

Climb

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1. Introduction

This course mainly uses dogzilla's gait to enter the climbing and obstacle climbing mode. When the robot dog walks, it will raise its feet and climb up a small ladder with a height of less than 2 cm.

2. Code analysis

The new switch button is used to turn on and off the obstacle crossing mode. If you need to display Chinese, please set G_ENABLE_CHINESE = True.

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

Name_widgets = {
    'Stop': ("Stop", "停止"),
    'Start': ("Start", "开启"),
    'Close_Camera': ("Close_Camera", "关闭摄像头")
}
```

When the start button is pressed, the robot dog will start the obstacle crossing mode and continue to walk forward. Where: gait_Type (mode): change the gait height of the robot dog.

mode: Input string, Input range: ['trot', 'walk', 'high_walk'], Trot means trot, walk means ordinary walk, high_Walk for high step.

```
# 按键按下事件处理 Key press event processing
def on_button_clicked(b):
    b.icon = 'check'
    with output:
        print("Button clicked:", b.description)
    if b.description == Name_widgets['Stop'][g_ENABLE_CHINESE]:
        g_dog.reset()
        b.icon = 'uncheck'
        button_Start.icon = 'uncheck'
    elif b.description == Name_widgets['Start'][g_ENABLE_CHINESE]:
        g_dog.gait_type("high_walk")
        time.sleep(.002)
        g_dog.pace("slow")
        time.sleep(.002)
        g_dog.translation('z', 100)
        time.sleep(.002)
        g_dog.forward(25)
```

Start a daemon thread to run the camera display task. The camera image is only displayed without recognition.

```
# 启动摄像头显示任务 Start the camera display task
thread1 = threading.Thread(target=camera_show_task)
thread1.setDaemon(True)
thread1.start()

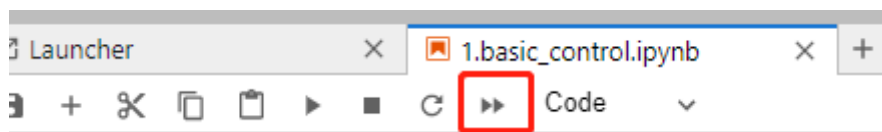
output = widgets.Output()
box_btn = widgets.VBox([button_Start, button_Stop, button_Close_Camera])
box_display = widgets.HBox([image_widget, box_btn, output])
display(box_display)
```

1.3 Steps

Open the jupyterLab client and find following code path

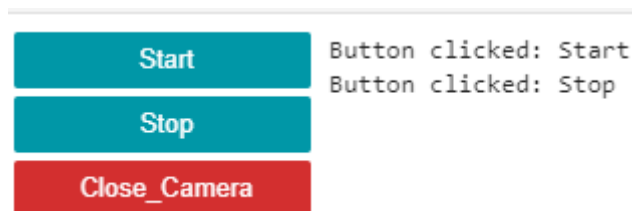
DOGZILLA/Samples/3_AI_Visual/9.obstacle_crossing.ipynb

Click the following icon to run all cells, and then pull to the bottom to see the generated controls.



The camera screen is displayed on the left. Click the start button to start the obstacle climbing mode. The robot dog takes one leg at a time, and the leg lifting height is relatively high. It can climb small steps with a height of less than 2cm. Note that the length and width of the steps should be longer than the body of the robot dog, otherwise the problem of treading may occur.

To stop climbing, click the stop button.



Finally, click close_camera button turns off the camera.