

Active and Passive Buzzer Module for Arduino

A. Active Buzzer Module for Arduino

Introduction:



Buzzer is an audio signaling device like a beeper or buzzer may be electromechanical or piezoelectric or mechanical type.

Active buzzers are called active because they can produce sound directly when connected with the battery. Active buzzers can produce a single tone which is tuned to 2 khz by most of the manufacturers. On the other hand, Passive buzzers need a triggered wave to produce sound.

Features: -

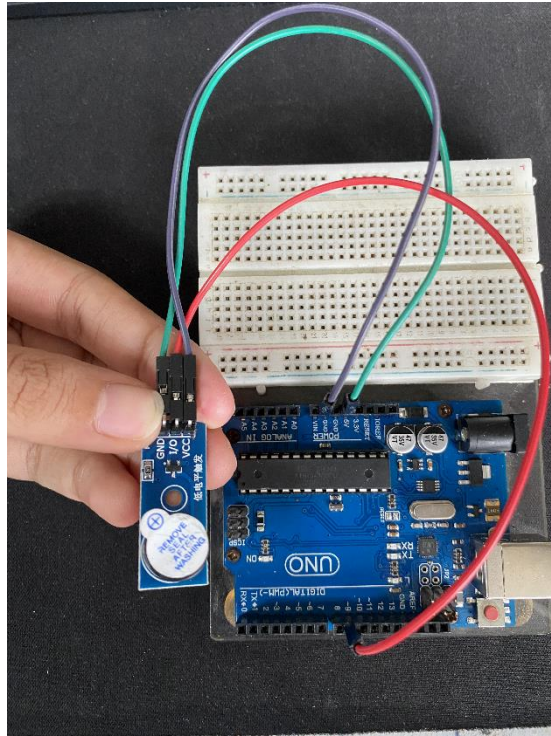
- Produces sound once connect to power.
- A single low level can make the buzzer beep.
- Provides a firm connection.
- Indicators - With power light and indicator of digital signal output.

Specs: -

- Working voltage: 3.5-5.5V.
- Working current: <25mA
- PCB Dimension: 1.85 x 1.5 cm (L x W)

Procedures: -

Step 1: Buzzer module has three pins: GND, I/O, and VCC. The GND pin is connected to ground, the I/O pin is the signal pin, and the VCC is the power supply



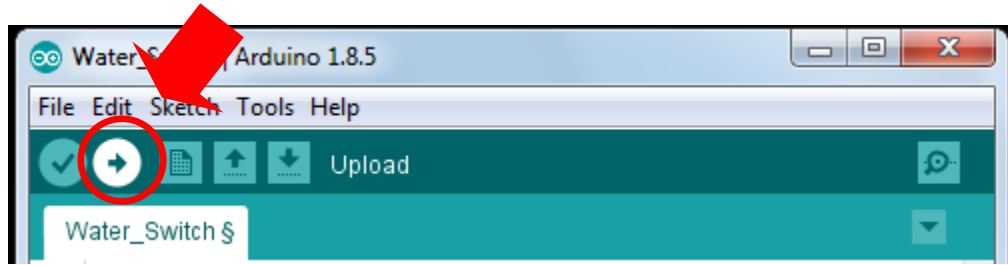
Step 2: Open Arduino IDE on PC and insert the given code below.

```
int buzzerPin = 8;

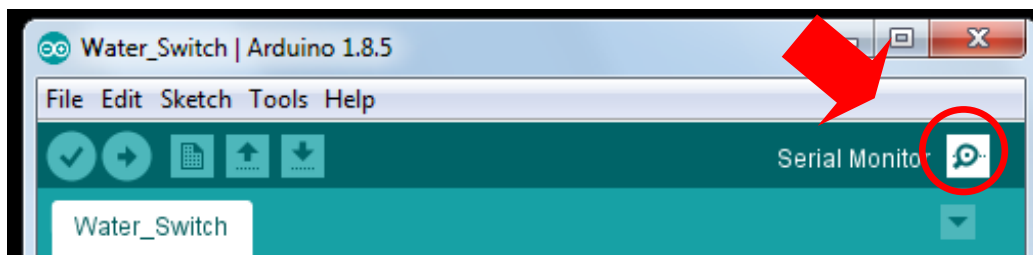
void setup ()
{
  pinMode (buzzerPin, OUTPUT);
}

void loop ()
{
  digitalWrite (buzzerPin, HIGH);
  delay (500);
  digitalWrite (buzzerPin, LOW);
  delay (500);
}
```

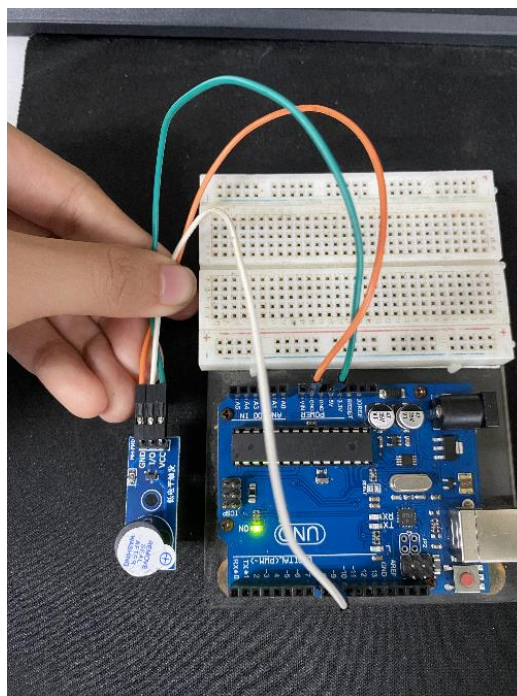
Step 3: After that, connect the Arduino UNO to the PC. Then click upload to start compiling and uploading program to the board.



Step 4: After all step above completed, open the serial monitor.



Step 5: An active buzzer has a built-in oscillator so it can produce sound with only a DC power supply.



B. Passive Buzzer Module for Arduino

Introduction:



Buzzer is an audio signaling device like a beeper or buzzer may be electromechanical or piezoelectric or mechanical type.

The passive buzzer is an electromagnetic squeaker used to generate sound signals of different frequencies. The active buzzer is the simplest module to produce a sound of about 2 kHz, which can often be needed when working with Arduino and in other projects.

Features

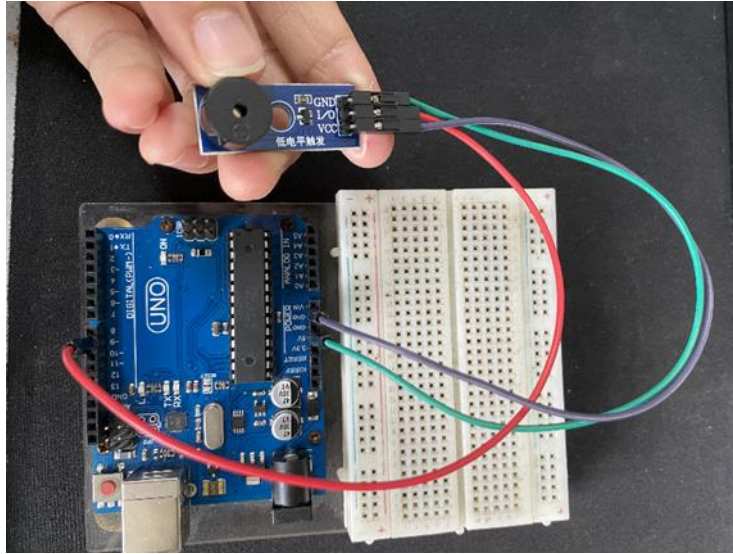
- Operating Voltage: 3~5V.
- Oscillation Frequency: 1500~2500Hz.
- Connector Pitch: 2.54mm.
- Color: Black.
- Operating Temperature: -20 ~ +70°C.
- Dimension (L x W): 1.85 x 1.5 cm.

Specifications

- Operating Voltage: 4 ~ 8V DC
- Working Current: Less than 25mA
- Tone Generation Range: 1.5 ~ 2.5kHz
- Pitch: 2.54mm
- Lead Material: Stainless Steel

Procedures: -

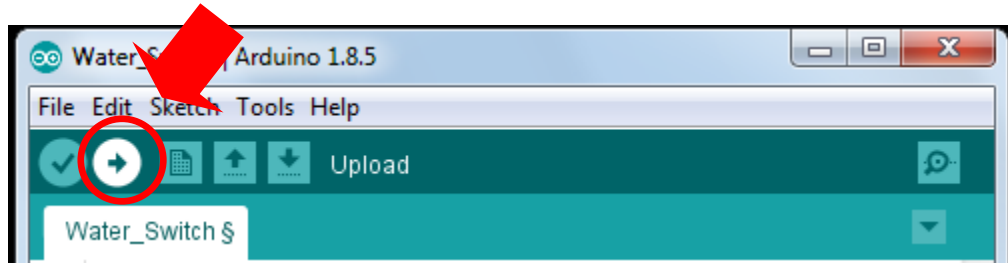
Step 1: Buzzer module has three pins: GND, I/O, and VCC. The GND pin is connected to ground, the I/O pin is the signal pin, and the VCC is the power supply.



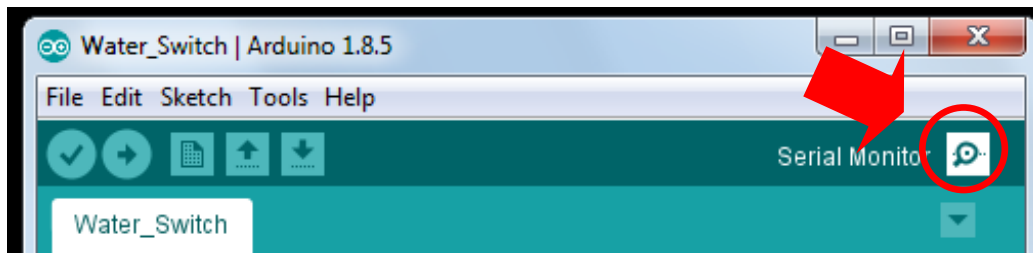
Step 2: Open Arduino IDE on PC and insert the given code below.

```
int buzzer = 8 ;
void setup ()
{
  pinMode (buzzer, OUTPUT) ;
}
void loop ()
{
  unsigned char i, j ;
  while (1)
  {
    for (i = 0; i <80; i++) // When a frequency sound
    {
      digitalWrite (buzzer, HIGH) ; //send tone
      delay (1) ;
      digitalWrite (buzzer, LOW) ; //no tone
      delay (1) ;
    }
    for (i = 0; i <100; i++)
    {
      digitalWrite (buzzer, HIGH) ;
      delay (2) ;
      digitalWrite (buzzer, LOW) ;
      delay (2) ;
    }
  }
}
```

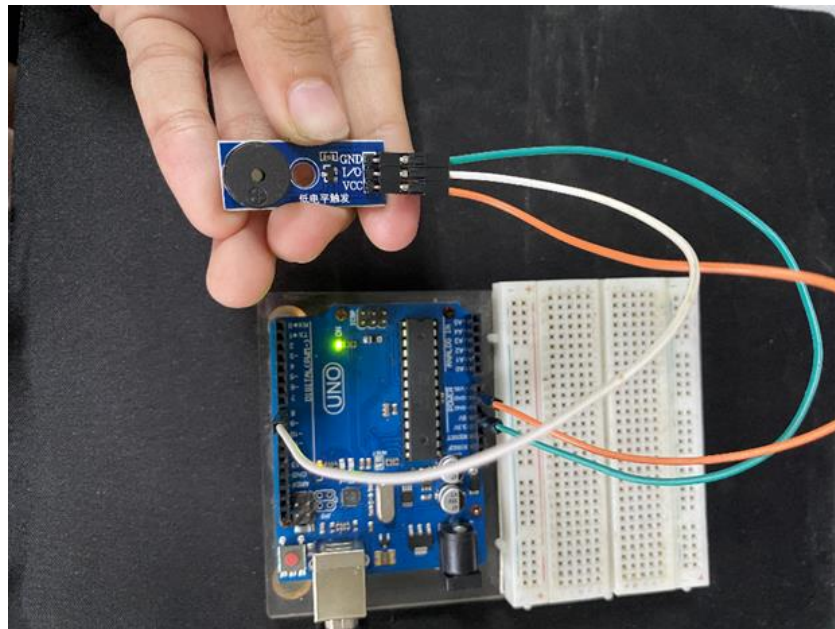
Step 3: After that, connect the Arduino UNO to the PC. Then click upload to start compiling and uploading program to the board.



Step 4: After all step above completed, open the serial monitor.



Step 5: Passive buzzers have the advantage that they can vary the pitch or tone of the sound.



Application:

- Alarms,
- Computers,
- Printers
- Other electronic products as sound devices.