Calibrate the robot arm

1. API Introduction

1. Turn on or off the bus servo torque.

```
Arm_serial_set_torque(enable)
```

Parameter explanation:

- enable: enable=0 turns off the torque, the robot arm can manually turn the servo angle, and does not receive the level signal; enable=1 turns on the torque, the servo receives the level signal to maintain the current angle, and the angle can be changed only after sending a command.
- Return value: None.

2. Confirm the calibration of the robot arm servo offset.

```
Arm_serial_servo_write_offset_switch(id)
```

Parameter explanation:

- id: When id=0, clear the calibration values of all servos and restore the default; id=1~6 corresponds to the ID number of the six servos. After receiving this command, the underlying microcontroller will read the angle data of the servo corresponding to the ID. If it is within a reasonable range, it will be saved. If it exceeds the range or the servo ID cannot be found, it will not be saved.
- Return value: None.

3. Read the status of calibrating the servo offset.

```
Arm_serial_servo_write_offset_state()
```

Parameter explanation:

- Return value: Returns the status state of setting the median deviation. state=0 means that the servo is not detected; state=1 means that the median is set successfully; state=2 means that the range of the median is exceeded.

2. Code content

Note: This program can only be used when the servo needs to be calibrated. It cannot be used at will, otherwise it will cause inaccurate servo control and affect the gripping effect.

Code path:

```
~/dofbot_pro/dofbot_ctrl/scripts/Dofbot_Calibration.ipynb
```

This code must be executed in steps to ensure that after starting the calibration, the angles of each servo are adjusted correctly, and then the calibration is confirmed.

The result of the adjustment is to keep the robot arm upright and hold the gripper tightly.