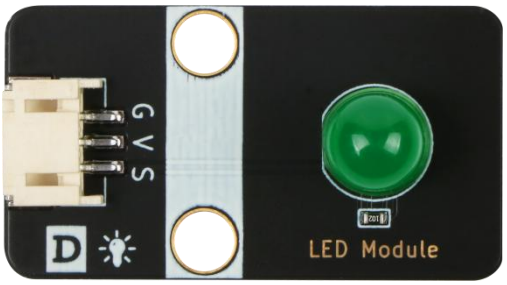
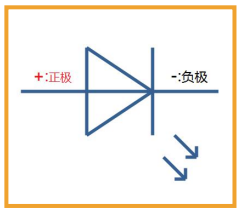
Experiment of Lighting an LED Lamp

Module Introduction

LED lights, also known as light-emitting diodes, are made of a mixture of gallium (Ga), arsenic (AS), and phosphorus (P). Gallium phosphide diode emits red light, gallium phosphide diode emits green light, and silicon carbide diode emits yellow light. The reverse breakdown voltage of LED is 5V. Its positive volt ampere characteristic curve is too steep, so it must be connected in series with the current limiting resistor to control the current flowing through the pipe. The operating voltage of ordinary light-emitting diodes is generally 2 V to 2.5 V, and the operating current is usually 10-20 mA. Therefore, we need to use 1K resistor as current limiting resistor in 5V digital logic circuit. Our LED module is positive connected to the S pin, so it will be on when the S pin is on high level.



Physical Picture



Graphic Symbols of LED

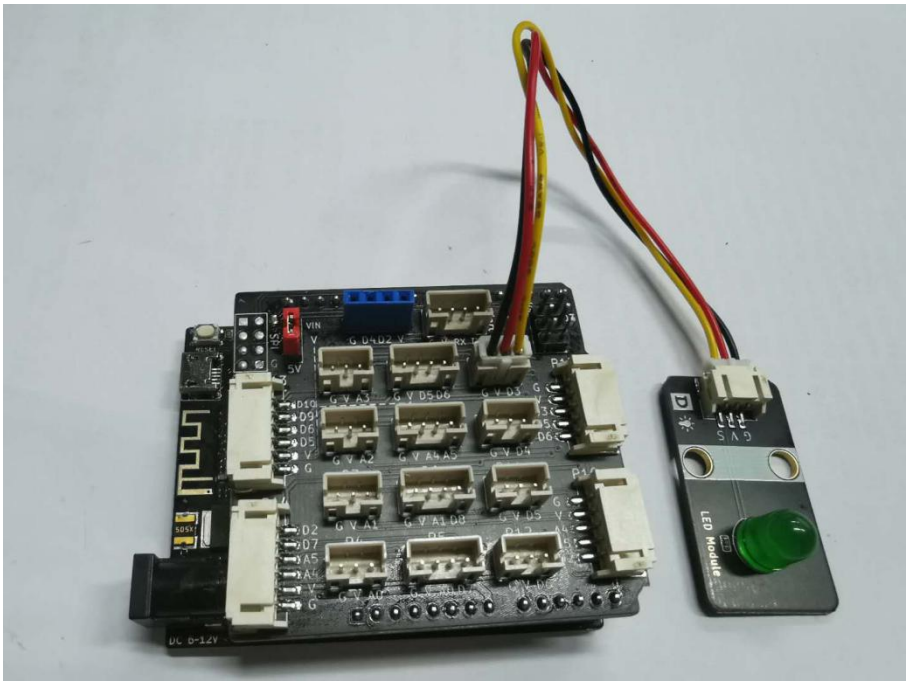
Purpose of the Experiment

Control LED module on and off through Arduino.

Device List

- BLE-UNO Main Board: 1
- Expansion Board of H2.0 Sensor :1
- USB Data Wire: 1
- LED Lamp: 1
- 3PinWire Jumper: 1

Physical Wiring Diagram



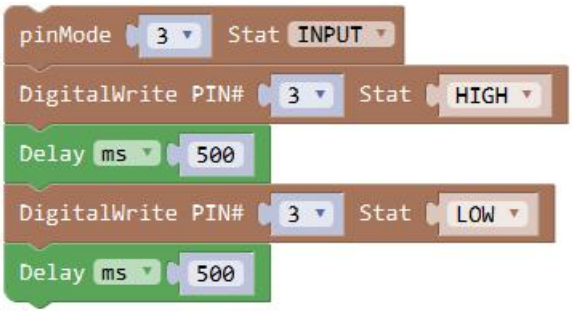
Arduino Program

```
#define LED    3//Define LED control pins
void setup()
{
   pinMode(LED,OUTPUT);//Set the control pin of the LED pin to output mode
}

void loop()
{
  digitalWrite(LED,HIGH);//Set the LED pin to output high level
  delay(500);
  digitalWrite(LED,LOW);//Set the LED pin to output low level
  delay(500);
}
```

MagicBlock Program

Mixly Program



Experimental Conclusion

After the device is connected, the above program will be burned to BLE-UNO board, it will be found that the LED light will flash at a frequency of 1 second, which achieves the desired effect.