Course 8-2 --- Passive buzzer

The purpose of the experiment:

In this course, we need to use passive buzzer to make an experiment to make the circuit sound.

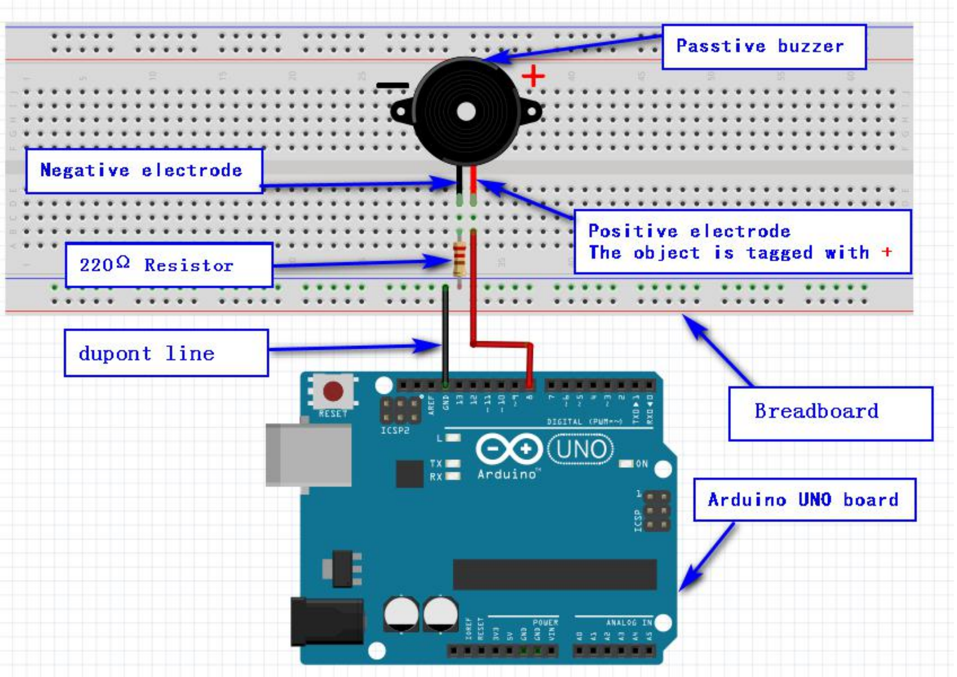
List of components required for the experiment:

Arduino UNO board *1
USB cable *1
220Ω Resistor *1
Passive buzzer *1
Breadboard *1
Dupont line *1bunch

Actual object connection diagram:

We need to connect the circuit as shown in the figure below.

Note: The passive buzzer has positive and negative electrode. The actual object diagram below shows that the buzzer has positive and negative marks.



Experimental code analysis:

#define BL1 248
#define BL2 278

```
#define BL3 294
#define BL4 330
#define BL5 371
#define BL6 416
#define BL7 467

#define B1 495
#define B2 556
#define B3 624
#define B4 661
#define B5 742
#define B6 833
#define B7 935

#define BH1 990
#define BH2 1112
#define BH3 1178
#define BH4 1322
#define BH5 1484
#define BH6 1665
#define BH7 1869

#define NTC1 262
#define NTC2 294
#define NTC3 330
#define NTC4 350
#define NTC5 393
#define NTC6 441
#define NTC7 495

#define NTCL1 131
#define NTCL2 147
#define NTCL3 165
#define NTCL4 175
#define NTCL5 196
#define NTCL6 221
#define NTCL7 248

#define NTCH1 525
#define NTCH2 589
#define NTCH3 661
#define NTCH4 700
#define NTCH5 786
#define NTCH6 882
```

```
#define NTCH7 990

#define NTD0 -1
#define NTD1 294
#define NTD2 330
#define NTD3 350
#define NTD4 393
#define NTD5 441
#define NTD6 495
#define NTD7 556

#define NTDL1 147
#define NTDL2 165
#define NTDL3 175
#define NTDL4 196
#define NTDL5 221
#define NTDL6 248
#define NTDL7 278

#define NTDH1 589
#define NTDH2 661
#define NTDH3 700
#define NTDH4 786
#define NTDH5 882
#define NTDH6 990
#define NTDH7 1112

#define NTE1 330
#define NTE2 350
#define NTE3 393
#define NTE4 441
#define NTE5 495
#define NTE6 556
#define NTE7 624

#define NTEL1 165
#define NTEL2 175
#define NTEL3 196
#define NTEL4 221
#define NTEL5 248
#define NTEL6 278
#define NTEL7 312

#define NTEH1 661
```

```
#define NTEH2 700
#define NTEH3 786
#define NTEH4 882
#define NTEH5 990
#define NTEH6 1112
#define NTEH7 1248

int speakerPin= 8;
int buzzer=8;//Defining the digital port 8 to control the buzzer
int i = 0;
/*YeZi C*/

int tune[]=                    //List the frequencies according to the simple
spectrum
{
NTC3, NTC5, NTC5, NTC3, NTC6, NTC6, NTC7, NTC6, NTC6, NTC6, NTC5,
NTCH1, NTCH1, NTCH1, NTCH1, NTC6,
  NTCH1, NTC6, NTC5,

NTC3, NTC5, NTC5, NTC5, NTC3, NTC6, NTC6, NTC7, NTC6, NTC6, NTC6,
NTC5, NTCH1, NTCH1, NTCH1,
  NTCH1, NTC6, NTC6, NTCH1,NTCH2,

NTCH5, NTCH5, NTCH5, NTCH5,NTCH5, NTCH3, NTCH2, NTCH1, NTCH1,
NTC6, NTCH1, NTC6, NTCH1, NTCH2,
    NTCH2, NTCH2, NTCH2,NTCH2, NTCH1, NTCH3, NTCH2, NTCH2,

NTCH3, NTCH3, NTCH3, NTCH3, NTCH2, NTCH2, NTCH1, NTCH1, NTCH1,
NTCH2, NTCH1, NTC6, NTC5, NTC5,
  NTC5, NTC5, NTC6, NTC5,NTCH2, NTCH3,NTCH1,


};
float durt[]=                  //List the tempo according to the simple spectrum
{
0.5, 0.5, 1.5, 0.5
, 0.5, 0.5, 0.5, 1, 0.5, 0.5, 0.5, 1, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 2,

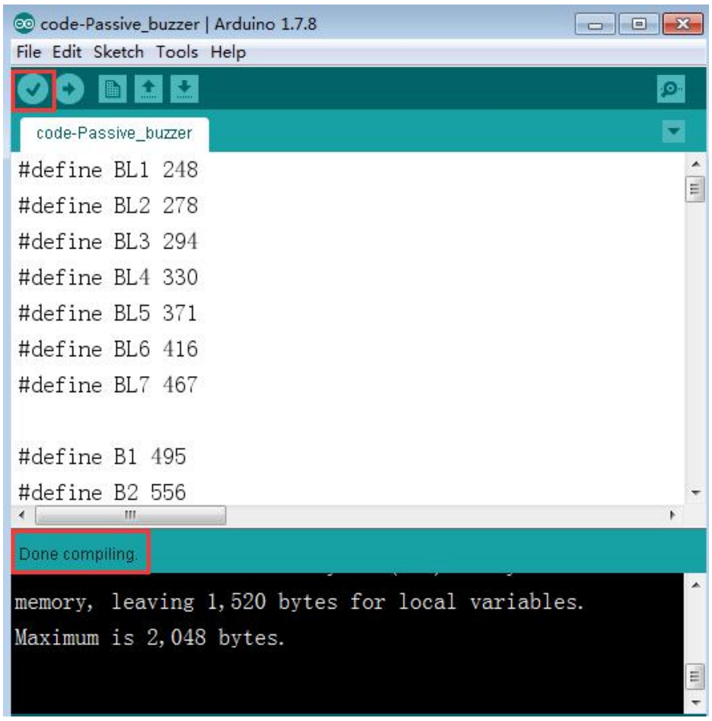
0.5, 0.5, 1, 0.5, 0.5, 0.5, 0.5, 0.5, 1, 0.5, 0.5, 0.5, 1, 0.5, 0.5,
0.5, 0.5, 0.5, 0.5, 2,
0.5, 1, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 1, 1, 0.5, 0.5, 0.5, 1, 0.25,
    0.5, 0.5, 0.5, 0.5, 1, 0.25, 2,

0.5, 1, 0.5, 0.5, 0.5, 1, 0.5, 1, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5, 1,
  0.5, 0.5, 0.5, 0.5, 0.5, 2,
};

void PlayTest()
{
  int length = sizeof(tune)/sizeof(tune[0]);      //Calculate length
  for(int x=0; x < length;x++)
    {
        tone(speakerPin,tune[x]);
        delay(500*durt[x]);       //This is used to adjust the time delay according to the beat,500 this index can be adjusted by yourself. In this music, I find that 500 is more suitable.。
        noTone(speakerPin);
    }
}
void setup()
{
pinMode(buzzer,OUTPUT);    //Defining the buzzer port for the output port
}
void loop()
{
              PlayTest();
}
```

Experimental steps:

1.We need to open the code of this experiment: **code-Passive_buzzer.ino**, click " √ " under the menu bar to compile the code, and wait for the word "**Done compiling** " in the lower right corner, as shown in the figure below.


code-Passive_buzzer | Arduino 1.7.8
File Edit Sketch Tools Help
code-Passive_buzzer

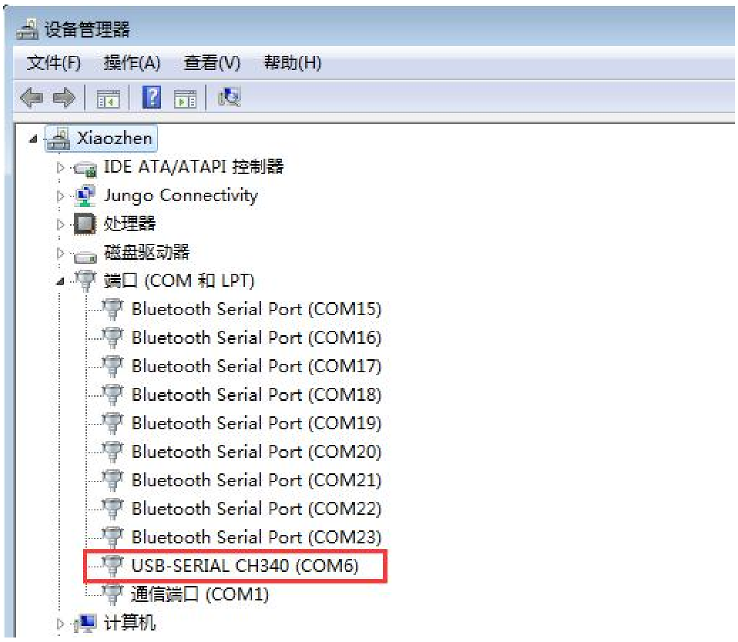
```
#define BL1 248
#define BL2 278
#define BL3 294
#define BL4 330
#define BL5 371
#define BL6 416
#define BL7 467

#define B1 495
#define B2 556
```

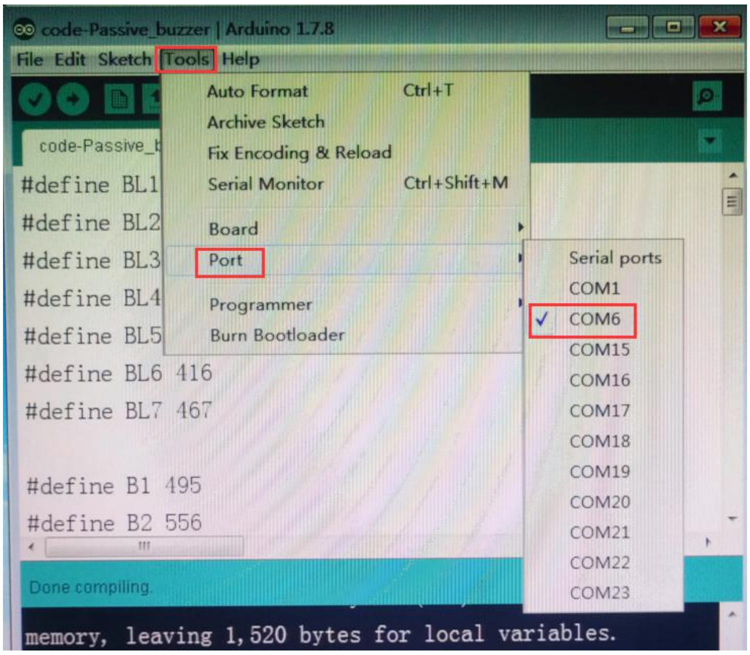
Done compiling.

```
memory, leaving 1,520 bytes for local variables.
Maximum is 2,048 bytes.
```

2.In the menu bar of Arduino IDE, we need to select 【Tools】---【Port】--- selecting the port that the serial number displayed by the device manager just now, as shown in the figure below. For example:COM6,as shown in the following figure.



Xiaozhen
IDE ATA/ATAPI 控制器
Jungo Connectivity
处理器
磁盘驱动器
端口 (COM 和 LPT)
Bluetooth Serial Port (COM15)
Bluetooth Serial Port (COM16)
Bluetooth Serial Port (COM17)
Bluetooth Serial Port (COM18)
Bluetooth Serial Port (COM19)
Bluetooth Serial Port (COM20)
Bluetooth Serial Port (COM21)
Bluetooth Serial Port (COM22)
Bluetooth Serial Port (COM23)
USB-SERIAL CH340 (COM6)
通信端口 (COM1)
计算机



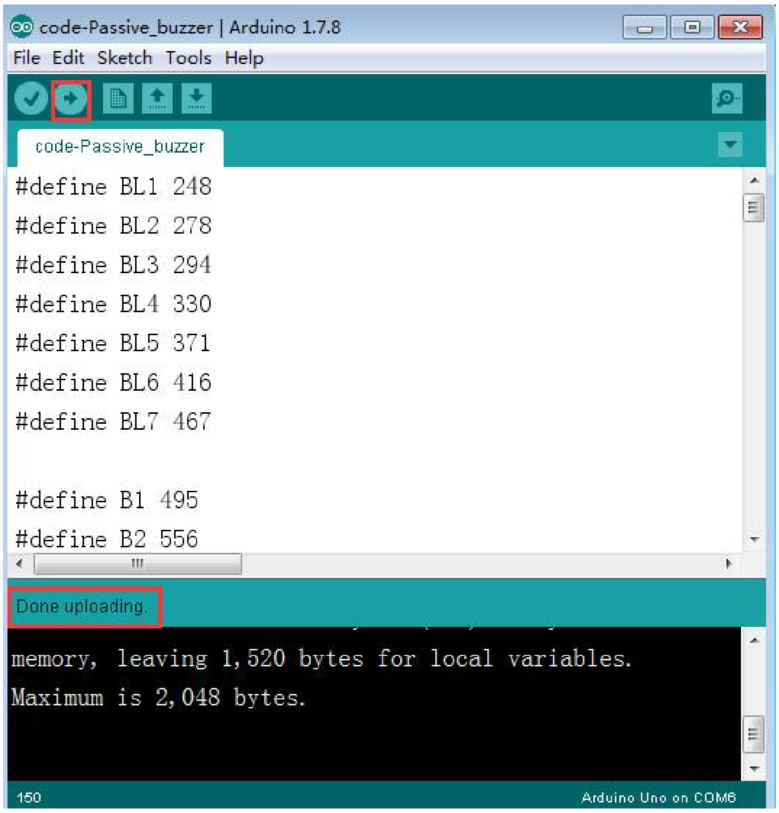
```
#define BL1
#define BL2
#define BL3
#define BL4
#define BL5
#define BL6 416
#define BL7 467

#define B1 495
#define B2 556
```

Done compiling.

```
memory, leaving 1,520 bytes for local variables.
```

3.After the selection is completed, you need to click “→”under the menu bar to upload the code to the Arduino UNO board. When the word “**Done uploading**” appears in the lower left corner, the code has been successfully uploaded to the Arduino UNO board, as shown in the figure below.


code-Passive_buzzer | Arduino 1.7.8
File Edit Sketch Tools Help
code-Passive_buzzer

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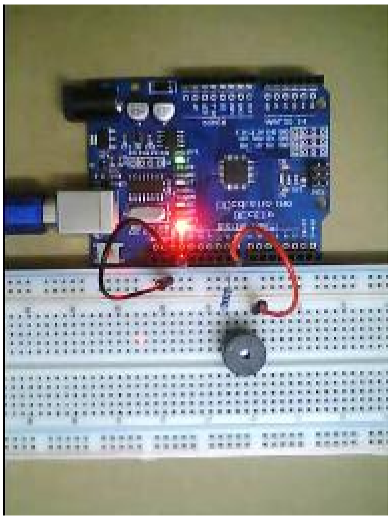
#define BL5 371
#define BL6 416
#define BL7 467

#define B1 495
#define B2 556
```

Done uploading.

```
memory, leaving 1,520 bytes for local variables.
Maximum is 2,048 bytes.
```

4.After the code is uploaded, We can hear the buzzer will sing according to the score written in the program, as shown in the following figure.



The code of the experiment: