6. Infrared remote control car

1. Learning objectives

Take the Mailun car drive as an example, control the car through the infrared remote control

2. Experimental preparation

1. The car wiring has been installed and installed correctly
2. Infrared remote control

3. Implementation principle

By receiving different key values sent by the infrared remote control, the car can be controlled to perform different functions.

4. Code analysis

Source code path:

/home/pi/project_demo/05.Comprehensive_gameplay/5.ir_controlled_miniature_car.ipynb

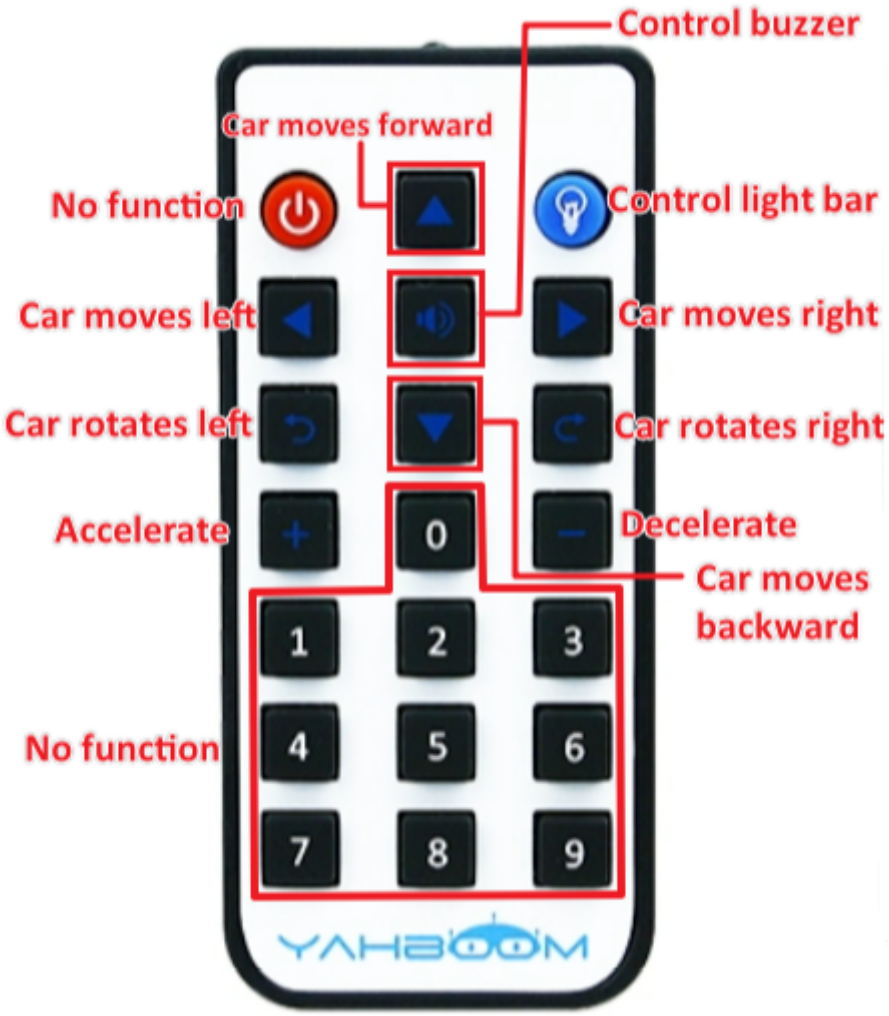
```
#!/usr/bin/python3
# -*- coding: UTF-8 -*-
import sys
sys.path.append('/home/pi/project_demo/lib')
sys.path.append('/home/pi/software/oled_yahboom/')
#导入麦克纳姆小车驱动库,oled库 Import Mecanum car driver library, oled library
from McLumk_Wheel_Sports import *
from yahboom_oled import *
import time, math

# 创建oled对象 Create an oled object
oled = Yahboom_OLED(debug=False)
# 红外键值对应的红外数据 Infrared data corresponding to infrared key value
ir_values = {
    'Power': '0x0',
    'RGB_Light': '0x2',
    'Buzzer': '0x5',
    'CarForward': '0x1',
    'CarBackward': '0x9',
    'CarLeft': '0x4',
    'CarRight': '0x6',
    'CarLeftSpin': '0x8',
    'CarRightSpin': '0xa',
    'Add': '0xc',
    'Sub': '0xe',
    'Number_0': '0xd',
    'Number_1': '0x10',
    'Number_2': '0x11',
    'Number_3': '0x12',
    'Number_4': '0x14',
    'Number_5': '0x15',
    'Number_6': '0x16',
    'Number_7': '0x18',
    'Number_8': '0x19',
    'Number_9': '0x1a'
}
# 获取红外值 Get infrared value
def get_ir_value():
     # 读取红外遥控的值 Read the value of infrared remote control
    data = bot.read_data_array(0x0c, 1)
    data2h=hex(data[0])
    return data2h



# 控制蜂鸣器 Control buzzer
buzzer_flag = False # 蜂鸣器标志位 Buzzer flag
def control_buzzer(flag):
    if(flag):
        bot.Ctrl_BEEP_Switch(1)
    elif(flag==False):
        bot.Ctrl_BEEP_Switch(0)
```

```
# 控制rgb灯 Control RGB lights
colors = [0, 1, 2, 3, 4, 5, 6, 7]  # 红色、绿色、蓝色、黄色、紫色、青色、白色、关闭 Red,
Green, Blue, Yellow, Purple, Cyan, White, Off
current_color = 0  # 当前颜色索引 Current color index
def change_rgb_light(color):
    global current_color
    current_color=color
    if(current_color==7):
        bot.Ctrl_WQ2812_ALL(0,0)
    else :
        bot.Ctrl_WQ2812_ALL(1, colors[current_color])
    if(current_color==0):color_str='color:red'
    if(current_color==1):color_str='color:green'
    if(current_color==2):color_str='color:blue'
    if(current_color==3):color_str='color:yellow'
    if(current_color==4):color_str='color:purple'
    if(current_color==5):color_str='color:indigo'
    if(current_color==6):color_str='color:white'
    if(current_color==7):color_str='color:off'
    current_color = (current_color + 1) % len(colors)
    return color_str

# 红外遥控小车 Infrared remote control car
speed=50
color_str='color:off'
speed_str='speed:50'
global ir_value
ir_value='0xff'
def ir_control(ir_value,value_temp):
    global buzzer_flag,speed,color_str,speed_str
    if ir_value == ir_values['CarForward']:
        move_forward(speed)
    elif ir_value == ir_values['CarBackward']:
        move_backward(speed)
    elif ir_value == ir_values['CarLeft']:
        move_left(speed)
    elif ir_value == ir_values['CarRight']:
        move_right(speed)
    elif ir_value == ir_values['CarLeftSpin']:
        rotate_left(speed)
    elif ir_value == ir_values['CarRightSpin']:
        rotate_right(speed)
    if(ir_value!=value_temp):#短按 dog
        if ir_value == ir_values['Power']:
            stop_robot()
            bot.Ctrl_WQ2812_ALL(0,0)
        elif ir_value == ir_values['RGB_Light']:
            # 控制RGB灯变化 Control RGB light changes
            color_str=change_rgb_light(current_color)
        elif ir_value == ir_values['Buzzer']:
            buzzer_flag = not buzzer_flag  # 设置标志位 Set the flag
            control_buzzer(buzzer_flag)
        elif ir_value == ir_values['Add']:
            speed += 15
            if (speed > 200):speed=200
        elif ir_value == ir_values['Sub']:
```

```
            speed -= 15
            if(speed < 50):speed = 50
        elif ir_value in [ir_values['Number_0'], ir_values['Number_1'],
ir_values['Number_2'],
                          ir_values['Number_3'], ir_values['Number_4'],
ir_values['Number_5'],
                          ir_values['Number_6'], ir_values['Number_7'],
ir_values['Number_8'],
                          ir_values['Number_9']]:
            # 处理数字键 Handling number keys
            # process_number_key(ir_value)
            pass
        elif(ir_value=='0xff'):stop_robot()
    speed_str=f'speed:{speed}'
    oled.clear()
    oled.add_line(color_str, 1)
    oled.add_line(speed_str, 2)
    oled.add_line(ir_value, 3)
    oled.refresh()
# 主循环 Main Loop
if __name__ == '__main__':
    try:
        # 打开红外遥控接收 Turn on infrared remote control reception
        bot.Ctrl_IR_Switch(1)
        oled.init_oled_process() #初始化oled进程 Initialize oled process
        oled.clear()
        oled.add_line(color_str, 1)
        oled.add_line(speed_str, 2)
        oled.add_line(ir_value, 3)
        oled.refresh()
        while True:
            value_temp = ir_value
            ir_value = get_ir_value()
            ir_control(ir_value,value_temp)


    except KeyboardInterrupt:
        # 恢复屏幕基础数据显示 Restore basic data display on screen
        os.system("python3 /home/pi/software/oled_yahboom/yahboom_oled.py &")
        bot.Ctrl_IR_Switch(0)
        bot.Ctrl_WQ2812_ALL(0,0)
        stop_robot()
```

5. Experimental results

We put the car on the ground. Point the infrared remote control at the car, and we can control the car by pressing different buttons.


Control buzzer
Car moves forward
No function
Control light bar
Car moves left
Car moves right
Car rotates left
Car rotates right
Accelerate
Decelerate
Car moves backward
No function
0
1
2
3
4
5
6
7
8
9
YAHBOOM