Single leg control

1.1 Experimental purpose

In this course, we will learn how to control the four legs of dogzilla.

1.2 Experimental preparation

The functions of dogzilla Python library involved in this course include.

leg(leg_id, data)：Single leg control, controlling the foot end position of the specified leg.

leg_id：The value range is 1, 2, 3 and 4, which respectively represent left front leg, right front leg, right rear leg and left rear leg.

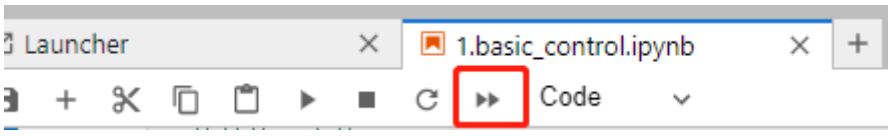
data：which is a numerical list with a length of 3, representing the position of the foot end, in mm. Value range x:[-35,35],y:[-18,18],z:[75,115].

1.3 Experimental process

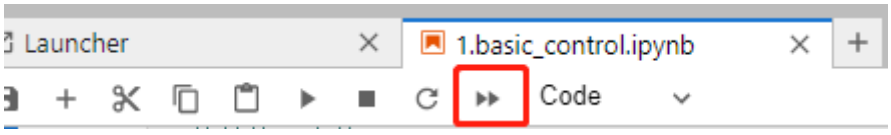
Open the jupyterlab client and find the code path:

```
DOGZILLA/Samples/2_Control/7.control_leg.ipynb
```

By default g_ENABLE_CHINESE=False, if you need to display Chinese, please set g_ENABLE_CHINESE=True.



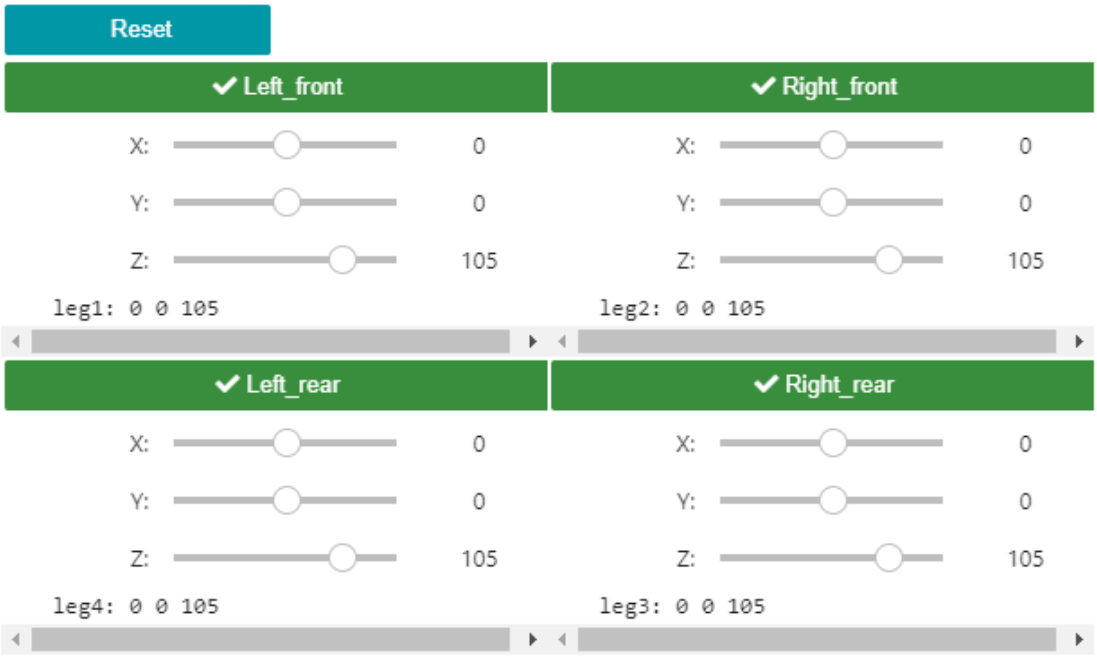
Click the following icon to run all cells, and then pull to the bottom to see the generated controls.



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

Name_widgets = {
    'Reset':("Reset", "恢复默认姿态"),
    'X': ("X", "X"),
    'Y': ("Y", "Y"),
    'Z': ("Z", "Z"),
    'Left_front': ("Left_front", "左前腿"),
    'Right_front': ("Right_front", "右前腿"),
    'Right_rear': ("Right_rear", "右后腿"),
    'Left_rear': ("Left_rear", "左后腿"),
    'Load':("Load", "已加载"),
    'Unload':("Unload", "已卸载")
}
```

Click run all cells, and then drag to the bottom to see the generated control.



The single leg control function can directly input the foot end coordinates of a leg. The robot dog will calculate the movement of the steering gear according to the inverse kinematics algorithm and control the movement of the steering gear. The reset button restores everything to its original state.

1.4 Summary

In this course, we use JupyterLab controls dogzilla's single leg activity.

Input the X, y and Z coordinates of the foot end, and then the three servos of the leg can be automatically controlled.