Buzzer Experiment

Introduction to buzzer

Some appliances often buzz when in an electric state , this is actually from a buzzer, and the annoying bell at school is but a larger buzzer. There are two kinds of buzzers. One is active buzzer, the other is passive buzzer. “active” and “passive” don’t mean the common power source, but a buzzer with or without internal oscillators. Active buzzer will buzz as long as you electricity it, but the frequency is fixed. Passive buzzer, buzzer without internal oscillators, will not buzz when electrified internal oscillators, it requires 2~5 kHz square wave to actuate, then wave forms in different frequency can buzz with corresponding sound.

Active buzzer Passive buzzer

Experiment Purpose

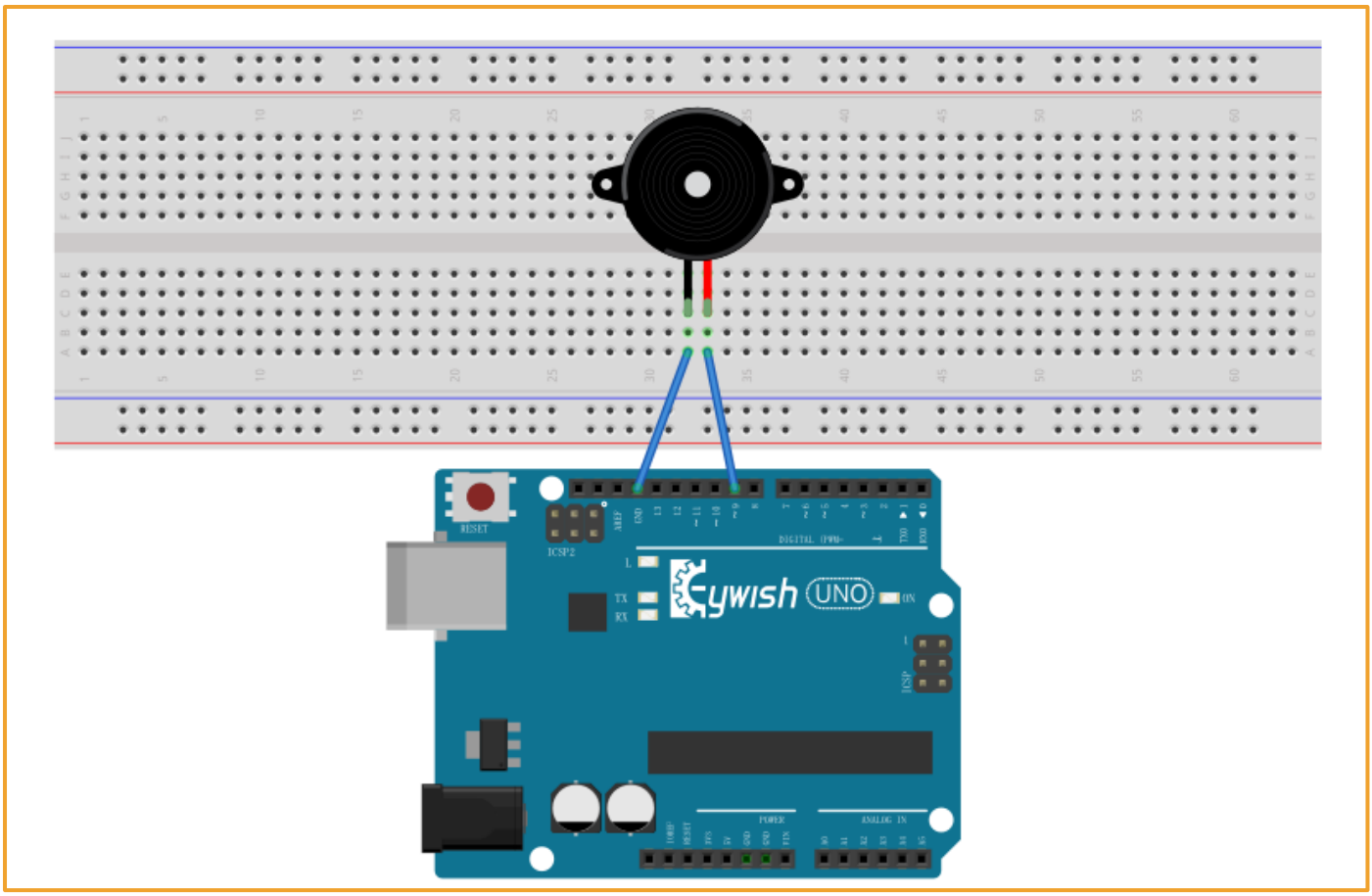
Arduino can be used to create a lot of interactive work, the most common and most commonly is the display of sound and light. We have been used LEDs in experiments before, now we use PWM to drive buzzer to play sound of two frequencies. As long as the frequency matches the music score, we can hear wonderful music.

Component List

- Keywish Arduino Uno Mainboard
- Breadboard
- USB cable
- Passive buzzer*1
- Several jumper wires

Wiring of Circuit

Arduino UNO R3	buzzer
9	+
GND	-



Notice that a buzzer has both a cathode and an anode. We can see the buzzer with two kinds of wiring, red and black, in the right physical diagram below. The connection of circuit and programming are quite simple, the program is similar to the former. Due to the control interface in the buzzer is also digital interface, high and low level from output will control the sound of the buzzer.

Code

Active buzzer:

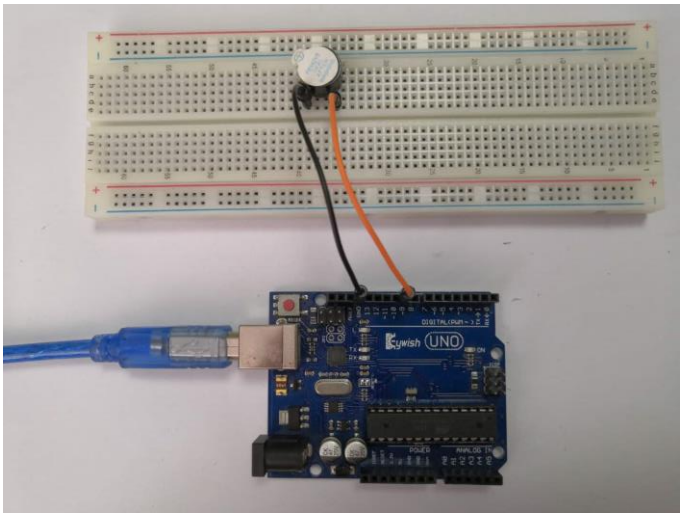
```
int buzzer = 9;
void setup()
{
      pinMode(buzzer,OUTPUT);
}
void loop()
{
    digitalWrite(buzzer,HIGH);  //sound production
    delay(1000);
    digitalWrite(buzzer,LOW);
    delay(1000);
}
```

Passive buzzer :

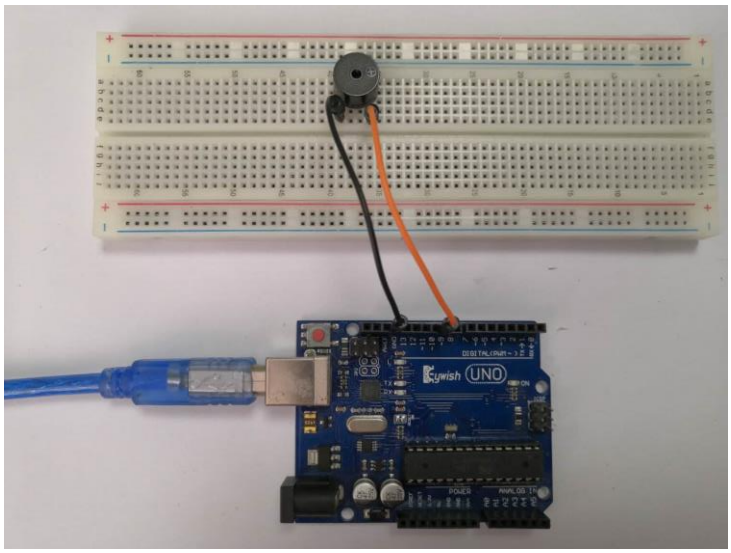
```
int buzzer = 9;

void setup()
{
    pinMode(buzzer, OUTPUT);
}

void loop()
{
    for (int i=0; i<800; i++)  // 1k HZ
    {
        // sound production
        digitalWrite(buzzer, HIGH);
        delay(0.5);
        digitalWrite(buzzer, LOW);
        delay(0.5);
    }
    delay(1000);
    for (int i=0; i<800; i++)   // 250 HZ
    {
        // sound production
        digitalWrite(buzzer, HIGH);
        delay(2);
        digitalWrite(buzzer, LOW);
        delay(2);
    }
    delay(1000);
}
```

Exeripment Result

Active buzzer :



Passive buzzer :

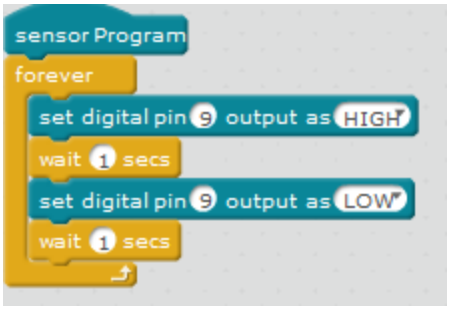


Once the program is downloaded, we can hear the sound of two kinds of frequencies from the buzz.

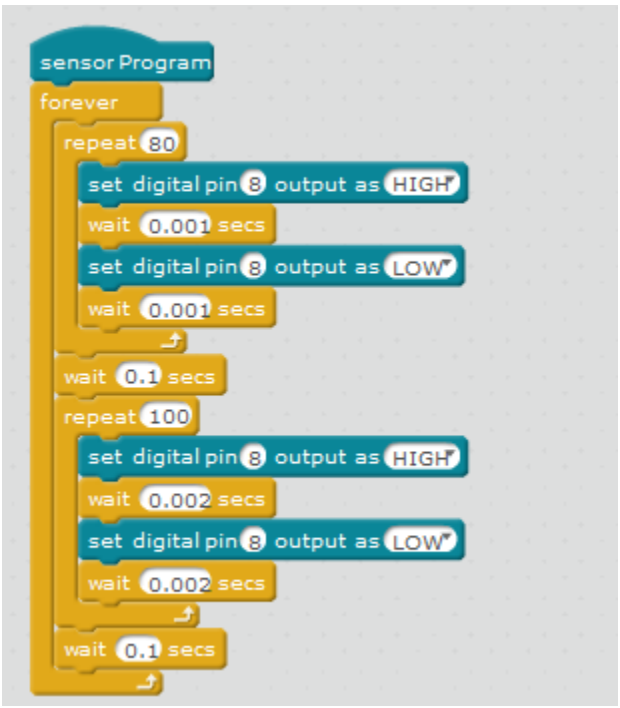
Mblock programming program

The program prepared by mBlock is shown in the figure below:

Active buzzer module



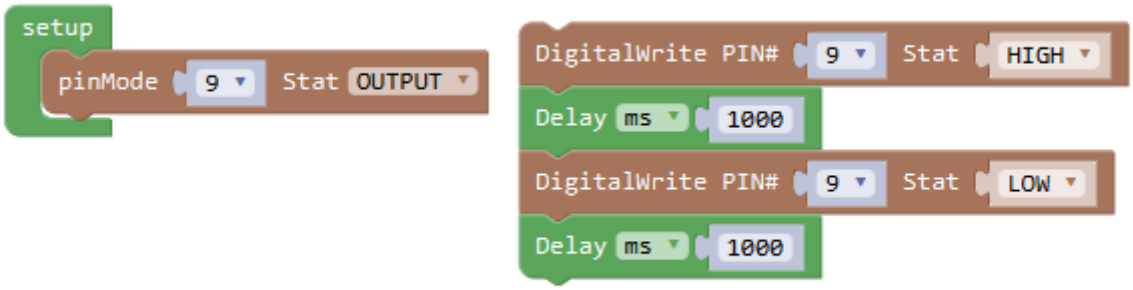
Passive buzzer module



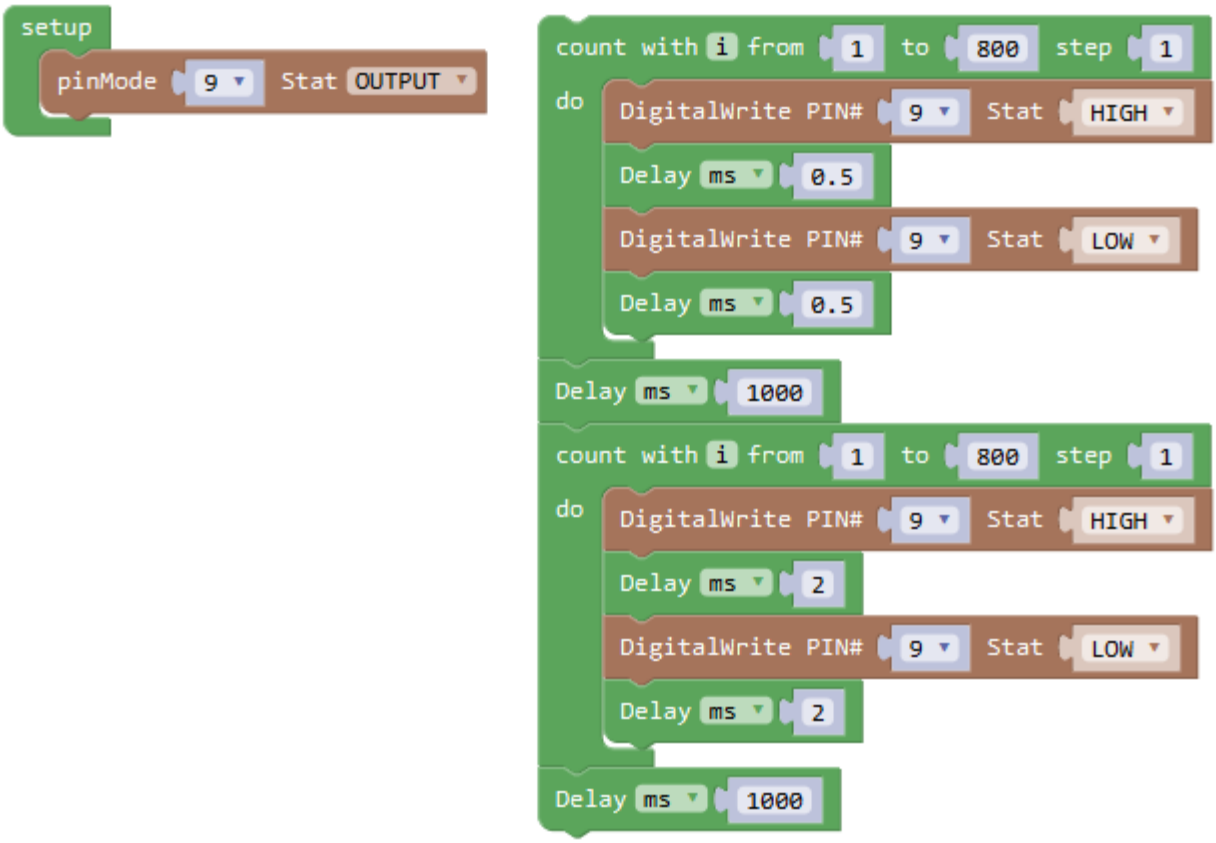
Mixly graphical programming program

The program of Mixly writing water lamps is shown in the figure below:

Active buzzer modlule



Passive buzzer module



MagicBlock graphical programming program

Active buzzer modlule

Passive buzzer module