

Lesson 3 PC Software Introduction

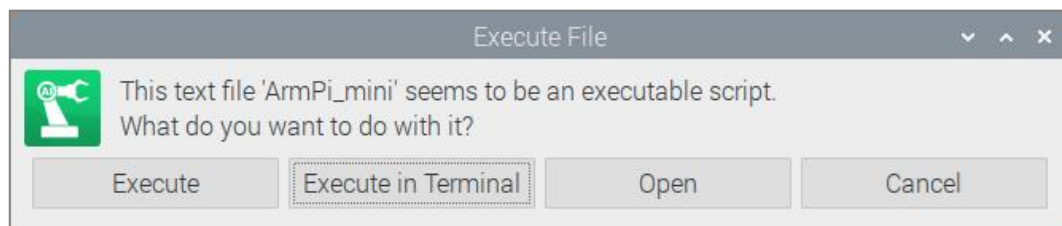
PC software is a system built-in software for programming robot action. Using PC software, you can not only directly control robot's servos, but also can edit a set of action, also known as action group. Additionally, it can perform functions like servo deviation debugging, gripping position calibration and deviation adjustment.

1. Start PC Software

1.1 Use Desktop Icon (for beginner)

Double click  icon to open PC software.

Click "Execute" in the pop-up window and open PC software.



1.2 Use Command Line

1) Click on  icon to open command line terminal.

2) Enter command "sudo ArmPi_mini_Software/ArmPi_mini.py" and press "Enter" to start PC software.

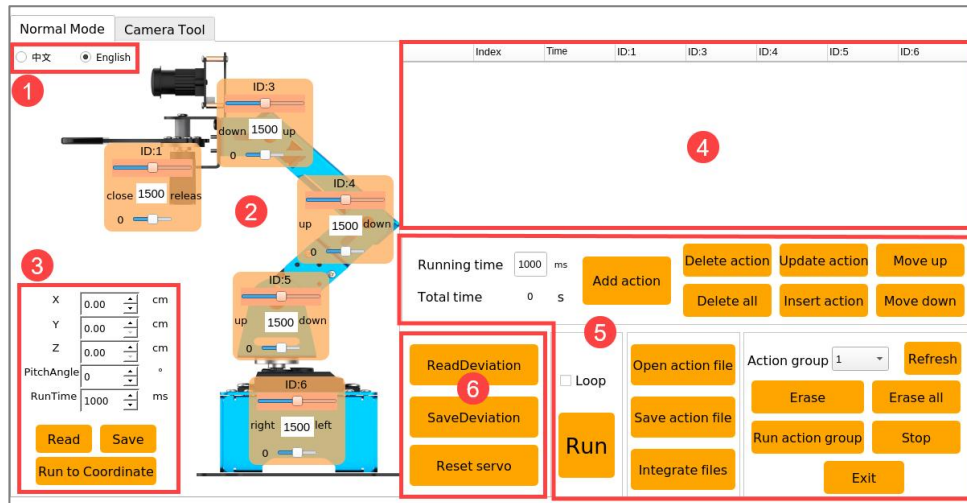
```
pi@raspberrypi:~ $ sudo ArmPi_mini_Software/ArmPi_mini.py
```

2. Software Interface Layout

(This part focuses on ③ Inverse Kinematics Control Area and ⑥ Deviation

Setting Area)

The main interface of PC software under mode normal consists of six areas:



①: Language Option

The language of PC software can be switched between Chinese and English.
(it will synchronize with the interface language of camera tool)

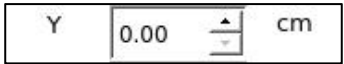
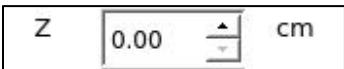
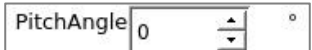
②: Servo Control Area

The icons on servo control area correspond to five servos of robotic arm. You can rotate servo by dragging the corresponding slider.

③: Inverse Kinematics Control Area (**must read**)

This area is mainly for calibrating the gripping position of robot arm. If the gripping position is incorrect during using robot arm, you can adjust its position in this area.

X	0.00	cm
Y	0.00	cm
Z	0.00	cm
PitchAngle	0	°
RunTime	1000	ms
Read Save Run to Coordinate		

Icon	Function
	Adjust x-axis value to control the gripper to move left or right.
	Adjust y-axis value to control the gripper to move forward or backward.
	Adjust z-axis value to control the gripper to move up and down. (the program has set the z-axis value to 1cm and the gripper will be in the middle of the two sides of the block, so it is not commended to modify this value.)
	The angel between gripper and x axis. Due to the program settings, it does not need to modify.
	The movement time used by the gripper to move from the previous position to the set coordinate value. (just for checking the running effect)
	Read the current position information of gripper
	Save the adjusted position coordinate value
	Control robot to the set coordinate value

④: Action Date List

The action data list will display the running time of each action and the value of each servo.

	编号	时间	ID:1	ID:3	ID:4	ID:5	ID:6
▶	1	1500	1500	830	2360	920	1500
	2	1000	1500	500	2360	920	1500
	3	1000	1500	1200	2360	920	1500
	4	1000	1500	500	2360	920	1500
	5	1000	1500	1200	2360	920	1500
	6	1000	1500	830	2360	920	1500

⑤: Action Setting Area

Using the functions button in this area, you can save, modify and run the edited action. The specific instruction of function application can be viewed in “7. PC Software Lesson/ Lesson 3 Action Programming”

⑥: Deviation Setting Area (**must read**)

Icon	Function Instruction
	Click it to automatically read the saved deviation
	Click it to save the deviation adjusted by PC software to robot
	Click it to restore all servos in servo control area back to the position in 1500.