

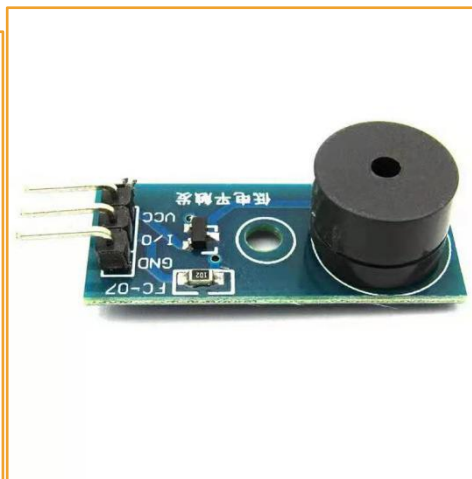
Buzzer module experiment

Introduction of buzzer module

Some appliances often make a buzzing sound in the electrical state, which actually comes from the buzzer, and the annoying school bell is just a bigger buzzer. There are two kinds of buzzer, one is active buzzer, the other is passive buzzer. "Active" and "passive" do not refer to the need to provide power, but to a buzzer with or without an internal oscillator. An active buzzer buzzes whenever you electrify it, but at a fixed frequency. A passive buzzer is a buzzer without an internal oscillator. When energized, the internal oscillator will not produce a buzzing sound. It needs a 2-5 kHz square wave drive, and then the waveform of different frequencies will emit corresponding sound. The buzzer module has three pins, among which the pin labeled "-" is grounded (GND), the middle pin is connected to 5V, and the pin labeled "S" is connected to signal (digital I/O).



Active buzzer module



Passive buzzer module

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

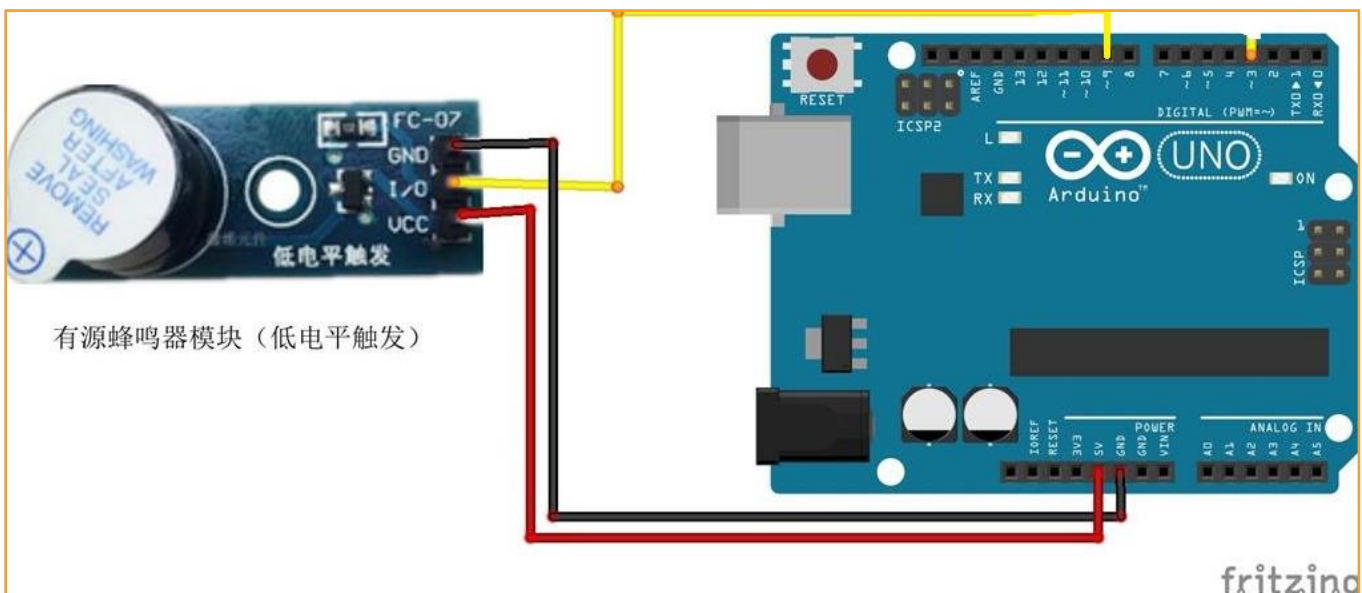
- ◆ Keywish Arduino Uno Mainboard
- ◆ Breadboard
- ◆ USB cable

- ◆ Passive buzzer*1
- ◆ Several jumper wires

Wiring of Circuit

Our active buzzer has the same physical connection as the passive buzzer.

Arduino UNO R3	buzzer
VCC	+
GND	-
9	I/O(IN)



Code

Active buzzer module

```
int buzzer = 9;

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

void loop()
{
    digitalWrite(buzzer,HIGH); //sound production
    delay(1000);
}
```

```
digitalWrite(buzzer,LOW);  
  
delay(1000);  
  
}
```

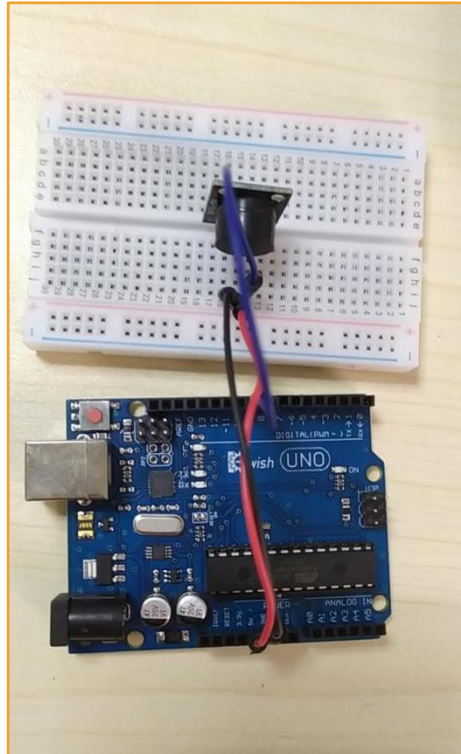
Passive buzzer module

```
int buzzer = 9;    // set buzzer out pin  
void frequency_1(void)    // 1k HZ  
{  
    int i ;  
    for(i=0;i<80;i++) {  
        digitalWrite(buzzer,HIGH);  
        delay(0.5);  
        digitalWrite(buzzer,LOW);  
        delay(0.5);  
    }  
}  
void frequency_2(void)    // 250 HZ  
{  
    int i ;  
    for(i=0;i<100;i++) {  
        digitalWrite(buzzer,HIGH);  
        delay(2);  
        digitalWrite(buzzer,LOW);  
        delay(2);  
    }  
}  
void setup()  
{  
    pinMode(buzzer,OUTPUT);  
}  
void loop()  
{  
    frequency_1();  
    delay(100);  
    frequency_2();  
    delay(100);  
}
```

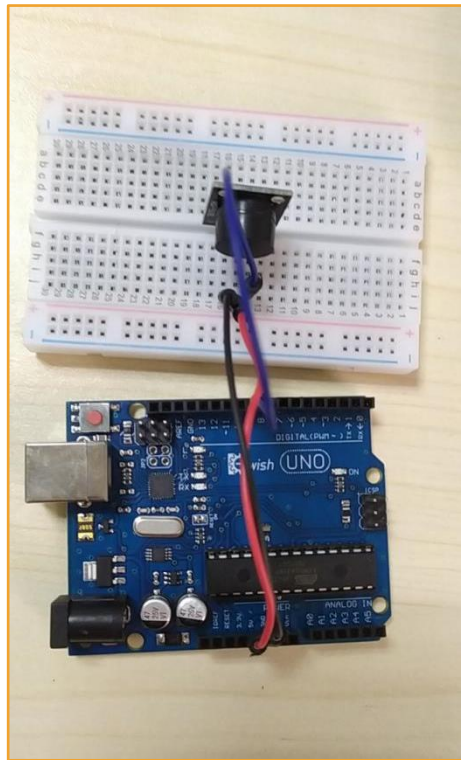
Experiment Result

Active buzzer module :

Our active buzzer makes only one frequency beep



Passive buzzer module:

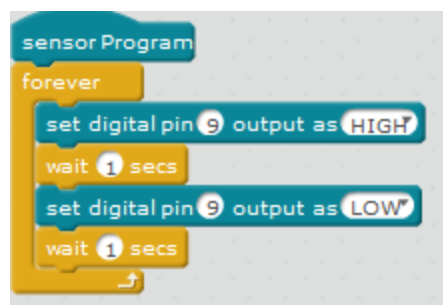


Open program buzzer\buzzer. Ino; Without changing the wiring, we can directly replace the active buzzer with the passive buzzer. Our passive buzzer has no positive or negative polarity; We can hear two different beeps;

Mblock graphical programming program

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

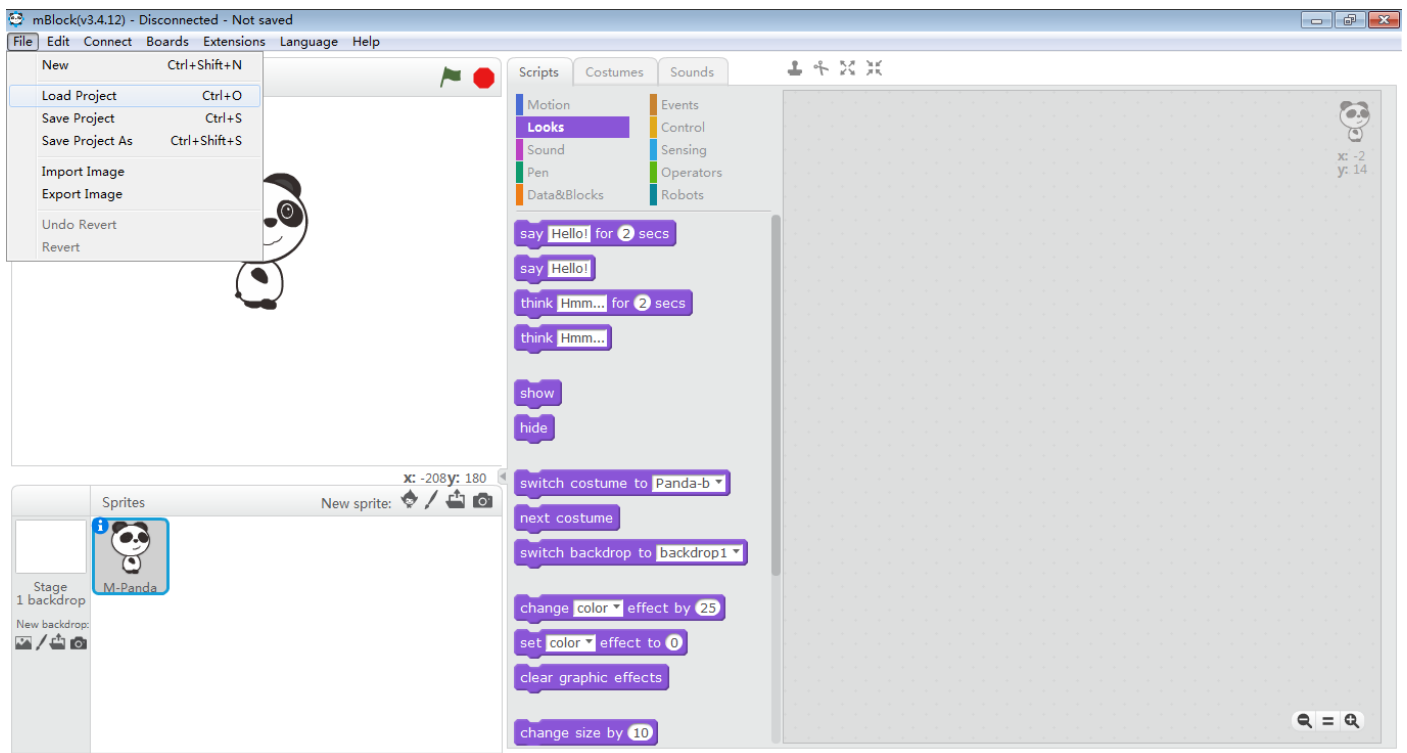
Active buzzer module



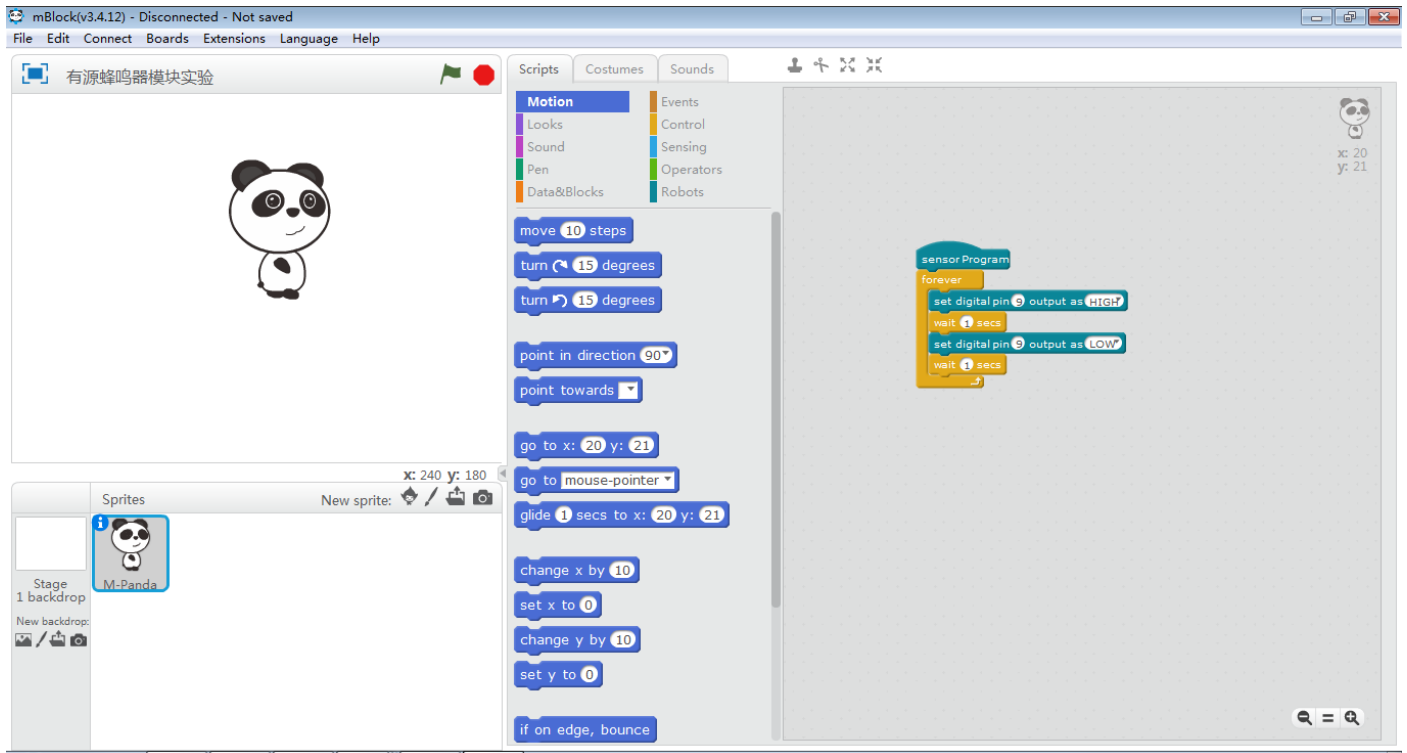
Passive buzzer module



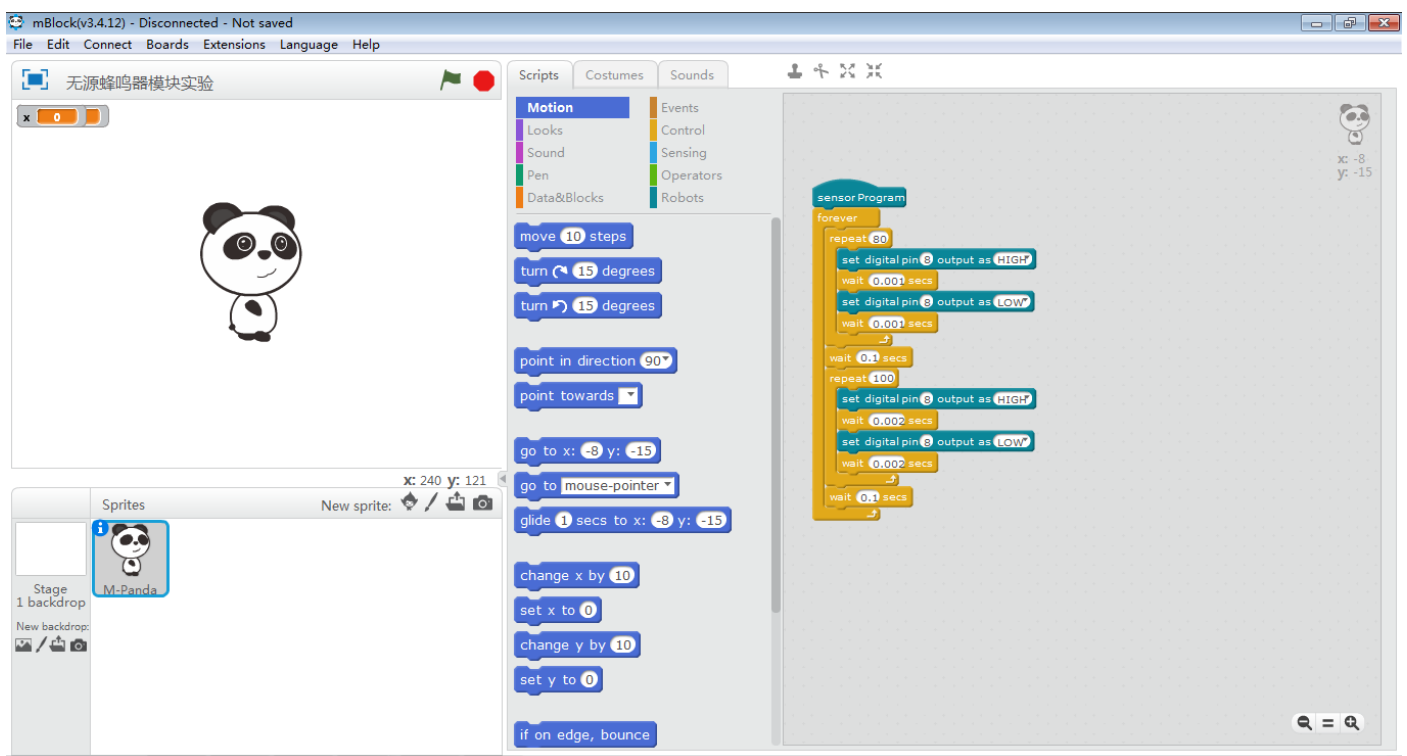
You can also open the program file directly with mblock, which is a .Sb2 file. Here are the steps to open it:



Active buzzer module

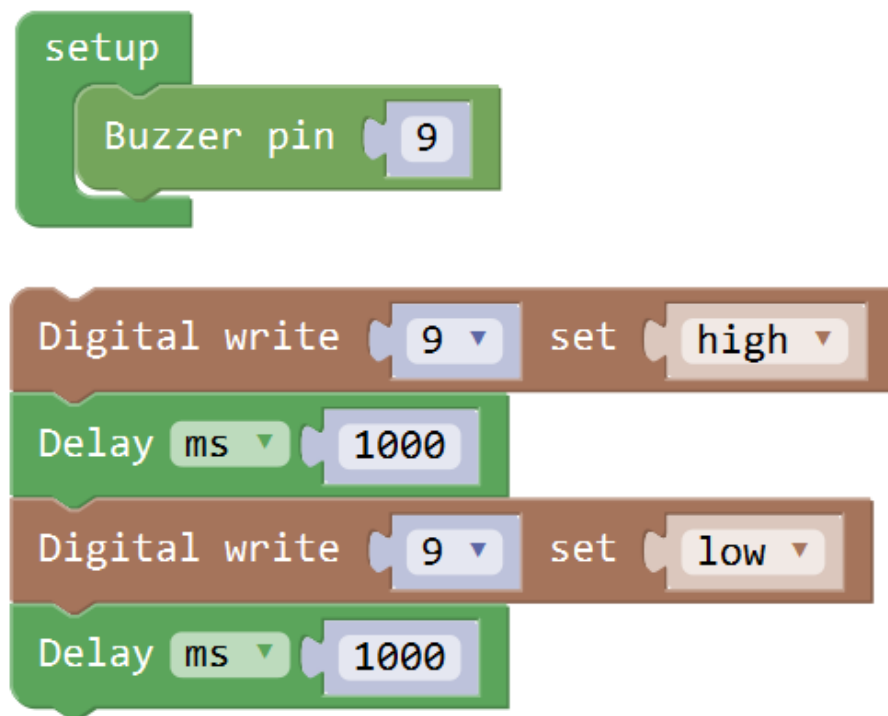


Passive buzzer module

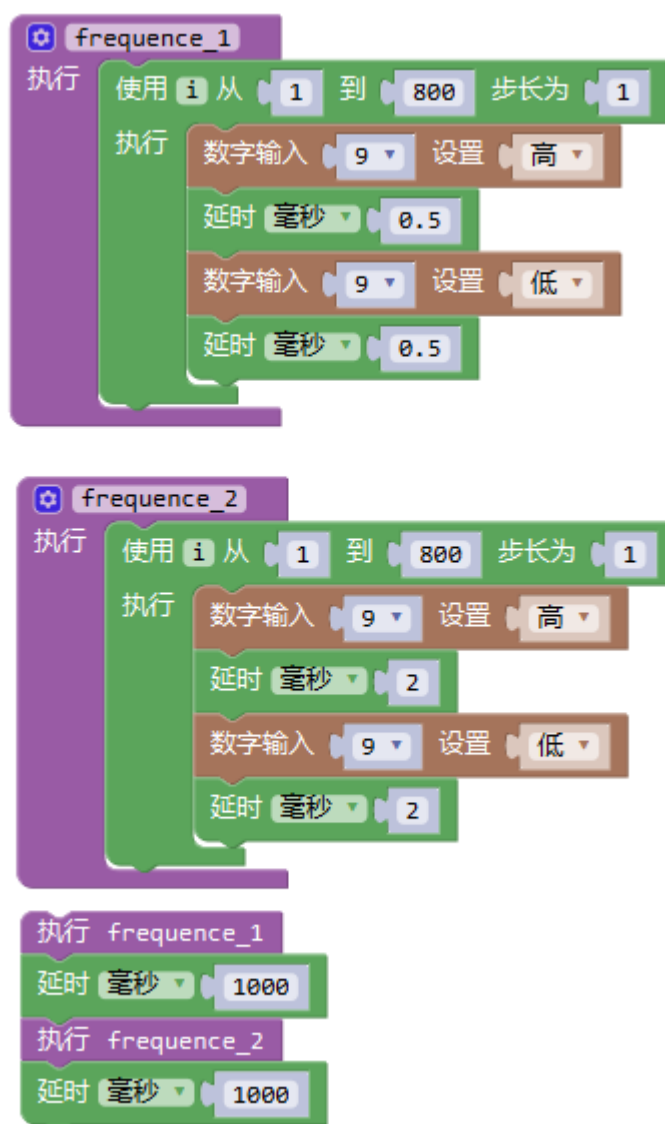


Mixly graphical programming program

Active buzzer module :

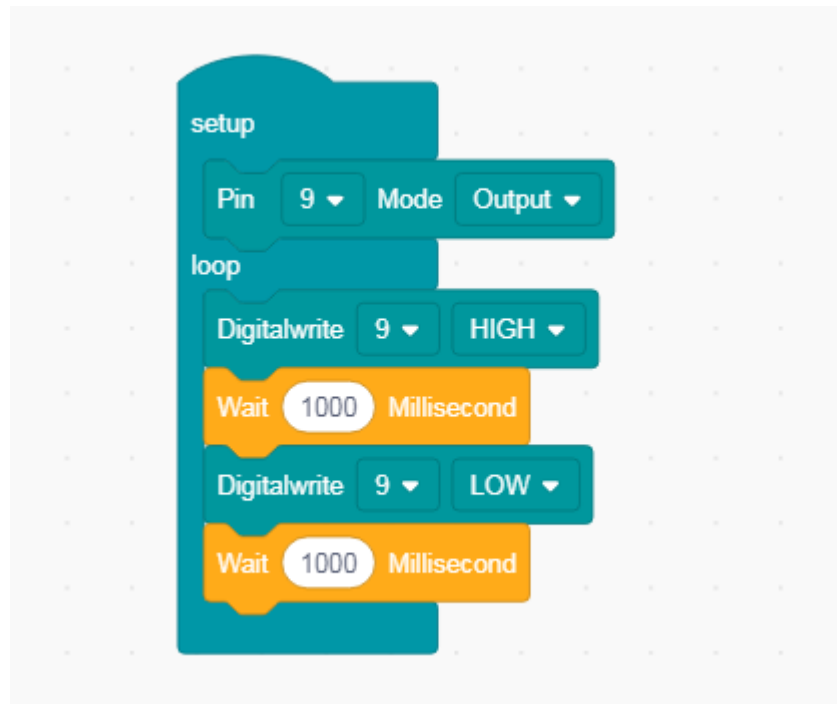


Passive buzzer module :



MigicBlock graphical programming program

Active buzzer module :



passive buzzer module :

