

Responder Experiment

Overview



This is a three responder experiment.

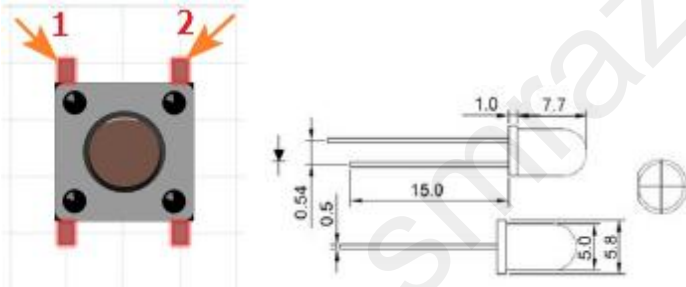
Specification

Button : Size: 6 x 6 x 5mm

Temperature: -30 ~ +70 Centigrade

Pin definition

Is the definition of Button pin :

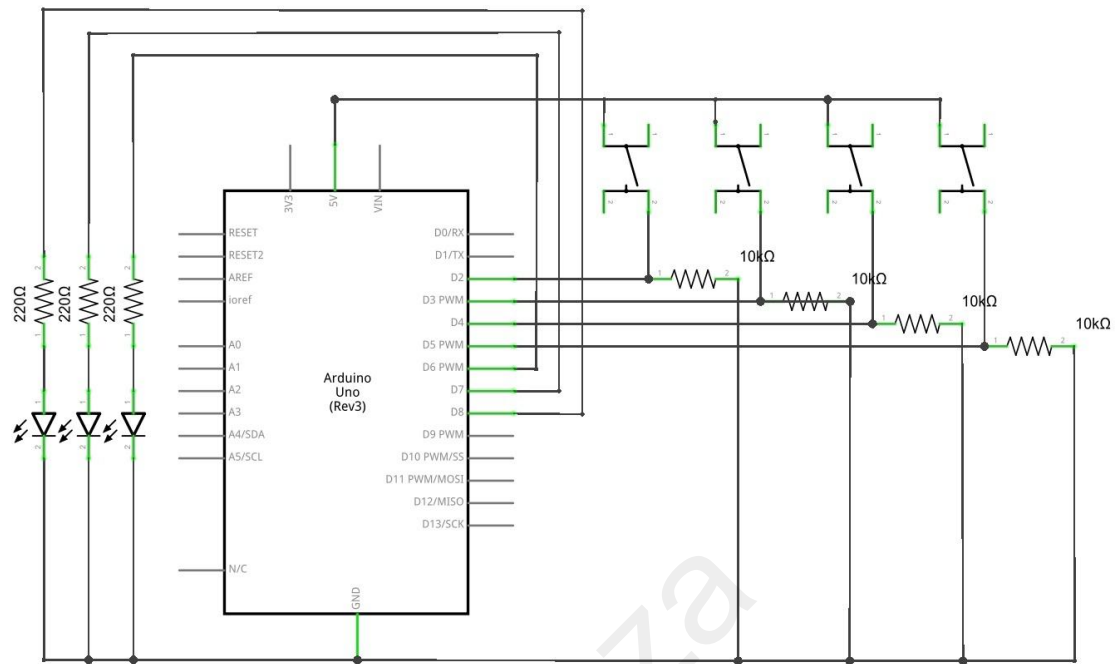


Hardware required

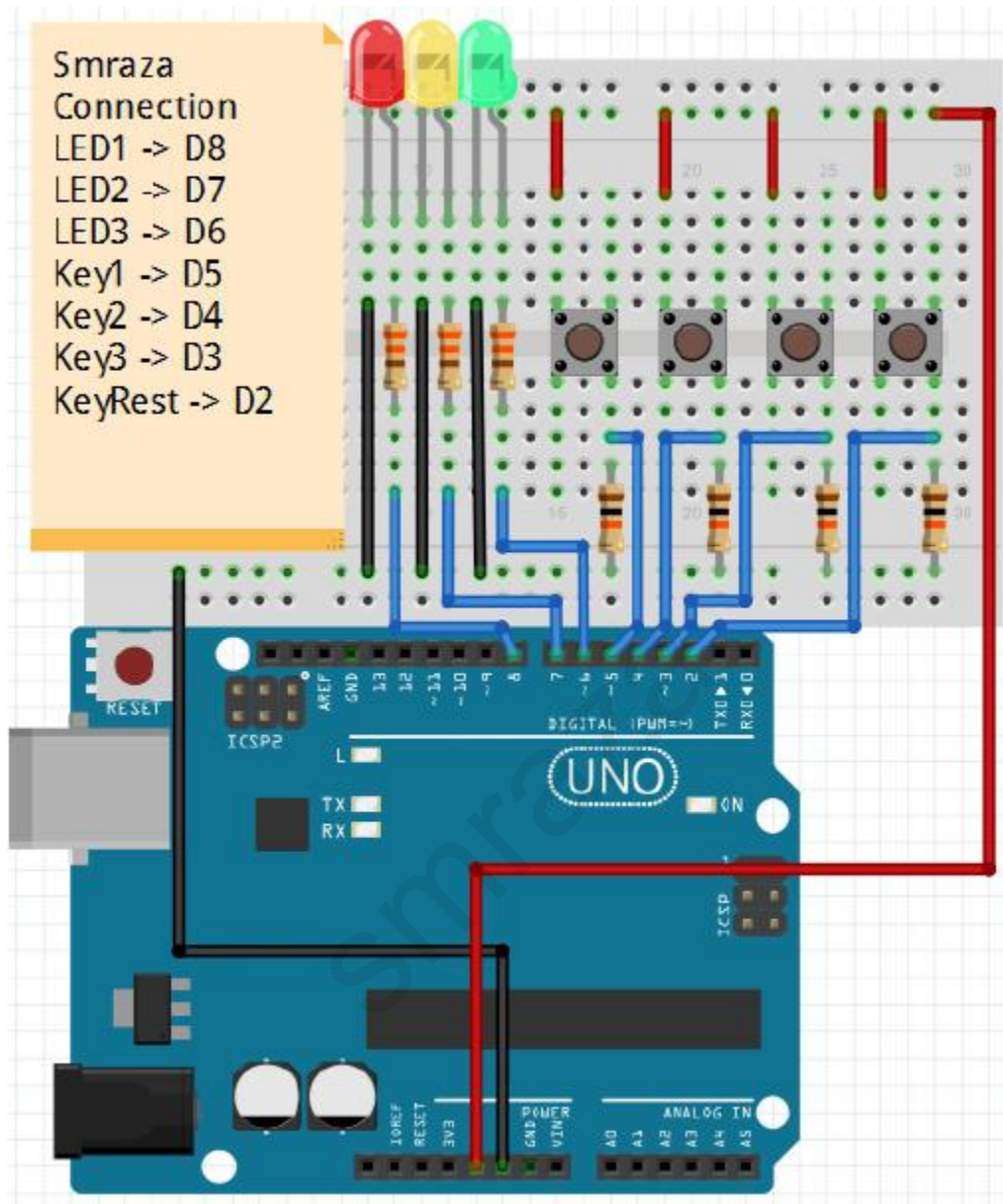
| Material diagram | Material name | Number |
|---|-------------------|---------|
|  | Button | 4 |
|  | LED | 3 |
|  | 220/330Ω resistor | 3 |
|  | 10KΩ resistor | 4 |
|  | USB Cable | 1 |
|  | UNO R3 | 1 |
|  | Breadboard | 1 |
|  | Jumper wires | Several |

Connection

Schematic



Connection diagram



Note: Button using 10K Ω resistor, LED use 220/330 Ω resistor.

Sample code

Note: sample code under the **Sample code** folder

```
int Redled=8;    // set Red LED as "output"
int Yellowled=7; // set Yellow LED as "output"
int Greenled=6;  // set Green LED as "output"
int Key1=5;      // initialize pin for Red button
int Key2=4;      // initialize pin for Yellow button
int Key3=3;      // initialize pin for Green button
int KeyRest=2;   // initialize pin for reset button
int Red;
int Yellow;
int Green;
void setup()
{
    pinMode(Redled,OUTPUT);
    pinMode(Yellowled,OUTPUT);
    pinMode(Greenled,OUTPUT);
    pinMode(Key1,INPUT);
    pinMode(Key2,INPUT);
    pinMode(Key3,INPUT);
    pinMode(KeyRest,INPUT);
}
void loop()      // repeatedly read pins for buttons
{
    Red=digitalRead(Key1);
    Yellow=digitalRead(Key2);
    Green=digitalRead(Key3);
    if(Red==HIGH)Red_YES();
    if(Yellow==HIGH)Yellow_YES();
    if(Green==HIGH)Green_YES();
}

void Red_YES() // execute the code until Red light is on; end cycle when reset button is
pressed
{
    while(digitalRead(KeyRest)==0)
    {
        digitalWrite(Redled,HIGH);
        digitalWrite(Greenled,LOW);
        digitalWrite(Yellowled,LOW);
    }
    clear_led();
}
```

```
void Yellow_YES() // execute the code until Yellow light is on; end cycle when reset
button is pressed
{
    while(digitalRead(KeyRest)==0)
    {
        digitalWrite(Redled,LOW);
        digitalWrite(Greenled,LOW);
        digitalWrite(Yellowled,HIGH);
    }
    clear_led();
}

void Green_YES() // execute the code until Green light is on; end cycle when reset
button is pressed
{
    while(digitalRead(KeyRest)==0)
    {
        digitalWrite(Redled,LOW);
        digitalWrite(Greenled,HIGH);
        digitalWrite(Yellowled,LOW);
    }
    clear_led();
}

void clear_led() // all LED off
{
    digitalWrite(Redled,LOW);
    digitalWrite(Greenled,LOW);
    digitalWrite(Yellowled,LOW);
}
```




Language reference

Tips : click on the following name to jump to the web page.

If you fail to open, use the Adobe reader to open this document.

[digitalRead\(\)](#)

[== \(equality\)](#)

Application effect

Whichever button is pressed first, then the corresponding LED will be on!

If you want to reset, hit the Reset button.

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