

## Switch module experiment

### Introduction to key switch module

In this experiment we will control the LED with a key, the integrated LED on number 13 interface is used as an indicator light. We connect the switch module to number 3 interface, when the the key is pressed, the LED lights, otherwise off.



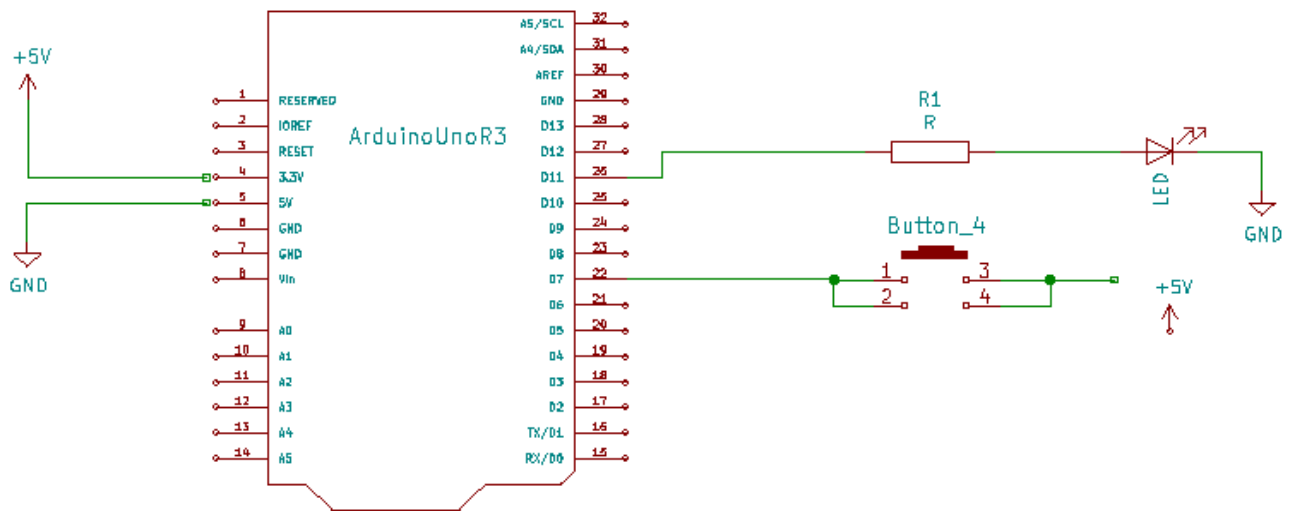
### The experiment purpose

We connect the keys to interface D7 and the red light to interface D11. (all d0-d13 digital I/O interfaces in Arduino controller can be used to connect the keys and indicator lights, but try not to choose digital D0 and D1 interfaces, because D0 and D1 functions are reused. In addition to I/O port functions, they are also used as serial communication interfaces. The device was communicating with the PC when the program was downloaded. So we should keep the D0 and D1 interfaces to avoid the trouble of inserting lines, we do not choose the D0 and D1 interfaces.

### Component List

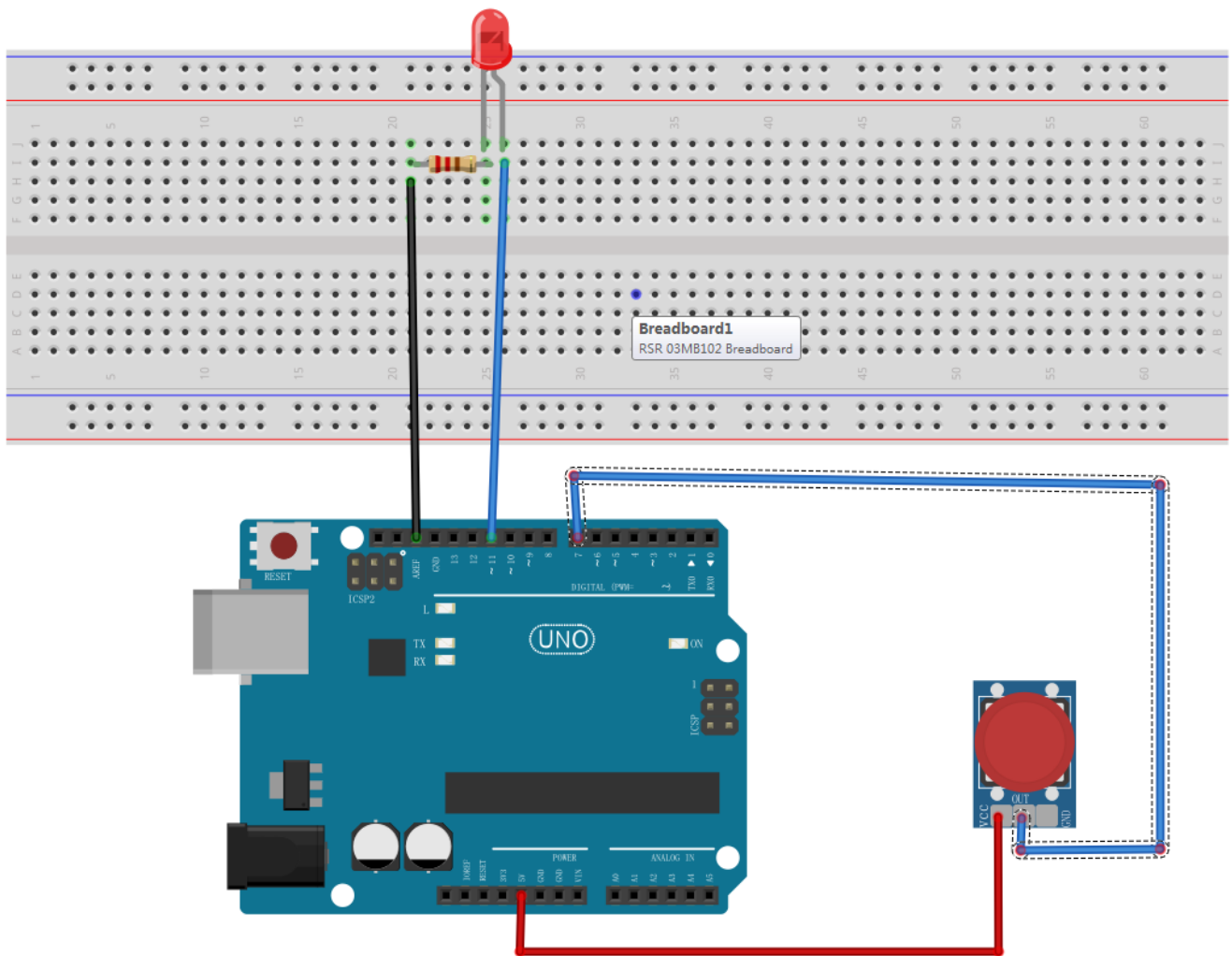
- ◆ Keywish Arduino Uno R3 mainboard
- ◆ USB cable
- ◆ Key switch module\*1
- ◆ Some wires

## Schematic Diagram



## Wiring of Circuit

Arduino Uno R3	Key switch module
7	OUT
GND	GND
+5V	VCC



## Program Principle

By analyzing the circuit, we can know that when the button is pressed, the D7 interface is at a high level, and it sets the D11 output pin to a high level, which can make the light on. When the D7 interface reads as low level, the D11 output keeps low level, and the indicator light turns off. The principle is the same as above.

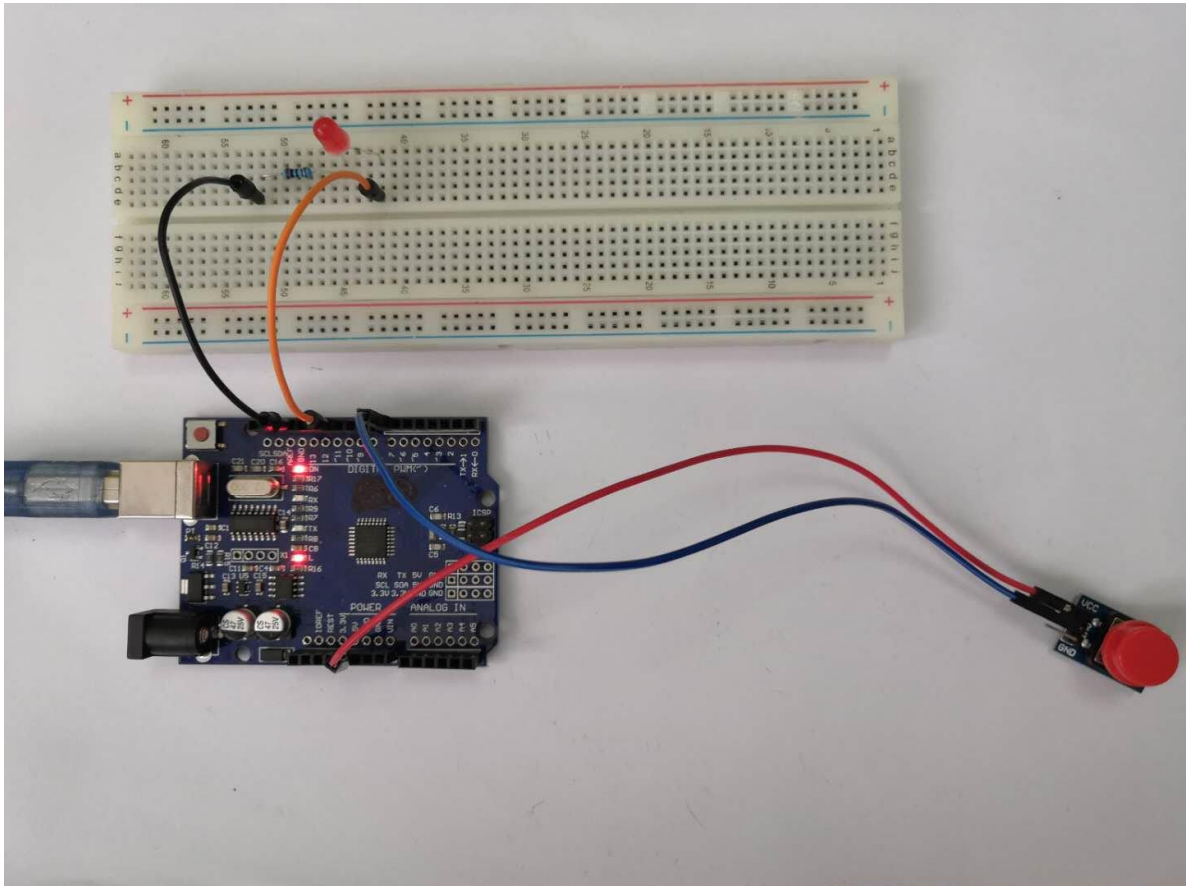
## Code

```
void setup()
{
  pinMode(11,OUTPUT);      // Initialize the LED pin output
  pinMode(7,INPUT);        // Initialize key pin input
  digitalWrite(11,LOW);
}

void loop()
{
  if (digitalRead(7) == LOW)
  {
    delay(20);             // Delay to eliminate button jitter
    if (digitalRead(7) == LOW)
    {
      digitalWrite(11, LOW); // If key DigitalRead (7) is not pressed, turn off
the LED
    }
    else
    {
      digitalWrite(11, HIGH); // If key DigitalRead (7) is pressed, turn on the
LED
    }
  }
}
```

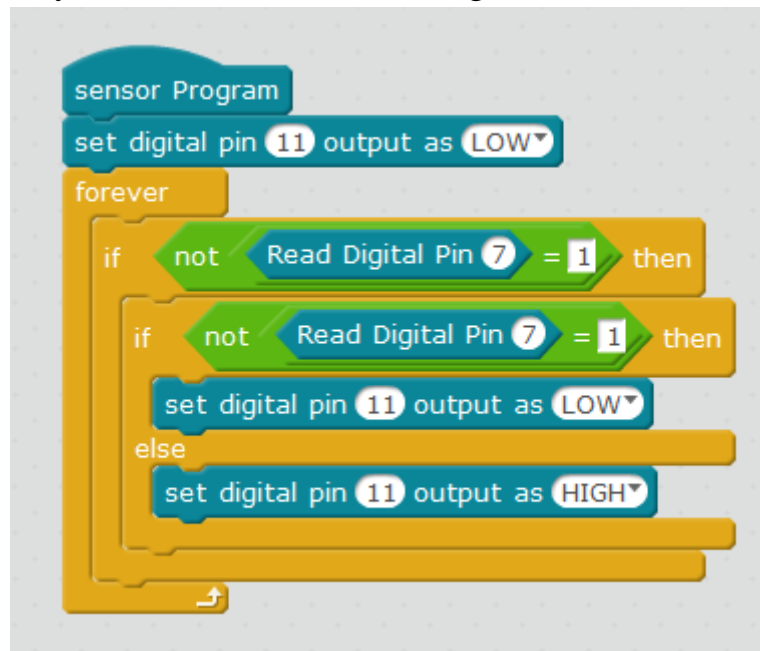
Download the program to complete the keystroke experiment. Because the LED lamp module we use is a three-color lamp, we only need to connect one of the lamp pins. The experimental principle is very simple and is widely used in various circuits and electrical appliances. In our real life, it is not difficult to find it in various devices, such as everyone's mobile phone, press a random button, the backlight will turn on, click the elevator button, the indicator light on the elevator will light up, and so on.

## Experiment Result



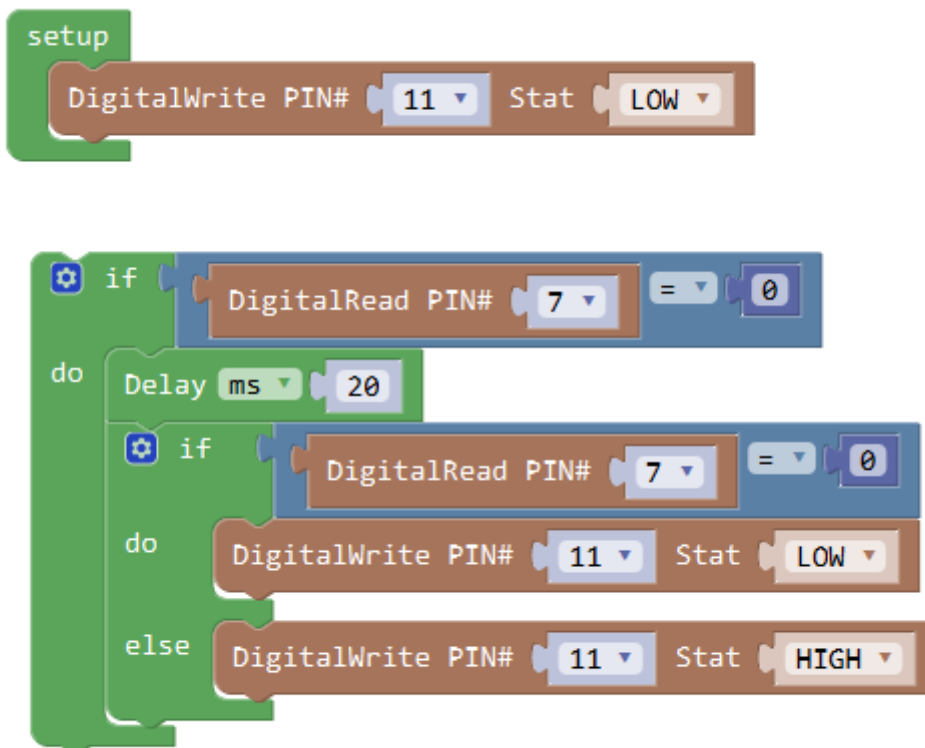
## Mblock programming program

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



## Mixly graphical programming program

Mixly writes the key test program as shown below:



## MagicBlock graphical programming program

MagicBlock writes the key test program as shown below:

