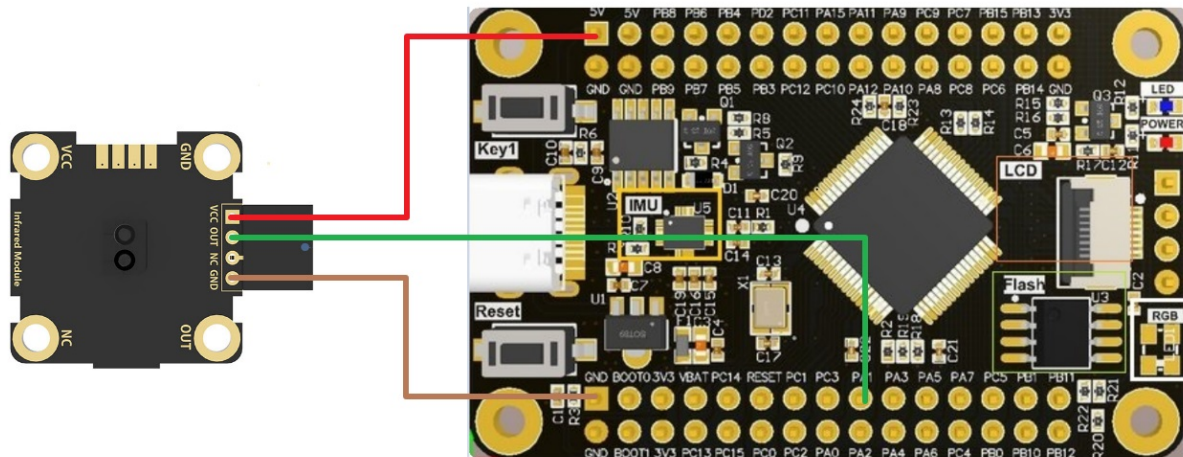


# Infrared module: control LED GPIO input/output

## Hardware wiring



Infrared module	STM32F103RCT6
VCC	5V/3.3V
OUT	PA1
NC	
GND	GND

## Brief principle

### Circuit schematic

The LED is connected to the PB4 pin, you need to pay attention to the pin configuration of PB4 (see the code for the specific configuration):

PB4 output high level, LED on;

The PB4 output is low and the LED is off.

When the IR module detects an obstacle:

OUT outputs a low level and the LED lights up.

When the IR module does not detect an obstacle:

OUT outputs a high level and the LED goes off.

## Main code

## main.c

```
#include "stm32f10x.h"
#include "Infrared_module.h"
#include "LED.h"

int main(void)
{
    LED_Init();//LED初始化(PB4)
    Infrared_module_Init();//红外模块初始化(PA1)

    while(1)
    {
        if(GPIO_ReadInputDataBit(GPIOA, GPIO_Pin_1) == Bit_RESET)//判断红外模块是否遇到障碍物
        {
            GPIO_WriteBit(GPIOB, GPIO_Pin_4, Bit_SET);//LED 亮
        }
        else
        {
            GPIO_WriteBit(GPIOB, GPIO_Pin_4, Bit_RESET);//LED 灭
        }
    }
}
```

## LED.c

```
#include "LED.h"

void LED_Init(void)//LED初始化(PB4)
{
    GPIO_InitTypeDef GPIO_InitStructure;

    /* Enable GPIOB and AFIO clocks */
    /* 使能GPIOB和功能复用IO时钟 */
    RCC_APB2PeriphClockCmd(RCC_APB2Periph_GPIOB | RCC_APB2Periph_AFIO, ENABLE);

    /* JTAG-DP Disabled and SW-DP Enabled */
    /* 禁用JTAG 启用SWD */
    GPIO_PinRemapConfig(GPIO_Remap_SWJ_JTAGDisable, ENABLE);

    /* Configure PB4 in output pushpull mode */
    /* 配置PB4 推挽输出模式 */
    GPIO_InitStructure.GPIO_Pin = GPIO_Pin_4;
    GPIO_InitStructure.GPIO_Mode = GPIO_Mode_Out_PP;
    GPIO_InitStructure.GPIO_Speed = GPIO_Speed_50MHz;
    GPIO_Init(GPIOB, &GPIO_InitStructure);
}
```

```

/* Set the GPIOB port pin 4 */
/* 设置PB4端口数据位 */
GPIO_WriteBit(GPIOB, GPIO_Pin_4, Bit_RESET);
}

```

## LED.h

```

#ifndef __LED_H__
#define __LED_H__

#include "stm32f10x.h"

void LED_Init(void); //LED初始化(PB4)

#endif

```

## Infrared\_module.c

```

#include "Infrared_module.h"

void Infrared_module_Init(void) //红外模块初始化(PA1)
{
    GPIO_InitTypeDef GPIO_InitStructure;

    /* Enable GPIOA */
    /* 使能GPIOA时钟 */
    RCC_APB2PeriphClockCmd(RCC_APB2Periph_GPIOA, ENABLE);

    /* Configure PA1 in Floating input mode */
    /* 配置PA1 浮空输入模式 */
    GPIO_InitStructure.GPIO_Pin = GPIO_Pin_1;
    GPIO_InitStructure.GPIO_Mode = GPIO_Mode_IN_FLOATING;
    GPIO_Init(GPIOA, &GPIO_InitStructure);
}

```

## Infrared\_module.h

```

#ifndef __INFRARED_MOUDLE_H__
#define __INFRARED_MOUDLE_H__

#include "stm32f10x.h"

void Infrared_module_Init(void); //红外模块初始化(PA1)

#endif

```

## Phenomenon

After downloading the program, press the Reset key once, and the downloaded program will run.

When the infrared module detects an obstacle: the LED lights up.

When the IR module does not detect an obstacle: the LED goes off.