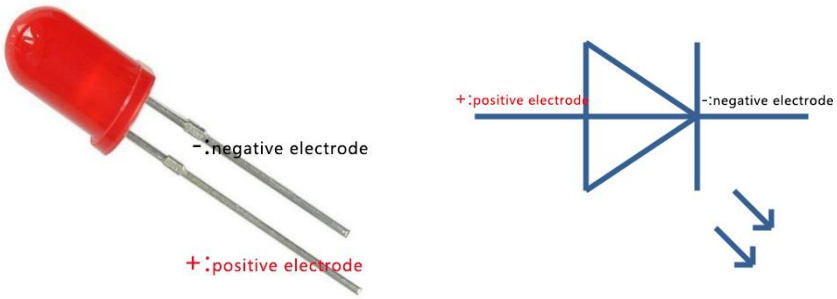
Four - way responder experiment

Introduction of the device

The meaning of the digital I/O port is the INPUT and OUTPUT interface. In the previous LED lamp experiment, we only used the OUTPUT function of GPIO. Now let's try using the I/O INPUT function in Arduino, which reads the output from an external device in this experiment. We used buttons and LED lights to complete the experiment using INPUT and OUTPUT as combinations.

Key structure diagram



The LED structure

The experiment purpose

For example, a knowledge contest was held, and a simple answer machine was made by light-emitting diode. The basic principle was to press the answer button and the circuit would be connected, the diode would be bright, and the circuit of other diodes would be cut off, so that the first person could press the button and the others would press the button again.

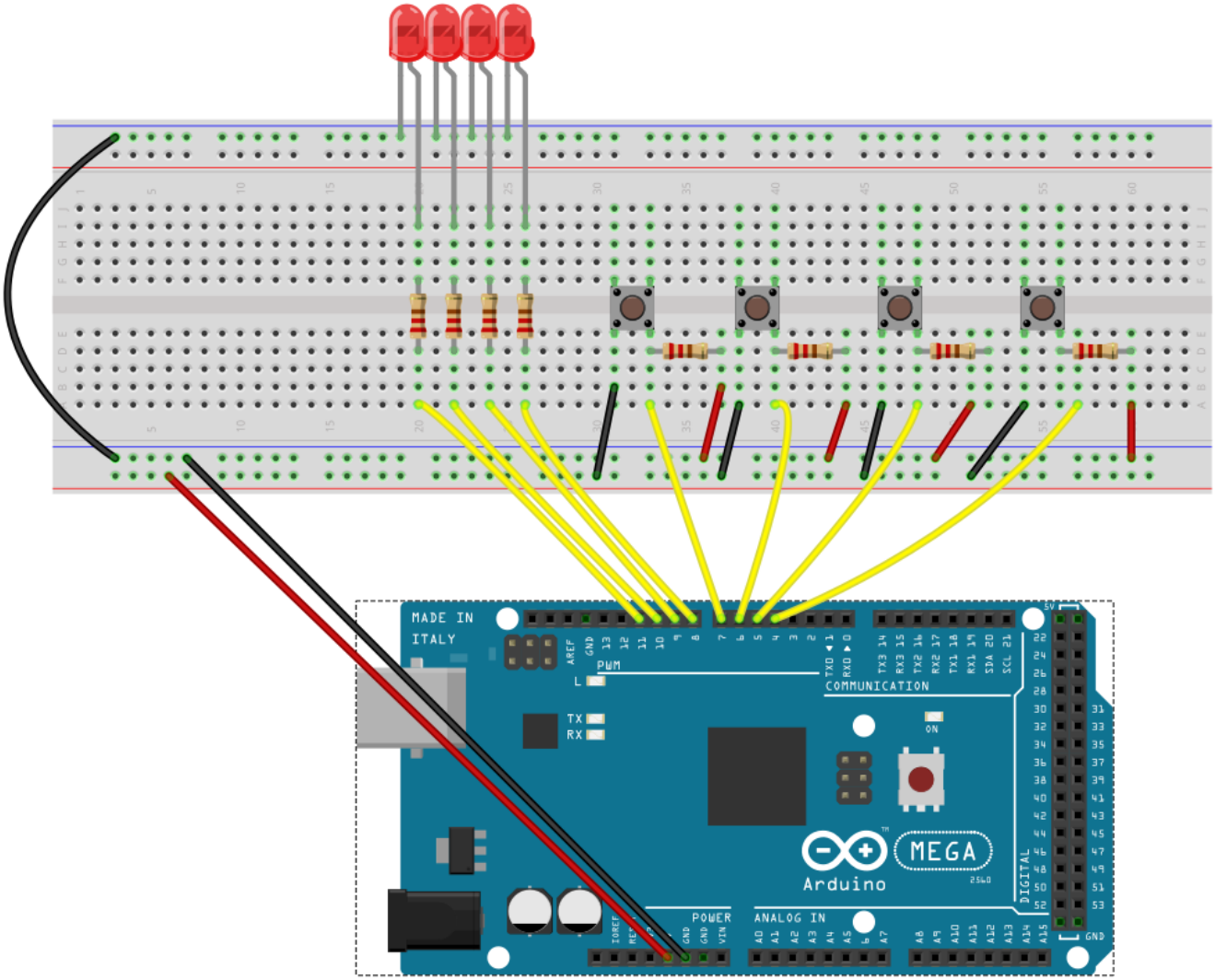
The component list

- Four LED lights (red, yellow, green and blue)
- Button switch *4
- 1K resistor *8
- Breadboard
- Bread jumper wires

- The Arduino board

Experimental wiring diagram

LED	Arduino Mega 2560
Buleled（+）	11
Redled（+）	10
Yellow（+)	9
Green(+)	8
Button1	7
Button2	6
Button3	5
Button4	4

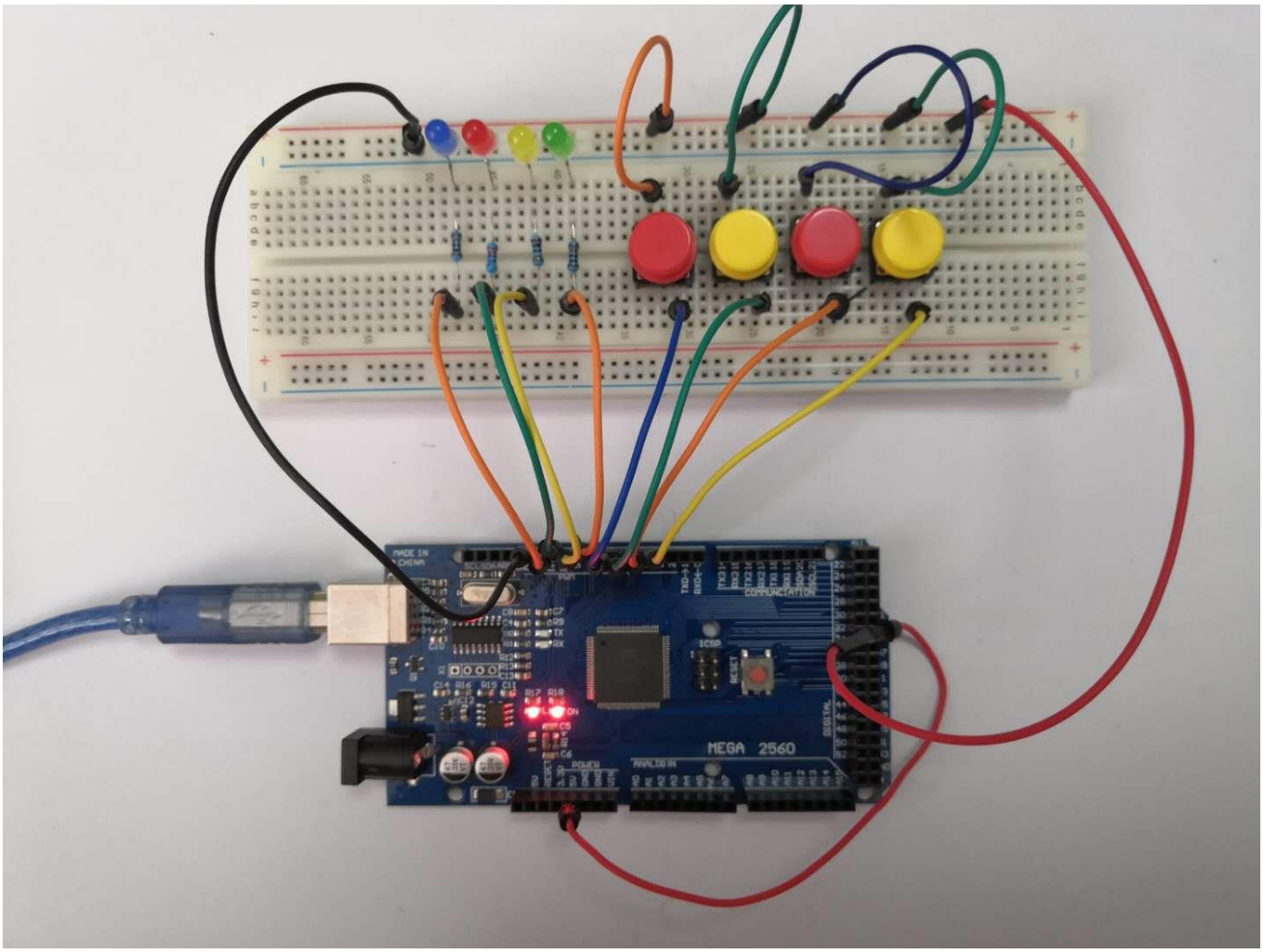


Code

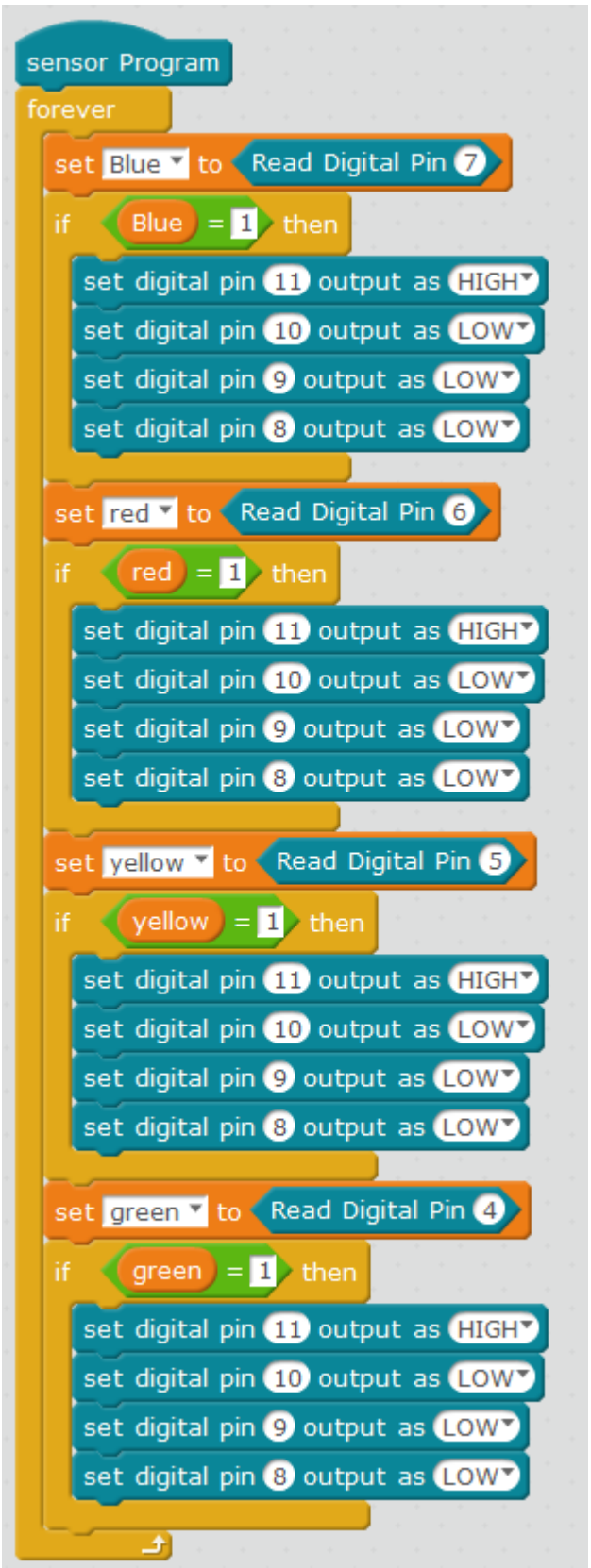
```
int blueled=11;      // Set blue_led to pin11
int redled=10;   // Set red_led to pin10
int yellowled=9;  // Set yellow_led to pin9
int greenled=8;   // Set green_led to pin8

int bluebutton =7;     // Set blue_button to pin7
int redbutton=6;        // Set red_button to pin6
int yellowbutton=5;   // Set yellow_button to pin5
int greenbutton=4;  // Set green_button to pin4

int blue;
int red;
int yellow;
int green;

void setup()
{
  // Set the blue_led, red_led, yellow_led, green_led interface as output mode
    pinMode(blueled, OUTPUT);
    pinMode(redled, OUTPUT);
    pinMode(yellowled, OUTPUT);
    pinMode(greenled, OUTPUT);
    // Set the blue_led, red_led, yellow_led, green_led interface as output mode
    pinMode(bluebutton, INPUT);
    pinMode(greenbutton, INPUT);
    pinMode(redbutton, INPUT);
    pinMode(yellowbutton, INPUT);


}
void loop()
{
    blue=digitalRead(bluebutton);    // Read the bluebutton value
    if (blue == HIGH)      // Determine whether the bluebutton is pressed
    {           // light blueled and turn off other lights
      digitalWrite(blueled, HIGH);
      digitalWrite(redled, LOW);
      digitalWrite(yellowled, LOW);
      digitalWrite(greenled, LOW);
    }
```

```
    red=digitalRead(redbutton);// Read the redbutton value
    if (red == HIGH)     // Determine whether the redbutton is pressed
    {       // light redled and turn off other lights
      digitalWrite(blueled, LOW);
      digitalWrite(redled, HIGH);
      digitalWrite(yellowled, LOW);
      digitalWrite(greenled, LOW);;
    }
    yellow=digitalRead(yellowbutton);  // Read the yellowbutton value
    if (yellow == HIGH)     // Determine whether the yellowbutton is pressed
    {     // light yellowled and turn off other lights
      digitalWrite(blueled, LOW);
      digitalWrite(redled, LOW);
      digitalWrite(yellowled, HIGH);
      digitalWrite(greenled, LOW);
    }
    green=digitalRead(greenbutton);   // Read the greenbutton value
    if (green == HIGH)    // Determine whether the greenbutton is pressed
    {       // light greenled and turn off other lights
      digitalWrite(blueled, LOW);
      digitalWrite(redled, LOW);
      digitalWrite(yellowled, LOW);
      digitalWrite(greenled, HIGH);
    }
}
```

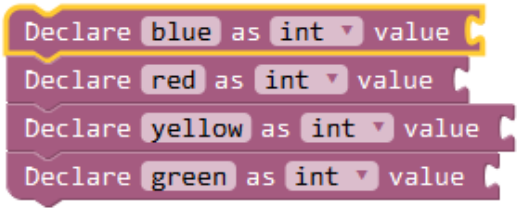
Experiment result

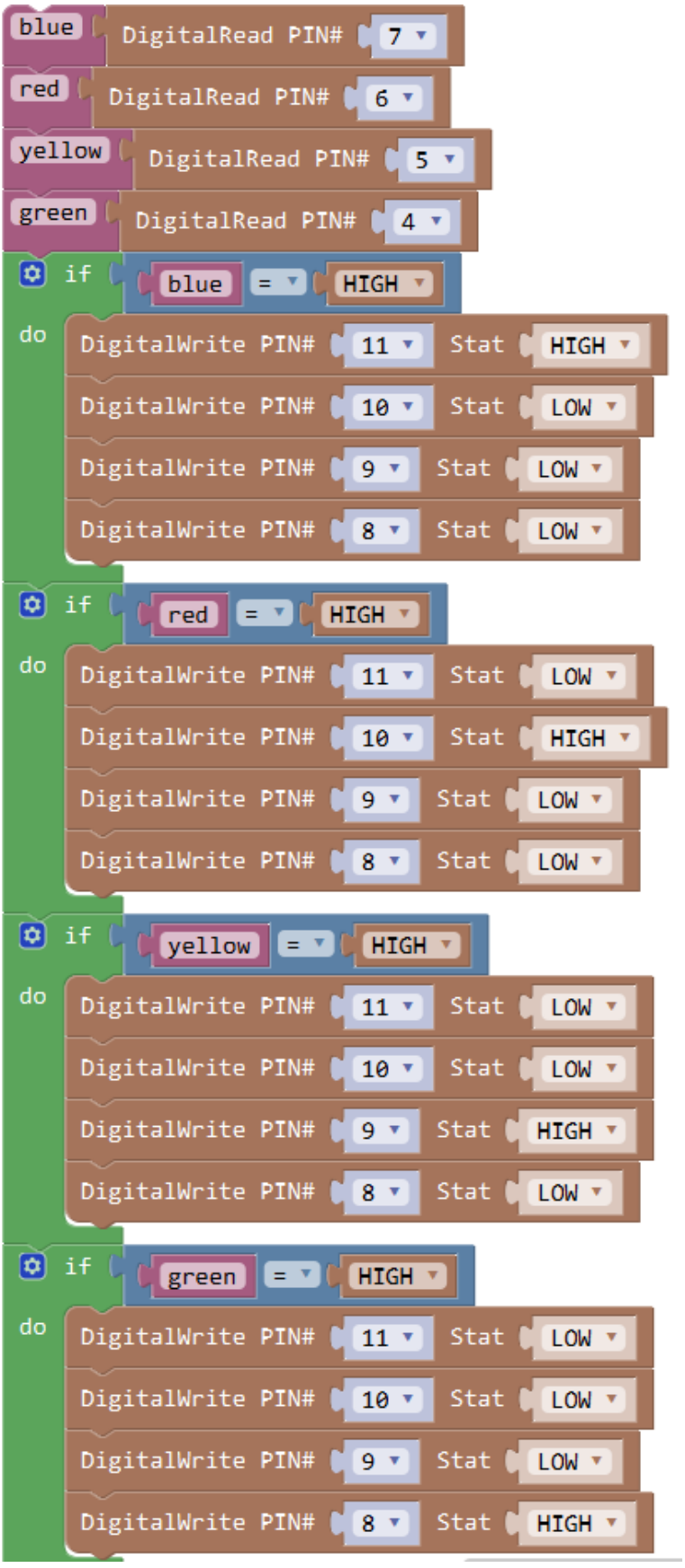


Mblock programming program



Mixly programming program





MagicBlock programming program