

## Lesson 2 Action Group Programming

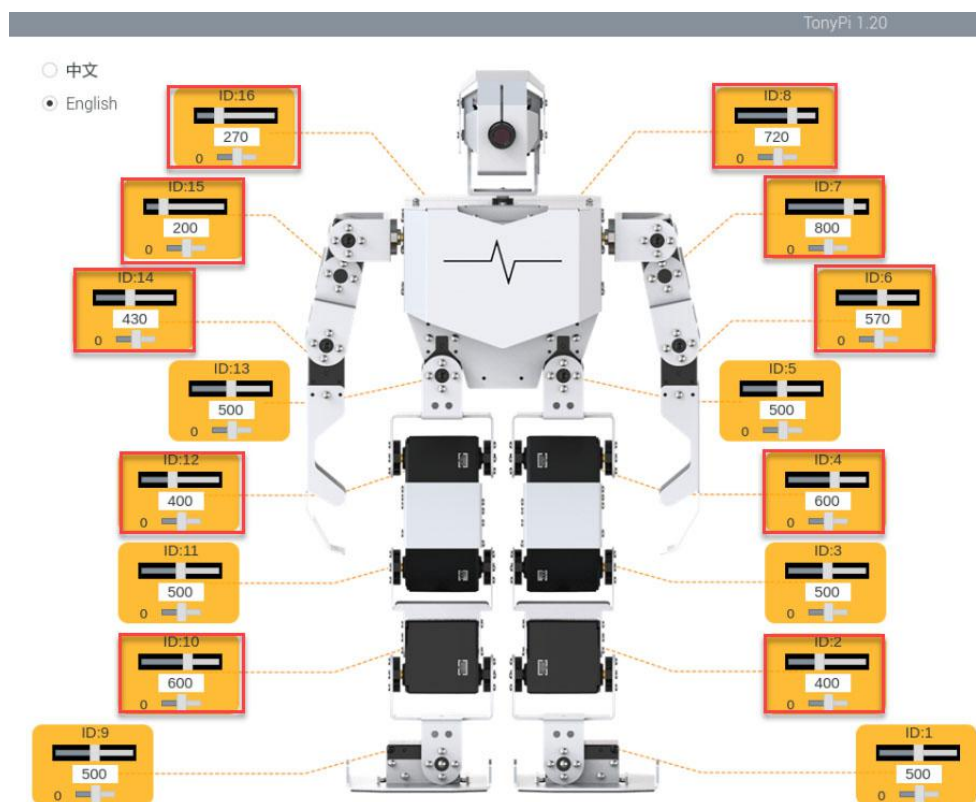
### 1. Project Outcome

Program an action group consisting of 8 actions to allow the TonyPi to “Bow”.

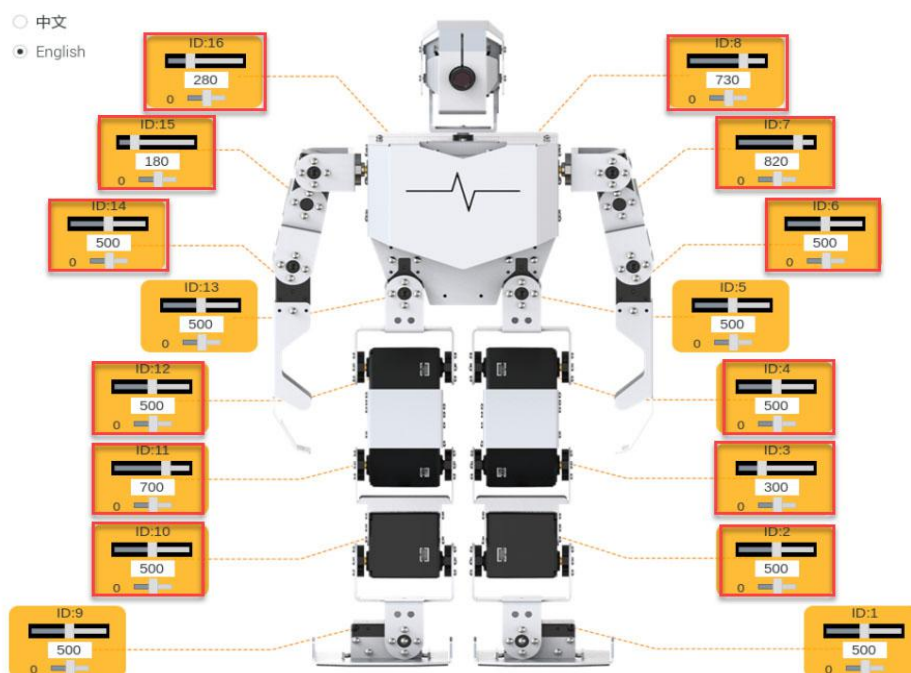
### 2. Complete Program

#### 2.1 Action Programming

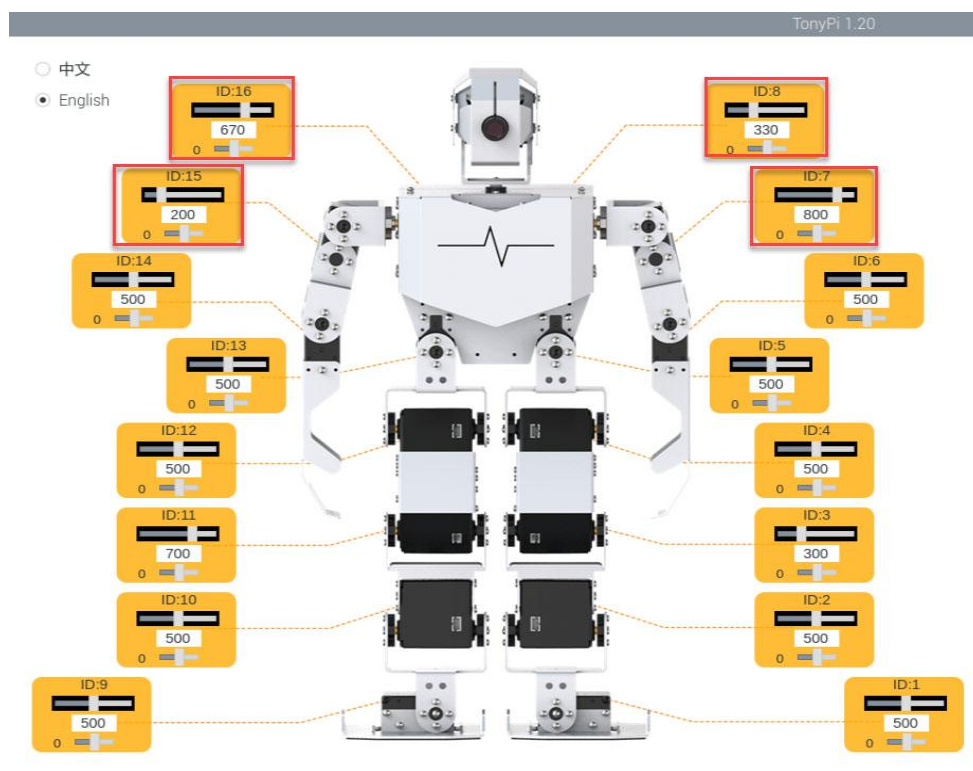
Step 1: After the TonyPi robot is started, revise action data of the 16 servos according to figure below. Click the “Add action” button to save the first action.



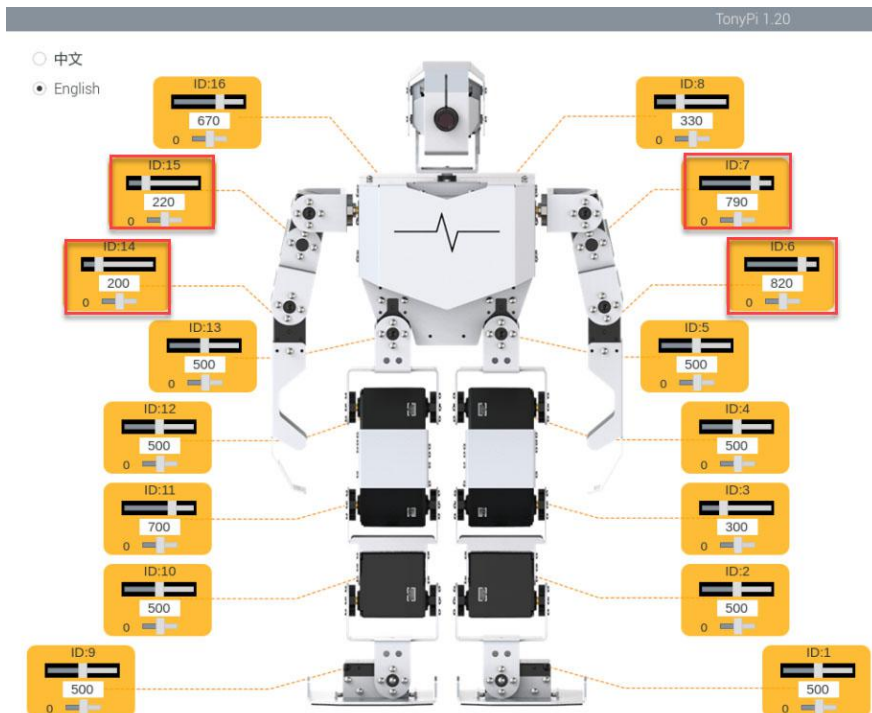
Step 2: Program to straighten the robot arms and knees. Take the data in below picture for reference. Then click “Add action” button to add the action as No.2. Do not forget to add each single action into the list.



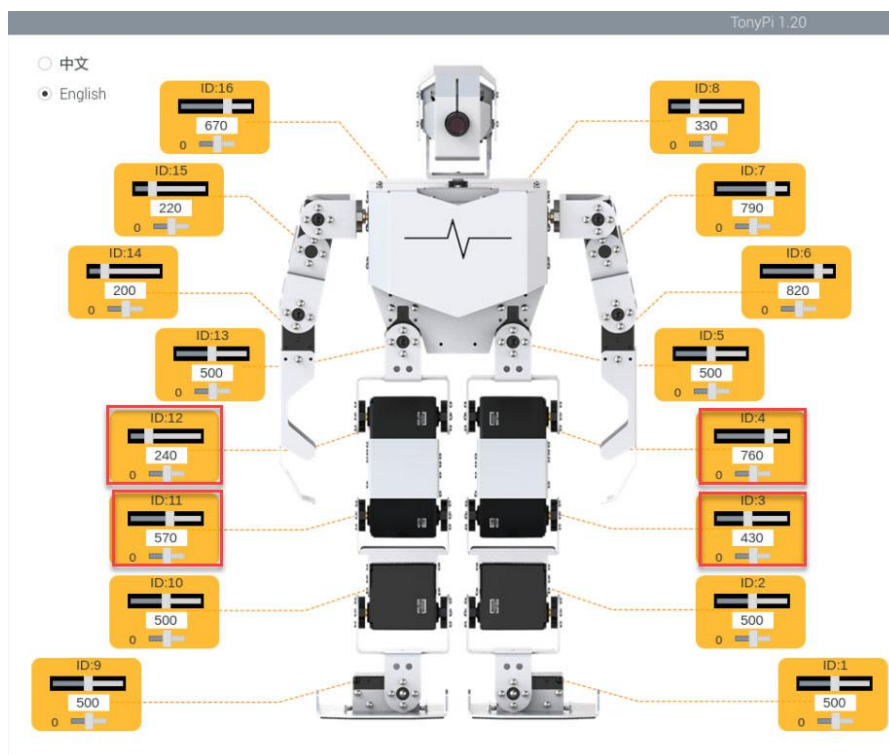
**Step3:** Modify the servo data as shown in the figure below to raise the arm as the No.3 action.



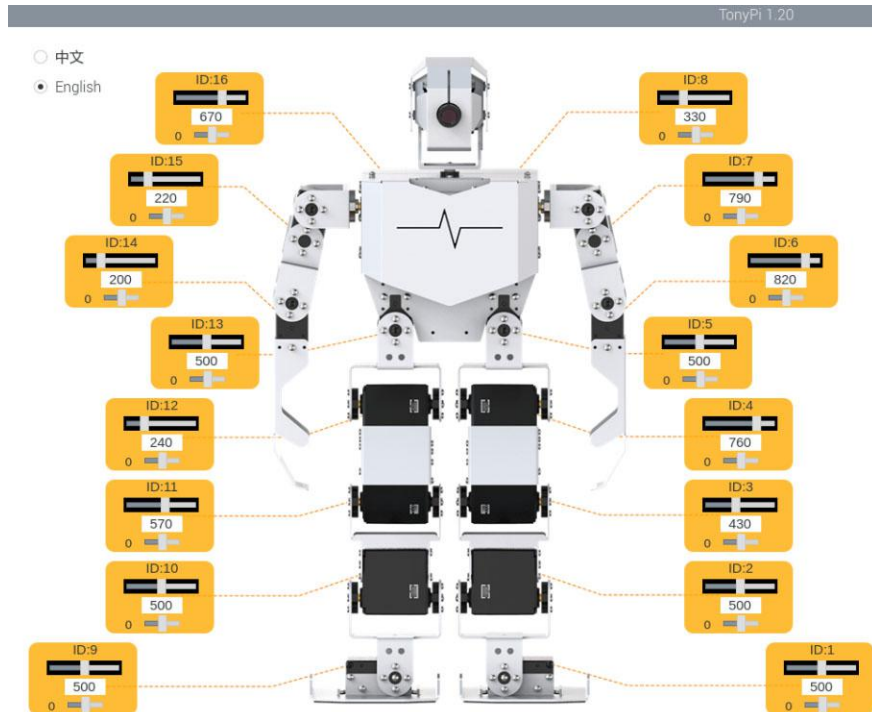
**Step 4:** Adjust the arm for the “Bow” post.



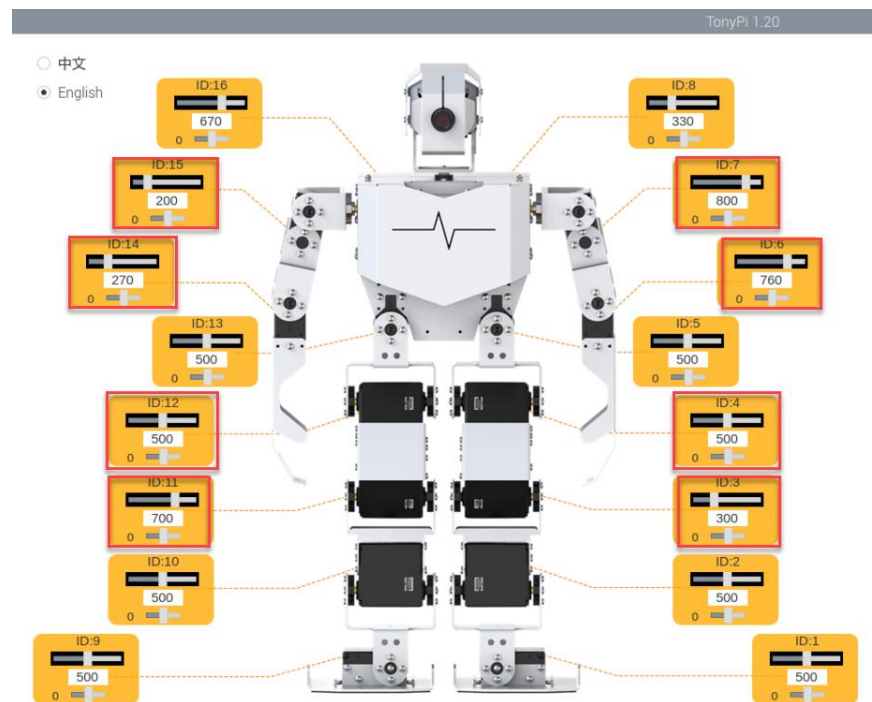
**Step5:** Allow the robot “Bow”, and according to the servo value shown in the figure below to adjust, make it the No.5 action.



**Step 6:** To make the action more natural, the No.6 action is the same as No.5 action. Here we continue to click “Add action”.

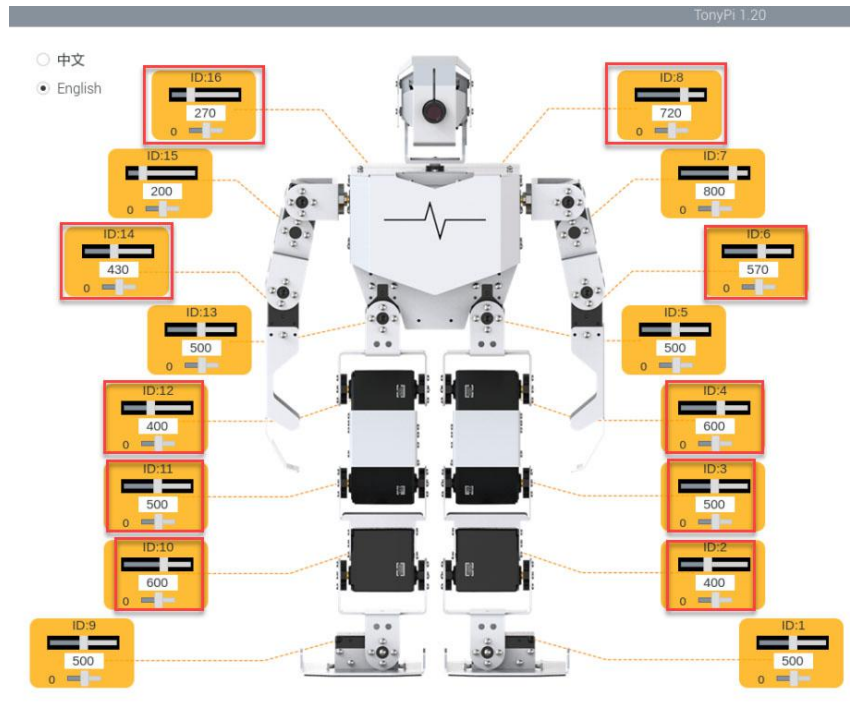


**Step7:** Then make the robot straighten its body, but keep its arms in a bowing position. According to the servo value shown in the figure below.





**Step 8:** Finally, allow the robot recover its initial posture, and modify each servo data to be consistent with the action No.1, then click “Add action”, As shown in the figure below.



The all parameter of the action groups as shown in table below: (The red value is the servo data needed to be adjusted. )

Index	Time	ID1	ID2	ID3	ID4	ID5	ID6	ID7	ID8	ID9	ID10	ID11	ID12	ID13	ID14	ID15	ID16
1	500	500	400	500	600	500	570	800	720	500	600	500	400	500	430	200	270
2	500	500	500	300	500	500	500	820	730	500	500	700	500	500	500	180	280
3	500	500	500	300	500	500	500	800	330	500	500	700	500	500	500	200	670
4	500	500	500	300	500	500	820	790	330	500	500	700	500	500	200	220	670
5	700	500	500	430	760	500	820	790	330	500	500	570	240	500	200	220	670
6	700	500	500	430	760	500	820	790	330	500	500	570	240	500	200	220	670
7	600	500	500	300	500	500	760	800	330	500	500	700	500	500	270	200	670
8	500	500	400	500	600	500	570	800	720	500	600	500	400	500	430	200	270

## 2.2 Save Action group

After programming, please save the action group for future debugging. Click “Save action file”, choose the path “/home/pi/TonyPi/ActionGroups”, name it (such as “1\_bow”) and then click “Save” button.

