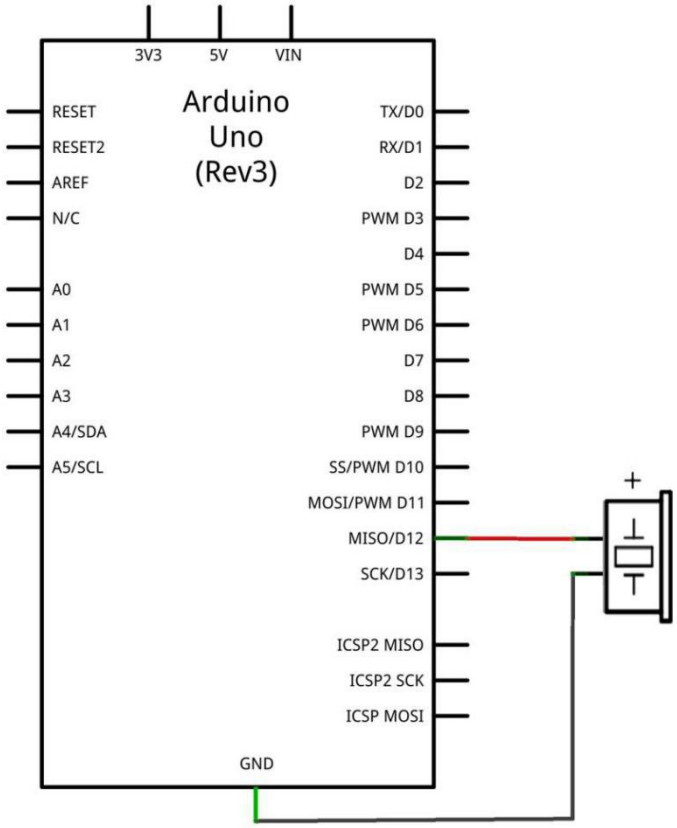
```
    {
        digitalWrite(buzzer,HIGH);
        delay(2);//wait for 2ms
        digitalWrite(buzzer,LOW);
        delay(2);//wait for 2ms
    }
  }
}
```

Experimental Procedures

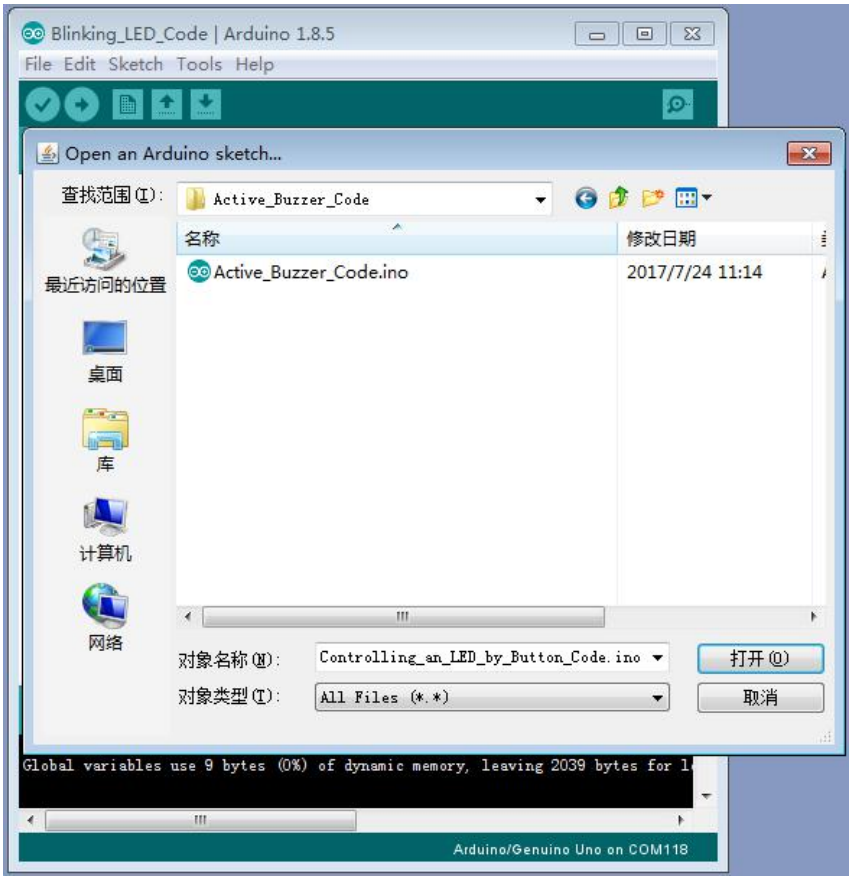
Step 1: Build the circuit



Schematic Diagram



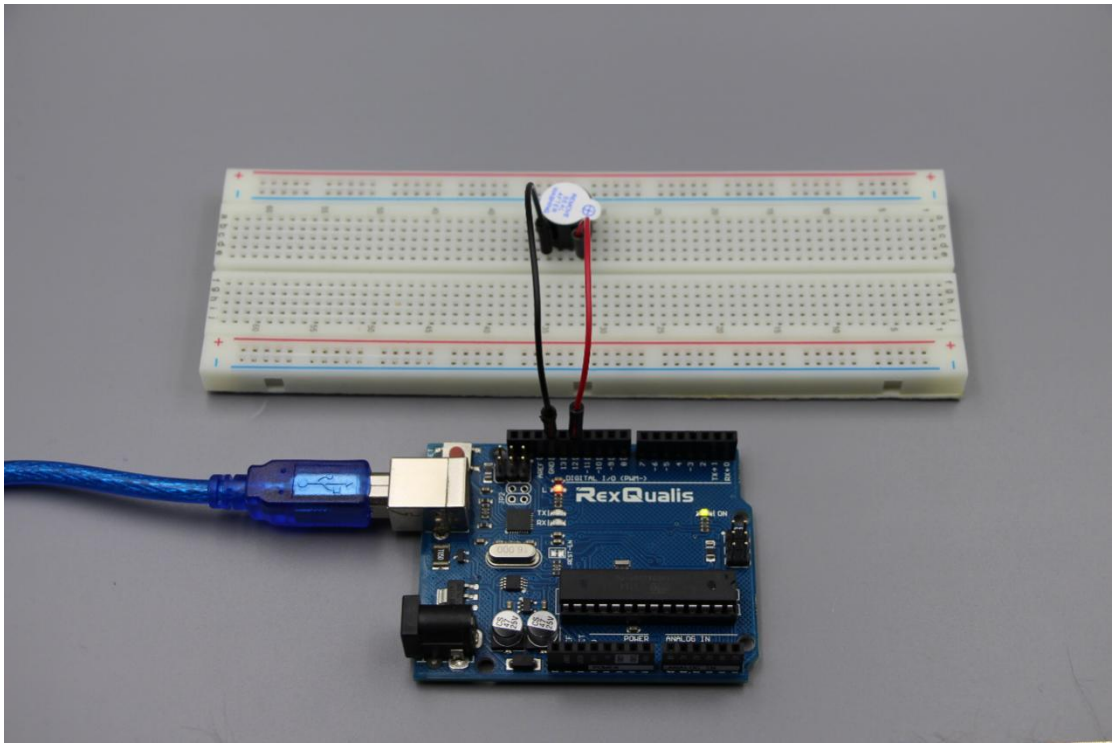
Step 2: Open the code:Active_Buzzer_Code



Step 3: Attach Arduino UNO R3 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 UNO R3 board.

Now, Listen carefully, You can hear beeps from the active buzzer .



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.