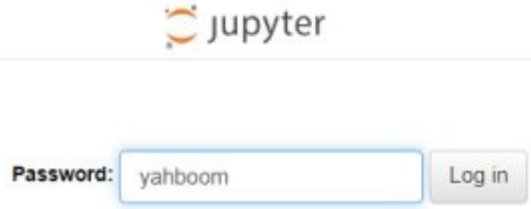
Teaching mode

1. Purpose

Understanding the robot dog's self-stabilization mode

2. Experimental path source code

Enter the robot dog system, end the robot dog program, enter "ip (ip is the robot dog's ip): 8888" in the browser, and enter the password "yahboom"



Then log in and go to **cd ~/DOGZILLA_Lite_class/3.Dog Base Control/09.Puppy Teaching Mode** and run **teach_by_demon.ipynb** .

3. Experimental Phenomenon

After running the program, press the buttons according to the prompts on the screen. The screen prompts are in English by default. If you want to change to Chinese, you need to change False to true, as shown in the figure:

```
# 中文开关，默认为英文 Chinese switch. The default value is English
g_ENABLE_CHINESE = True #False
show_body = {

    'PRESSA': ("Press A:Record", "按下A: 开始记录"),
    'PRESSB': ("Press B:End Record", "按下B: 结束录制"),
    'PRESSC': ("Press C:Quit", "按下C: 退出程序"),
    'PRESSD': ("Press D:Execute", "按下D: 执行动作"),

    'ACTION': ("ACTION", "动作"),
    'READY': ("Action Group is Ready", "动作组已经就绪"),
    'EXECUTING': ("Action Executing", "动作组执行中"),
    'DONE': ("Action Done", "动作组执行完毕"),
    'MAX': ("Maximum record of 12 sets", "此功能最多记录12组舵机动作"),

}
```

the screen prompts will become Chinese.

Buttons on the left and right sides of the screen A: Record button B: Stop recording button C: Exit button D: Execute the recorded action group (up to 12 action groups can be stored)

4. Main source code analysis

```
try:
```

```
    while True:

        if button.press_c():#这个是A键 A Key
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
            dog.unload_allmotor()
            data[n] = dog.read_motor()
            print(data)
            lcd_draw_string(draw,110,100, show_body['ACTION'][g_ENABLE_CHINESE]+
(str(n+1)), color=(255,255,255), scale=font2, mono_space=False)
            lcd_draw_string(draw,20,150,show_body['MAX'][g_ENABLE_CHINESE],
color=(255,255,255), scale=font2, mono_space=False)
            display.ShowImage(splash)
            time.sleep(0.02)
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
            n = n + 1
            print(n)
            if n > 12:
                    break
        if button.press_d():#这个是B键 B Key
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
            dog.load_allmotor()
            lcd_draw_string(draw,40,100, show_body['READY'][g_ENABLE_CHINESE],
color=(255,255,255), scale=font2, mono_space=False)
            display.ShowImage(splash)
            time.sleep(0.02)
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
        if button.press_a(): #这个是D键 D Key
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
            lcd_draw_string(draw,66,100, show_body['EXECUTING']
[g_ENABLE_CHINESE], color=(255,255,255), scale=font2, mono_space=False)
            display.ShowImage(splash)
            time.sleep(0.02)
            lcd_rect(0,0,320,240,color=color_black,thickness=-1)
            for d in data:
                if d!=[]:
                    dog.motor(servo,d)
                    print(d)
                    time.sleep(0.8)
            print('action done!')
            lcd_draw_string(draw,100,100, show_body['DONE'][g_ENABLE_CHINESE],
color=(255,255,255), scale=font2, mono_space=False)
            display.ShowImage(splash)
        if button.press_b():#这个是C键 C Key
            dog.load_allmotor()
            dog.reset()
            break
except:
    dog.reset()
```

The key description of the experimental phenomenon is the code above. By writing and analyzing the code, we can get the function that executes the action group: motor function. The function to unload the servo is: unload_allmotor (this is a function interface that does not pass parameters and unloads all servos at one time). The function to load the servo is: load_allmotor (this is a function interface that does not pass parameters and loads all servos at one time). The function to read the servo is: read_motor (this is a function that reads the current angles of all servos at one time).

Conclusion: The process of this mode is roughly as follows: Unload the servo -> read the servo angle and save it (up to 12 groups) -> load the servo -> execute the saved action group. **Note:** After unloading the servo, if you want the robot dog to stay standing, remember to have something to support its body.