

Calibrate robotic arm joint

Note: The Jetcobot robotic arm has been calibrated before leaving the factory. Please do not calibrate it unless necessary.

If you must calibrate the robotic arm, please follow the instructions in this tutorial.

This course calibrates the six joints of the robotic arm, but does not include calibrating the gripper.

1. API Introduction

release_all_servos()

Function : Release the torque of all joints of the robotic arm. After release, the robot arm will no longer maintain the posture, and the robotic arm can be changed by hand.

Parameter explanation:

- Return value: None

set_servo_calibration()

Function: Set the current servo angle to zero.

Parameter explanation:

- Return value: None

2.About code

Code path: ~/jetcobot_ws/src/jetcobot_calibration/scripts/cali_joints.ipynb

Create three new buttons to control the release, calibration, and reading functions of the robotic arm.

```
# 读取机械臂关节角度 Read
button_Read = widgets.Button(
    description='Read',
    button_style='info', # 'success', 'info', 'warning', 'danger' or ''
    tooltip='Description',
    icon='unchecked' )

# 校准机械臂 Calibration
button_Calibration = widgets.Button(
    description='Calibration',
    button_style='success', # 'success', 'info', 'warning', 'danger' or ''
    tooltip='Description',
    icon='unchecked' )

# 松开机械臂 Release
button_Release = widgets.Button(
```

```

description='Release',
button_style='danger', # 'success', 'info', 'warning', 'danger' or ''
tooltip='Description',
icon='unchecked' )

# 按键按下事件处理 Key press event processing
def on_button_clicked(b):
    with output:
        print("Button clicked:", b.description)
    if b.description == 'Read':
        with output:
            print("read joints:", mc.get_angles())

    elif b.description == 'Calibration':
        for i in range(1, 7):
            mc.set_servo_calibration(i)
            time.sleep(1)
        mc.power_on()
        with output:
            print("calibration complete")
    elif b.description == 'Release':
        mc.release_all_servos()

# 关联按键事件回调 Button event callbacks
button_Read.on_click(on_button_clicked)
button_Calibration.on_click(on_button_clicked)
button_Release.on_click(on_button_clicked)

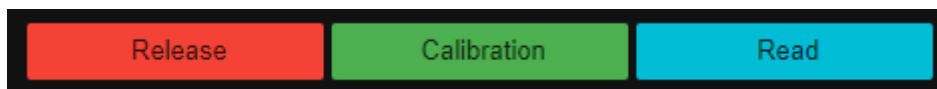
```

3.Run program

Click the button on the jupyterlab toolbar to run the entire program, and then pull it to the bottom.



After running the program, we can see three buttons.



Click the [Release] button to release the torque of the robotic arm and put the robot arm in a free twisting state.

Then, align the calibration points of the six joints of the robotic arm with joints 1 and 2, as shown in the figure below.

For other joints, please check the corresponding positions of the joints on the robotic arm.



After confirming that the calibration points of the six joints are aligned, click the [Calibration] button to start calibration, which takes about a few seconds.

Do not change the posture of the robot arm before receiving the [calibration complete] prompt.

After the calibration is completed, the [calibration complete] prompt will be printed, and the robot arm will be powered on and the posture will be fixed.



At this time, click [Read] to read the angle of the robotic arm. If the read angle values are all around 0°, the calibration is complete.