

Lesson 2 Action Programming

1. Project Outcome

Program an action group consisting of 9 actions to allow the xArm 1S to grip.

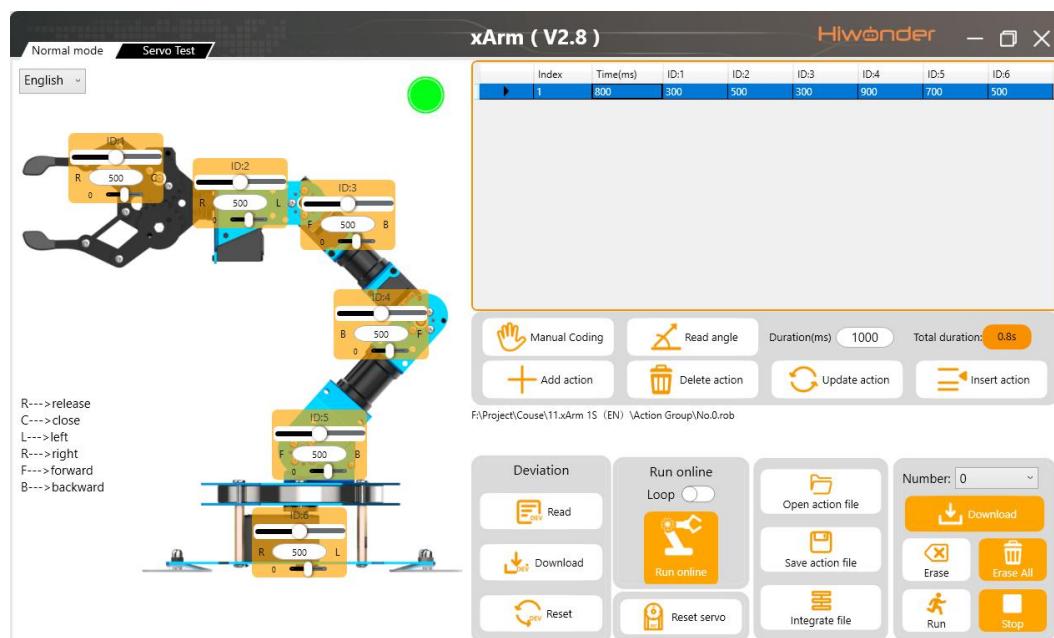
(Note: The action programmed in this section is only for the programming learning. If you need the standard actions, please go to the folder "Appendix/Action Group".)

2. Complete Program

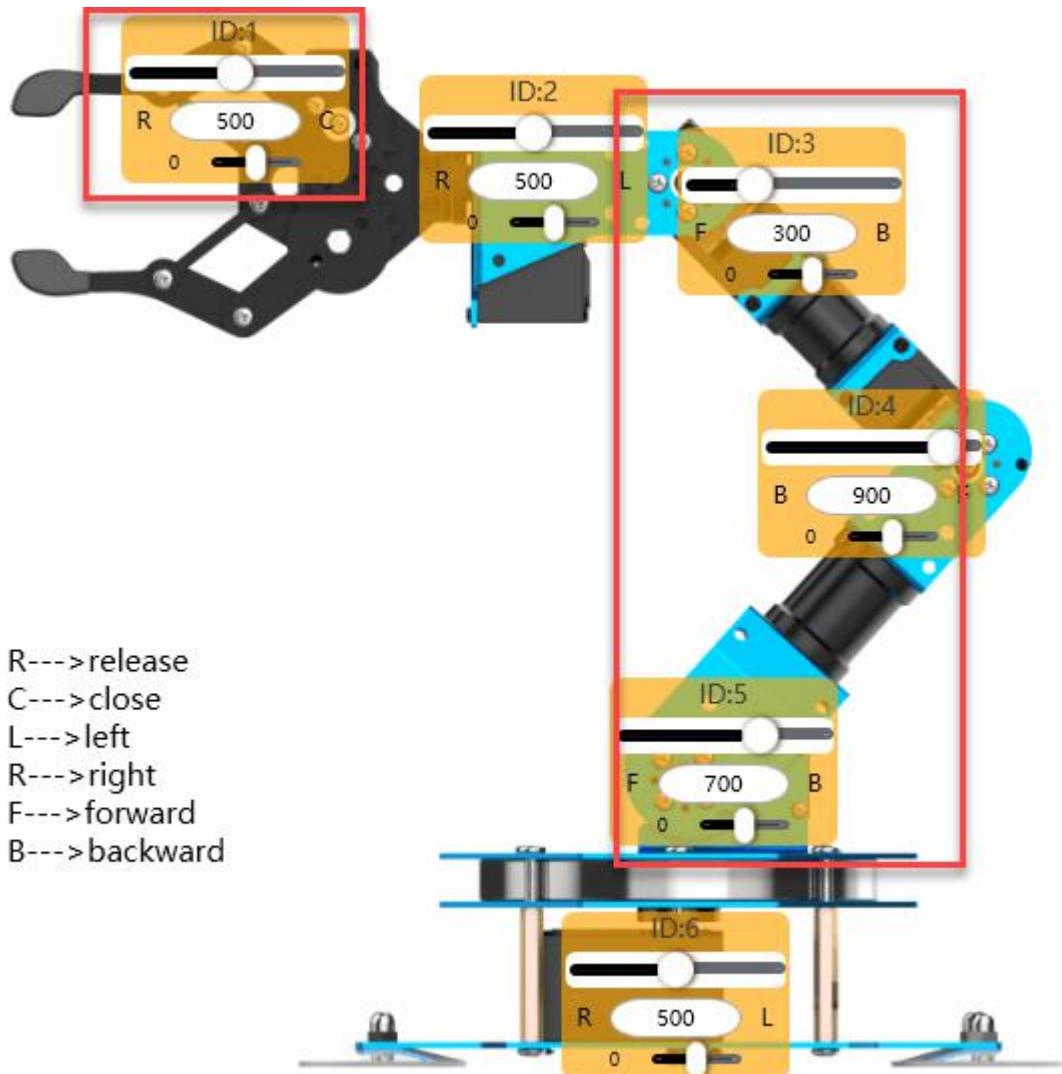
2.1 Action Programming

Step 1: Turn on robotic arm and connect to computer. Double click to open the PC software.

Step 2: Click “Action File” to open provided folder and select No.0 action group. Click “Run-online” to updated the servo data on the left side, which is the first action.



Step 3: Program the robotic arm to bend forward and open the gripper. Drag the sliders of servos of ID1, 3, 4, 5 to the value as shown in the figure:

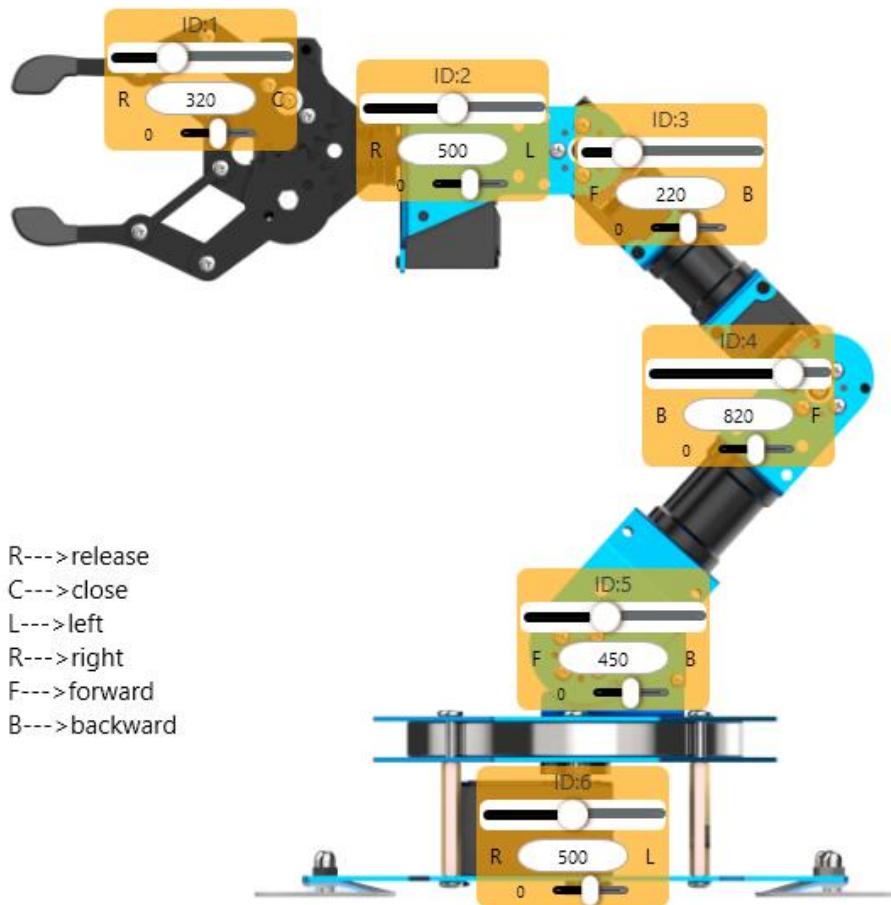


Hold down the left mouse button and quickly click the slider to make fine adjustments.

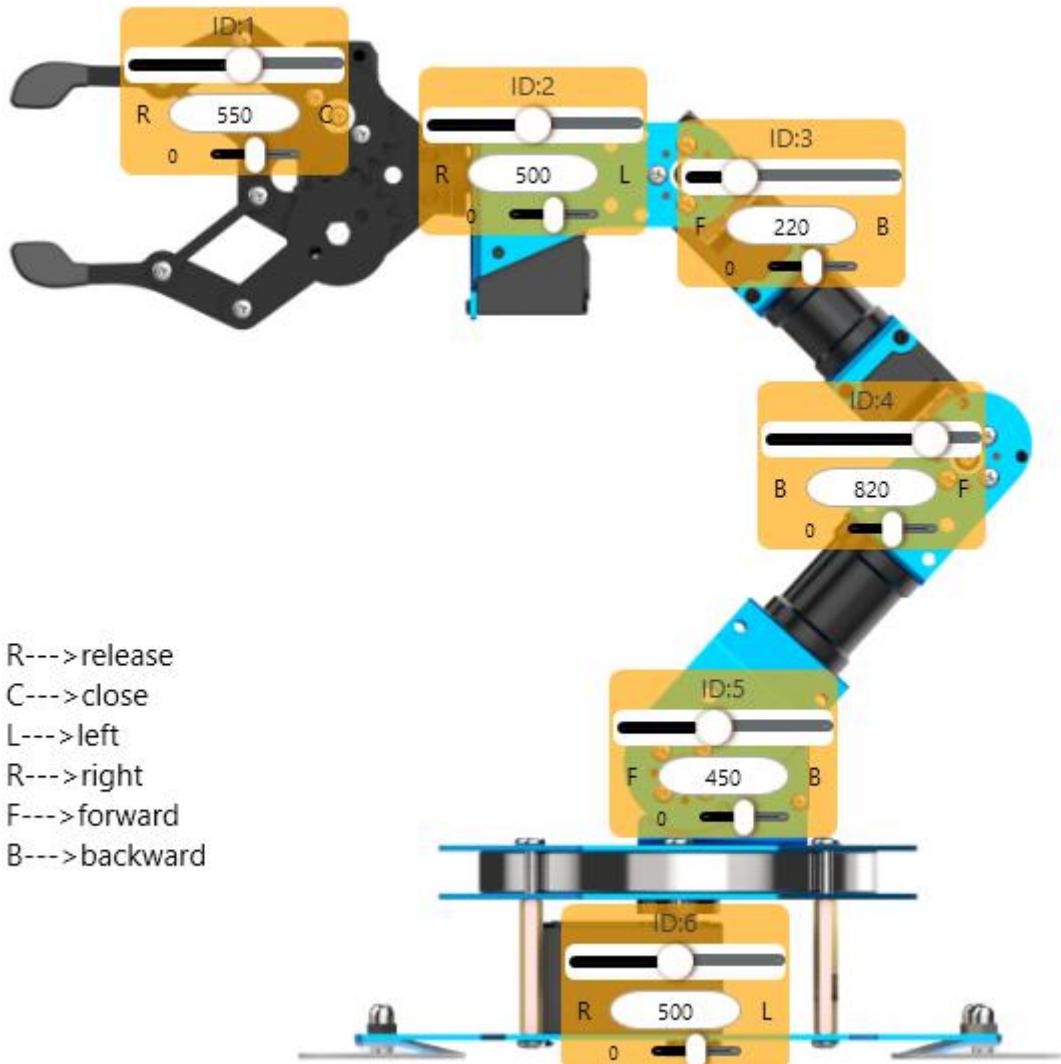
Step 4: Click “Add Action” to add the second action into the list.

	Index	Time(ms)	ID:1	ID:2	ID:3	ID:4	ID:5	ID:6
	1	800	300	500	300	900	700	500
▶	2	1000	300	500	360	720	470	500

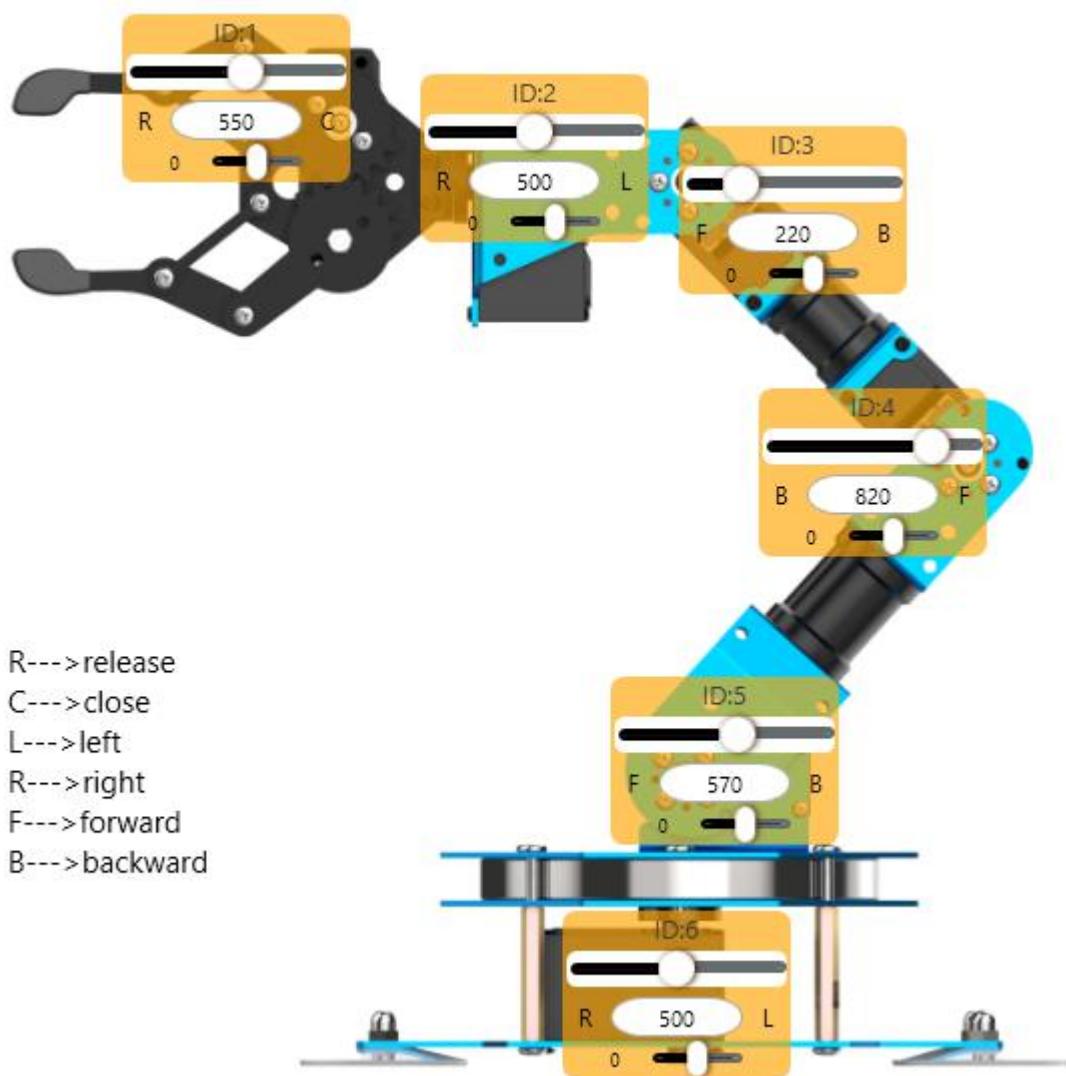
Step 5: Lower the robotic arm a little bit and make fine adjustment of the gripper, which are the preparation of the next step of gripping. Please drag the servos of ID 1, 3, 4 to the value in the figure.



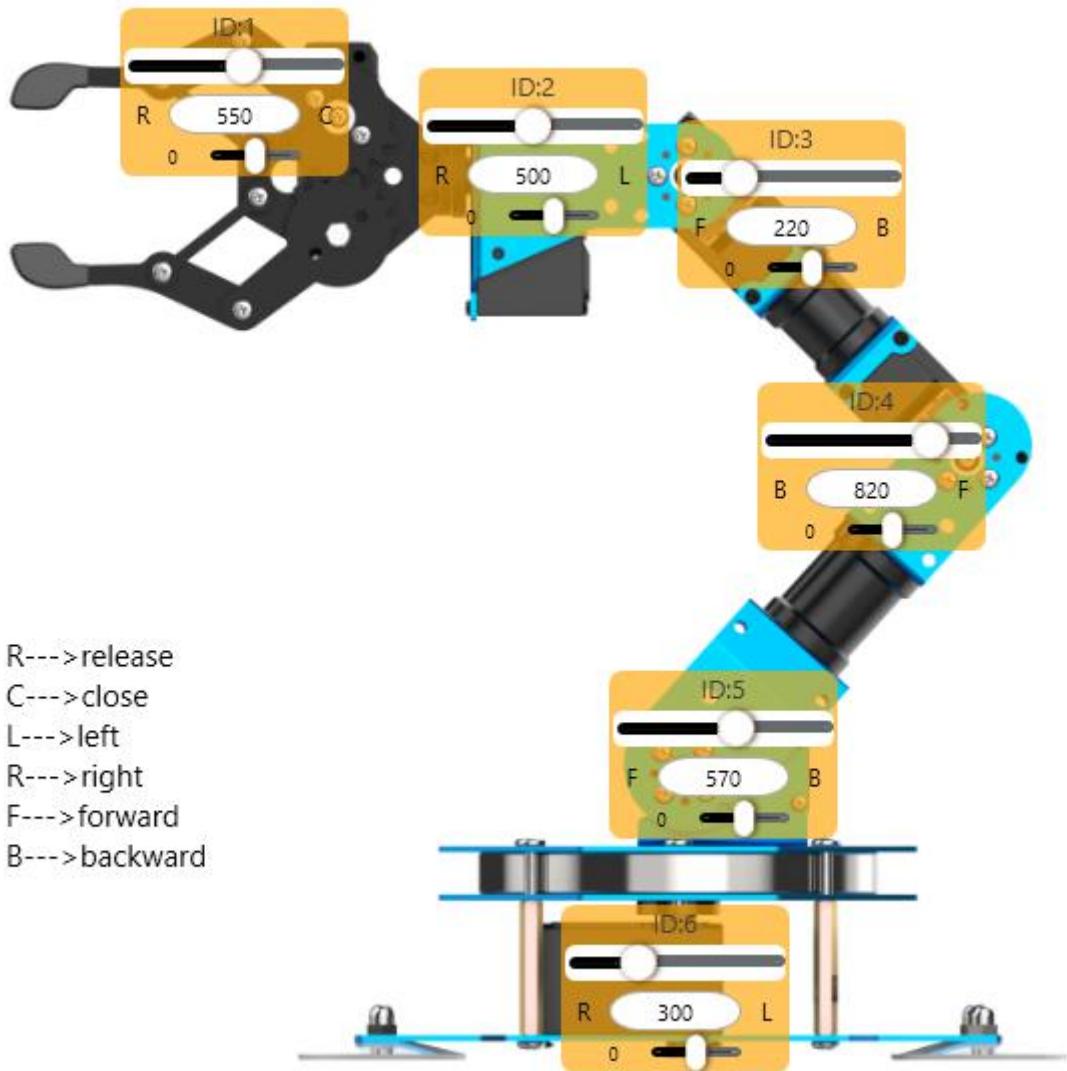
Step 6: Set the close the gripper to pick up. Do not forget to add the fourth action into the list.



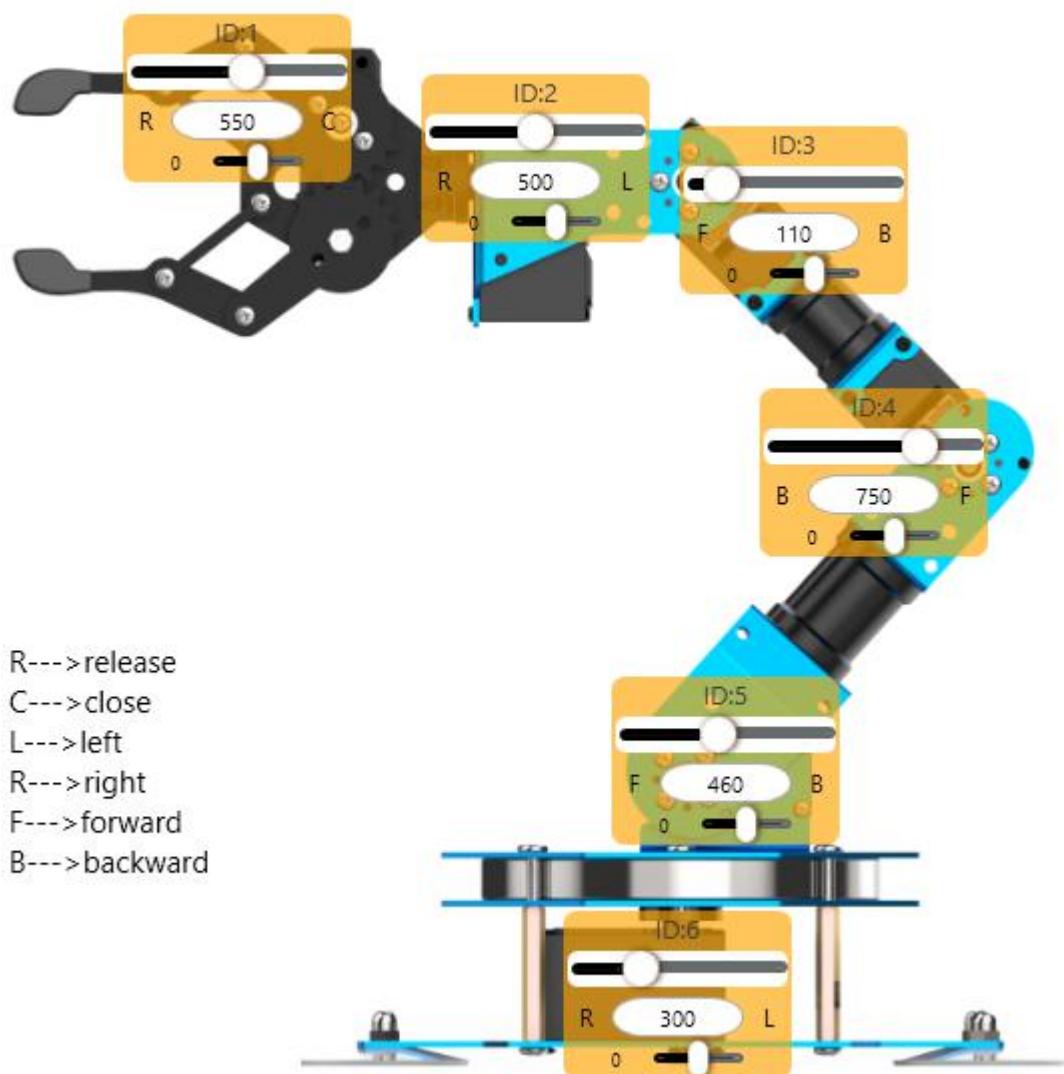
Step 7: Hold the block and then raise the arm. Please adjust the position of servo 5.



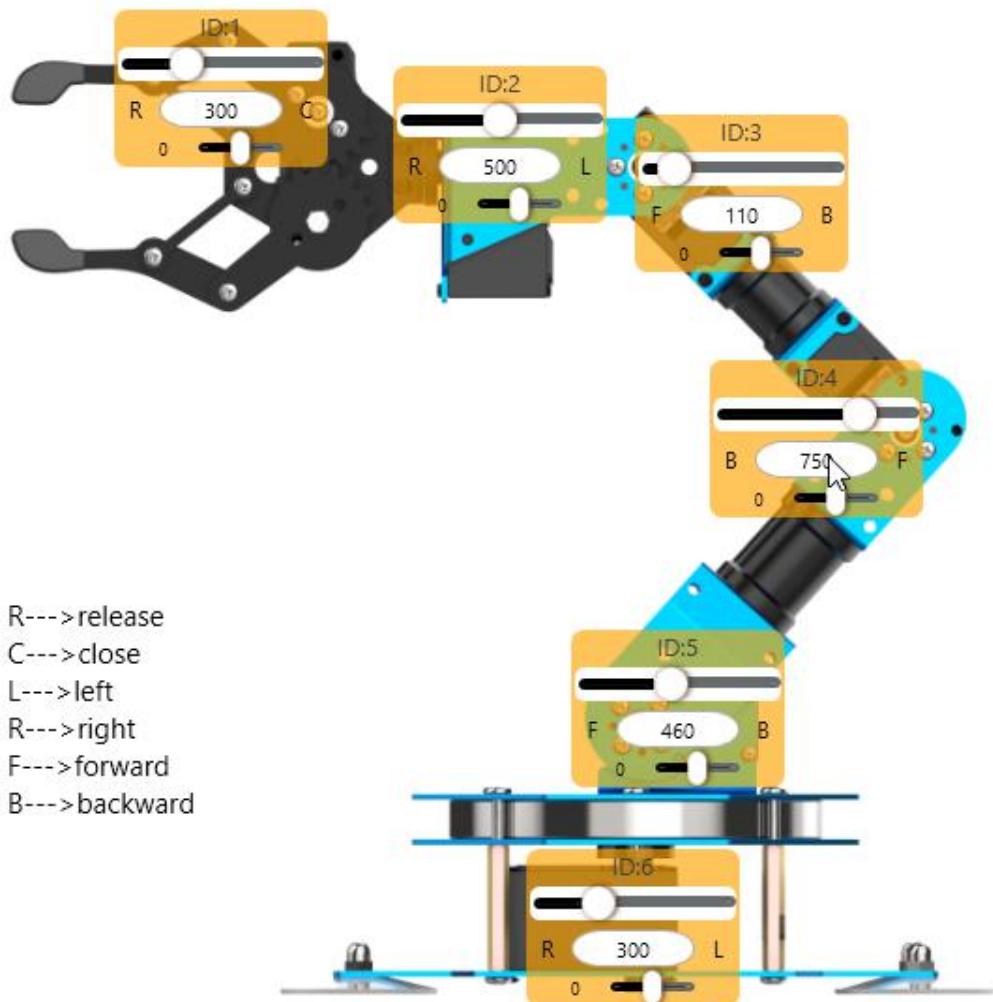
Step 8: Adjust the servo 6 to rotate the base.



Step 9: After reaching the designated position, lower the robotic arm and open the gripper to put down the block.



Step 10: Release the gripper and then put down the block.



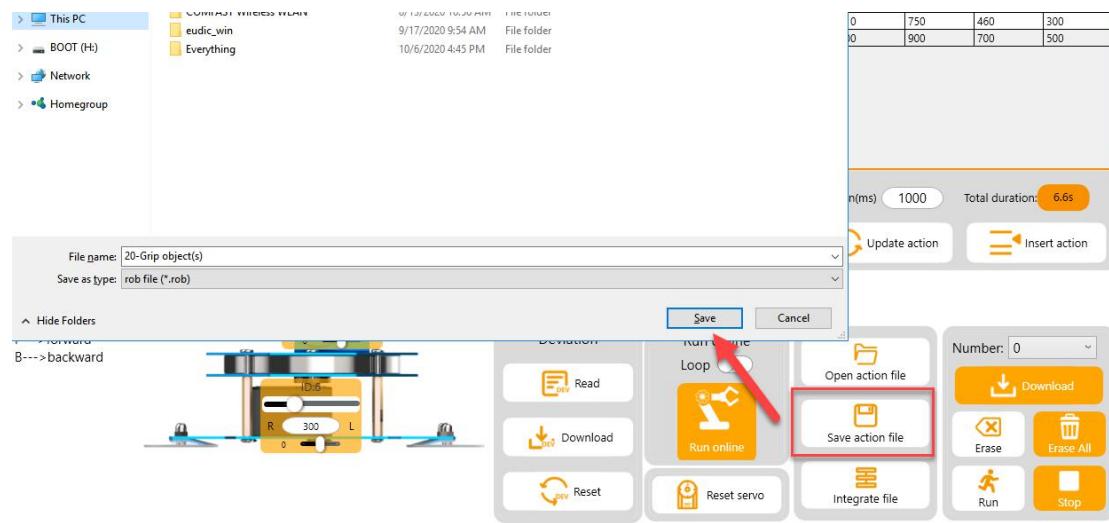
Step 11: Set the robotic arm to the initial position. Right-click the No.1 action, select “Copy” and then right-click the No.8 action to paste down.

	Index	Time(ms)	ID:1	ID:2	ID:3	ID:4	ID:5	ID:6
	1	800	300	500	300	900	700	500
	2	1000	300	500	300	900	700	500
	3	1000	320	500	220	820	450	500
	4	400	550	500	220	820	450	500
	5	1000	550	500	220	820	570	500
	6	1000	550	500	220	820	570	300
	7	1000	550	500	110	750	460	300
	8	1000	300	500	110	750	460	300
▶	9	800	300	500	300	900	700	500

Copy
Paste upward
Paste down
Replace copy with current
Run online from current index

2.2 Download Action Group

Step 1: After programming, please save the action group into your computer for later debugging. Click “Save action file” and fill in the file name then save it (see example below).



Step 2: Download the action group into xArm 1S. Select number and click

button to download. There will be a beep sound if succeed to download the action group.

