

2.1.5 PS2 handle control car

Please plug the handle into the USB port of the computer, open the JupyterLab web page: IP: 8888. For example, <http://192.168.1.67:8888>

You need to input your own IP address.

enter the password: **yahboom**

We need to use simulation mode of handle.



Rocker on the left side: control Raspblock car movement.

Rocker on the right side: control the camera PTZ movement. Press the right rocker to reset the PTZ.

Number 4: spin left.

Number 2: spin right.

Code path:

/home/pi/Yahboom_Project/2.Hardware_Control_cuorse/5_Handle_control_car.ipynb

```
from Raspblock import Raspblock
import ipywidgets.widgets as widgets
import time

# Thread function operation library
import threading
import inspect
import ctypes
import matplotlib.pyplot as plt

robot = Raspblock()
controller = widgets.Controller(index=0) # index indicates the serial number of the
handle we use
display(controller) # Display slide bars and boxes of
handle
```

```

def _async_raise(tid, exctype):
    """raises the exception, performs cleanup if needed"""
    tid = ctypes.c_long(tid)
    if not inspect.isclass(exctype):
        exctype = type(exctype)
    res = ctypes.pythonapi.PyThreadState_SetAsyncExc(tid,
ctypes.py_object(exctype))
    if res == 0:
        raise ValueError("invalid thread id")
    elif res != 1:
        # "if it returns a number greater than one, you're in trouble,
        # and you should call it again with exc=NULL to revert the effect"
        ctypes.pythonapi.PyThreadState_SetAsyncExc(tid, None)

def stop_thread(thread):
    _async_raise(thread.ident, SystemExit)

```

```

"""-----Part of control servo----- """
global leftrightpulse
leftrightpulse = 1500
global updownpulse
updownpulse = 1500

def camUpFunction():
    global updownpulse
    updownpulse+=10
    if updownpulse>2500:
        updownpulse=2500
    robot.Servo_control(leftrightpulse, updownpulse)

def camDownFunction():
    global updownpulse
    updownpulse-=10
    if updownpulse<500:
        updownpulse=500
    robot.Servo_control(leftrightpulse, updownpulse)

def camLeftFunction():
    global leftrightpulse
    leftrightpulse+=10
    if leftrightpulse>2500:
        leftrightpulse=2500
    robot.Servo_control(leftrightpulse, updownpulse)

def camRightFunction():

```

```

global leftrightpulse
leftrightpulse-=10
if leftrightpulse<500:
    leftrightpulse=500
robot.Servo_control(leftrightpulse, updownpulse)

def camservolnitFunction():
    global leftrightpulse, updownpulse
    leftrightpulse = 1500
    updownpulse = 1500
    robot.Servo_control(leftrightpulse, updownpulse)

def Remote_thread():
    Speed_axis_X = 0
    Speed_axis_Y = 0
    Speed_axis_Z = 0

    count1 = count2 = count3 = count4 = count5 = count6 = count7 = 0
    while 1:
        # Handle operation code --- (Yahboom handle)
        if(abs(controller.axes[0].value) >= 0.1 or abs(controller.axes[1].value) >=
0.1):
            count4 += 1
            if(count4 >= 4):
                Speed_axis_X = int(controller.axes[0].value * 15)
                Speed_axis_Y = -int(controller.axes[1].value * 15)
                robot.Speed_axis_Yawhold_control(Speed_axis_X,Speed_axis_Y)
                count4 = 0
            time.sleep(0.01)

        #number 1 of handle control buzzer
        if controller.buttons[0].value == True:
            robot.Buzzer_control(1)
        else:
            robot.Buzzer_control(0)

        #Right rocker up and down control camera up and down
        if controller.axes[2].value == 1:
            count1 += 1
            if count1 >= 3:
                camDownFunction()
                count1 = 0
        elif controller.axes[2].value == -1:
            count1 += 1
            if count1 >= 3:

```

```

        camUpFunction()
        count1 = 0
    else:
        count1 = 0

    #Right rocker left and right control camera left and right
    if controller.axes[5].value == 1:
        count2 += 1
        if count2 >= 3:
            camRightFunction()
            count2 = 0
    elif controller.axes[5].value == -1:
        count2 += 1
        if count2 >= 3:
            camLeftFunction()
            count2 = 0
    else:
        count2 = 0

    #Press right rocker to reset two servos
    if controller.buttons[11].value == True:
        count3 += 1
        if count3 >= 3:
            camservolnitFunction()
            count3 = 0
    else:
        count3 = 0

    #number 4 control car spin left, number 2 control car spin right
    if controller.buttons[3].value == True:
        count6 += 1
        if count6 >= 3:
            robot.Speed_axis_control(0,0,-15)
            count6 = 0
    elif controller.buttons[1].value == True:
        count6 += 1
        if count6 >= 3:
            robot.Speed_axis_control(0,0,15)
            count6 = 0
    else:
        count6 = 0
    time.sleep(0.01)
def stop_thread(thread):
    _async_raise(thread.ident, SystemExit)

```

```
thread = threading.Thread(target=Remote_thread)
thread.setDaemon(True)
thread.start()

stop_thread(thread)
del robot
```

The function of handle as shown below.
Press right rocker camera will reset.

