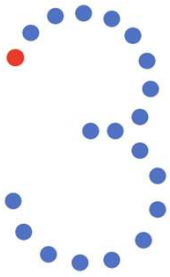
SEMTRON

THREE

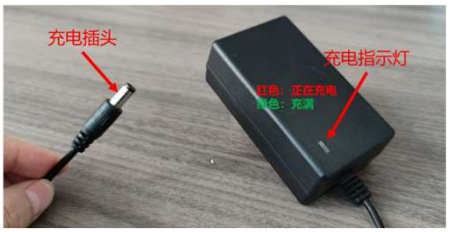
Servo Actions of Robot



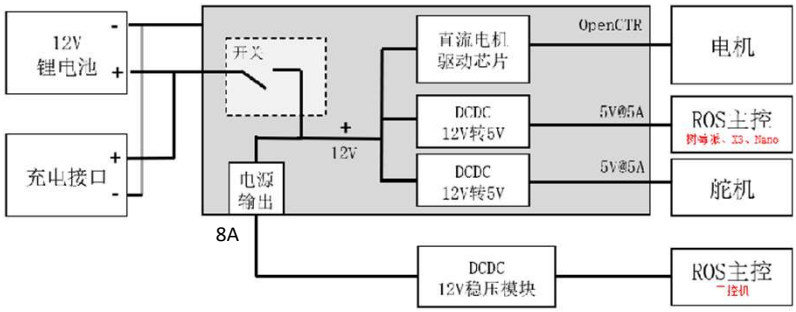
SEMTRON

XTARK robot car R22/R20-TWD

OpenCTR H60
Controller

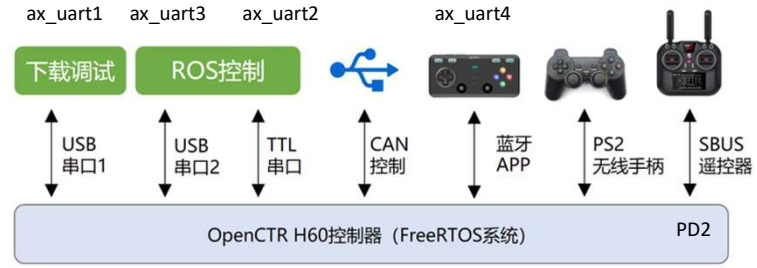


特别注意，机器人工作时不能通过充电器充电，机器人关闭后才可通过充电器充电。



XTARK robot power distribution

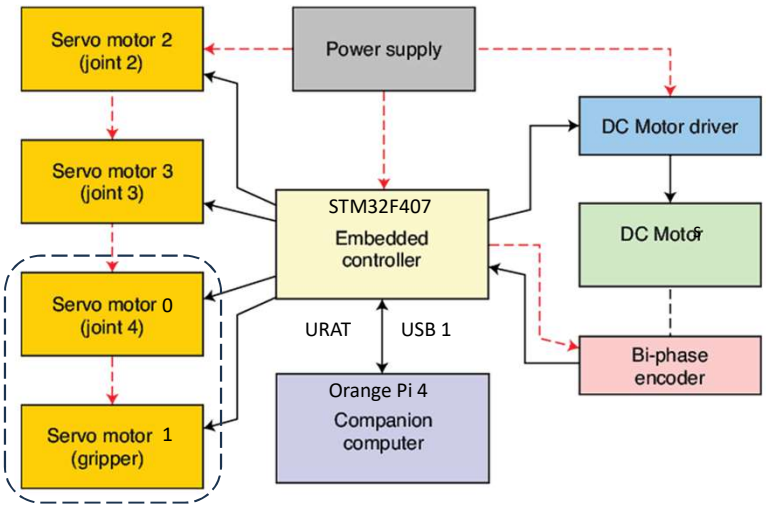
SEMTRON



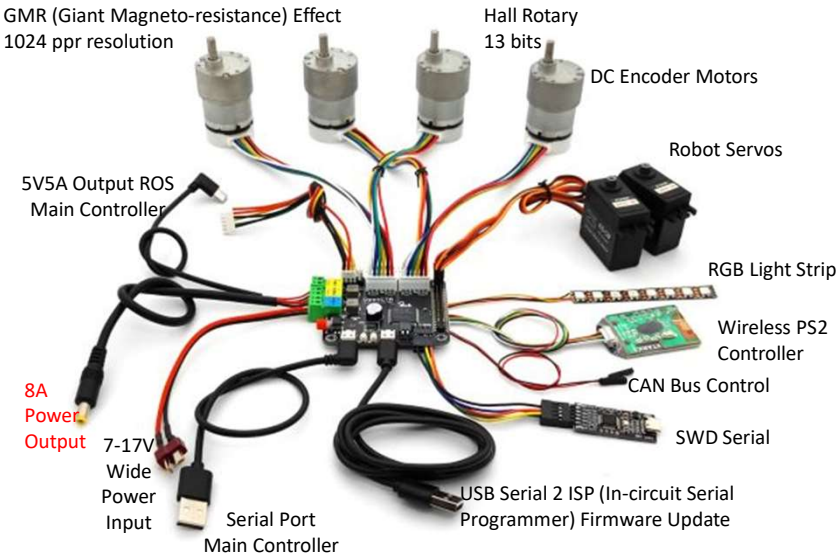
麦轮r20_mec　四轮差速r20_fwd　阿克曼r20_akm　二轮差速r20_twd　R22 系列底盘

XTARK robot family

SEMTRON



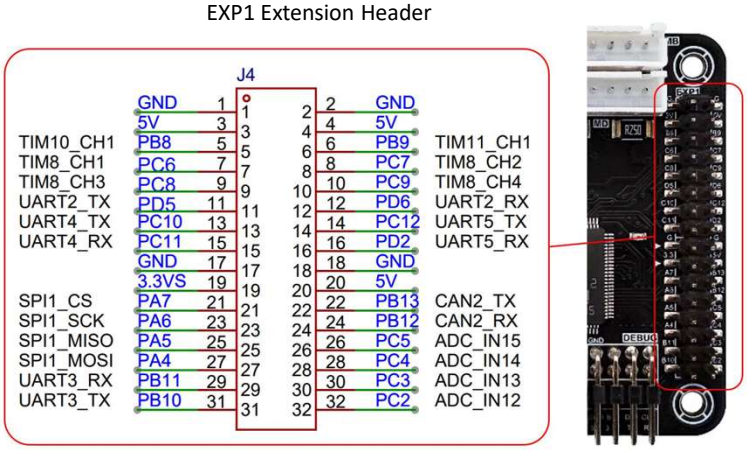
Block diagram of XTARK robot



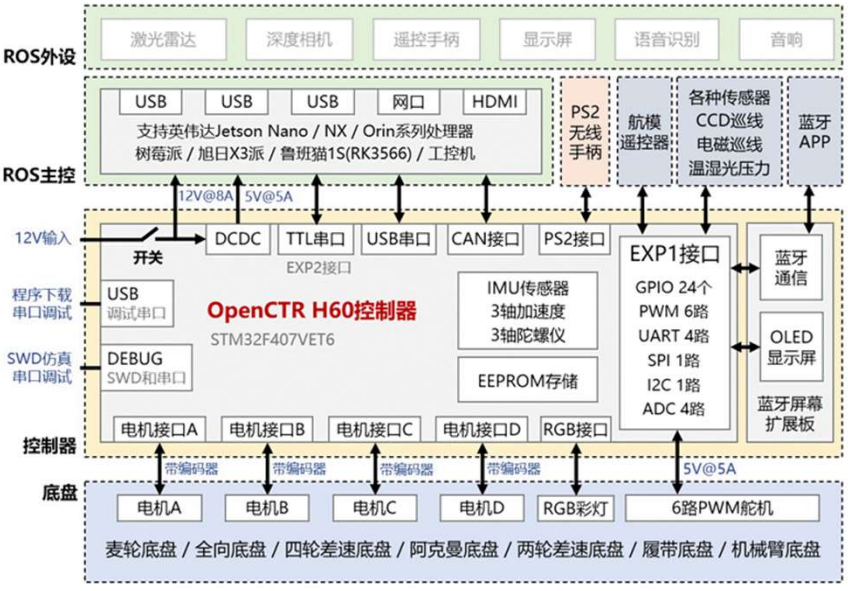
Component connections of STM32 controller

SEMTRON

EXP1 Extension Header

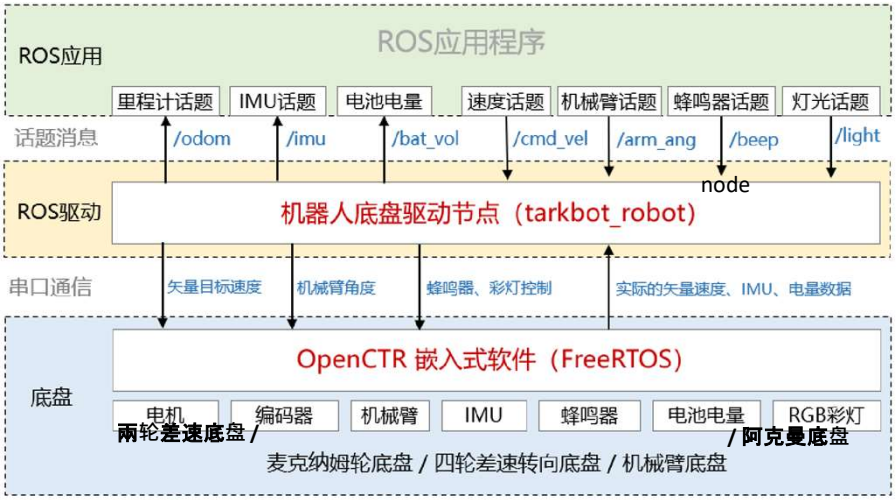


STM32 extension header EXP1



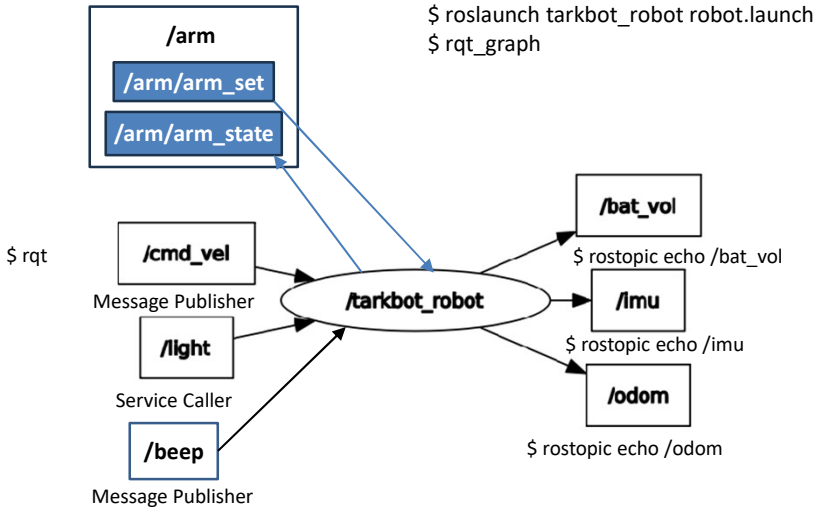
Block diagram of STM32 controller

SEMTRON



XTARK robot ROS driver

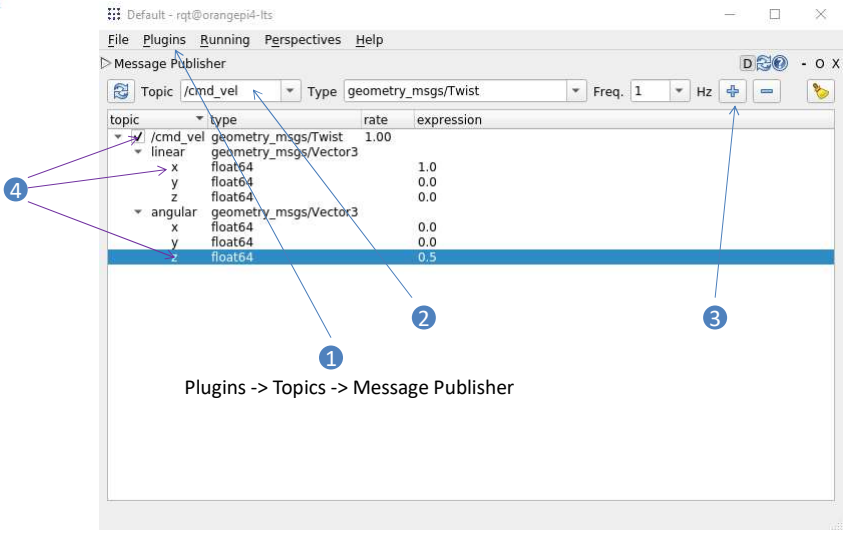
SEMTRON



rqt graph of XTARK ROS driver

SEMTRON

$ rqt

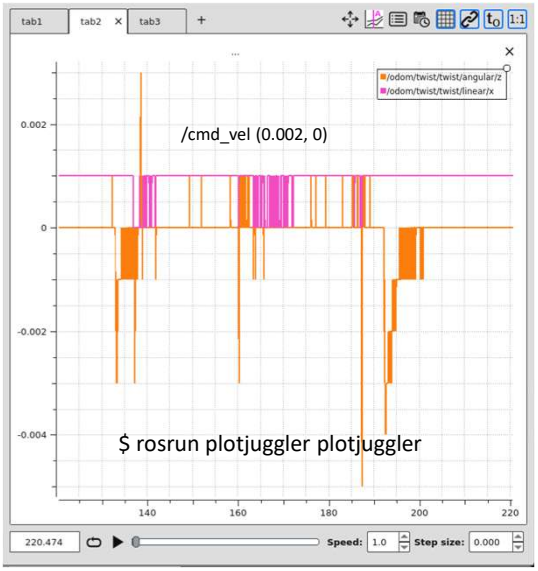


Plugins -> Topics -> Message Publisher

ROS /cmd_vel publisher

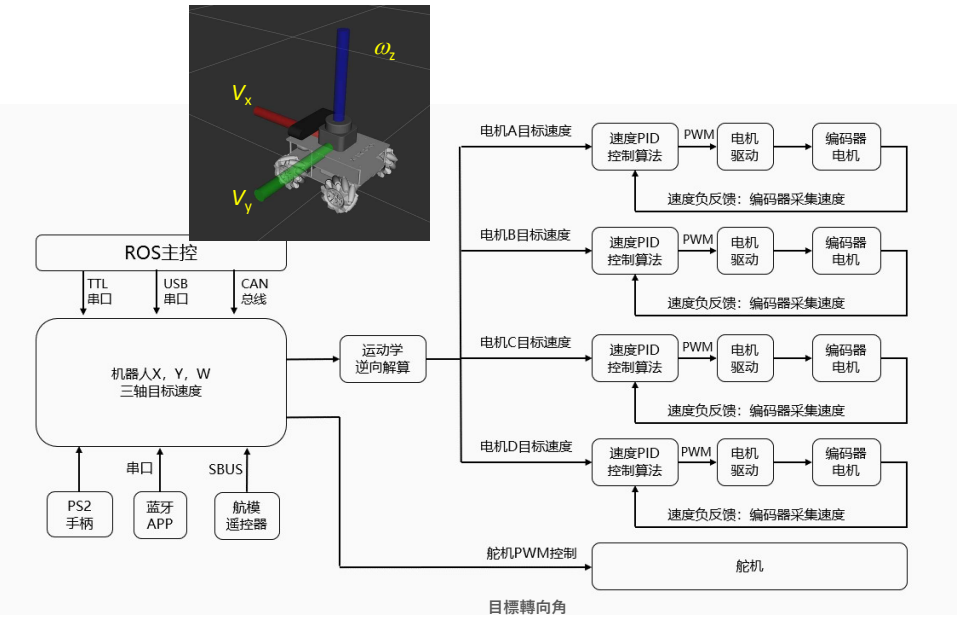
SEMTRON

$ sudo apt install ros-$ROS_DISTRO-plotjuggler-ros



$ rosrun plotjuggler plotjuggler

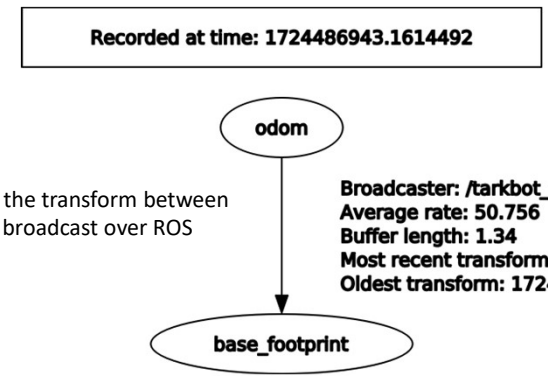
XTARK odometry records



Motor & servo controls by STM32

SEMTRON

$ rosrun tf tf_echo odom base_footprint
$ rosrun rqt_tf_tree rqt_tf_tree



tf_echo reports the transform between any two frames broadcast over ROS

ROS /tf publisher

SEMTRON

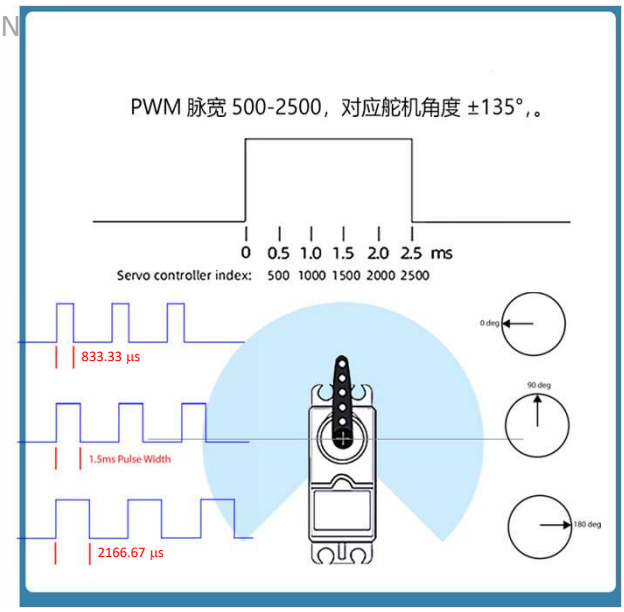
Position Servos for Actions

金属数字舵机 参数说明			
舵机型号	Yeahbot TBS-K20	转向角度	270°
输入电压	5 -8.4V（高压舵机）	反应速度	0.16 sec/60° (6V)
堵转扭力	15.5 kg-cm (6V)	死区宽度	3 μ sec
防烧功能			

EXP1

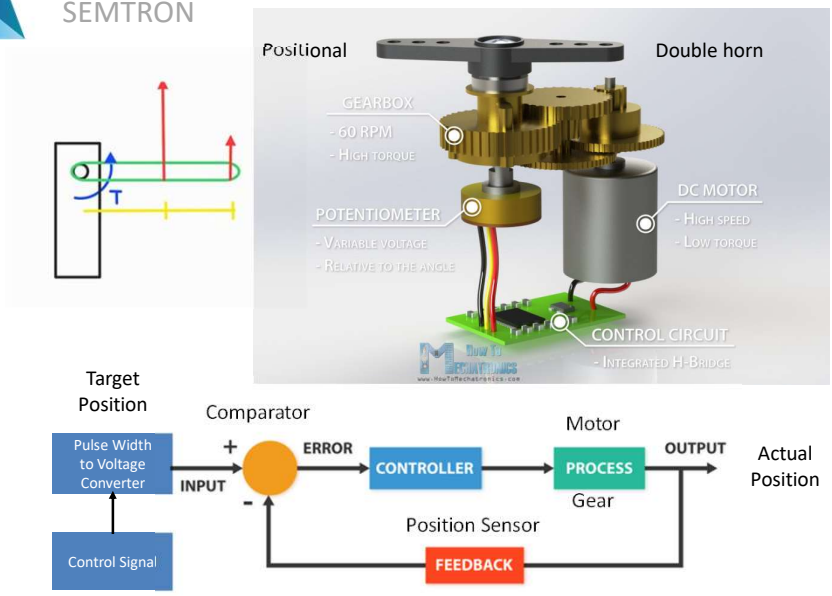
SEMTRON

50 Hz



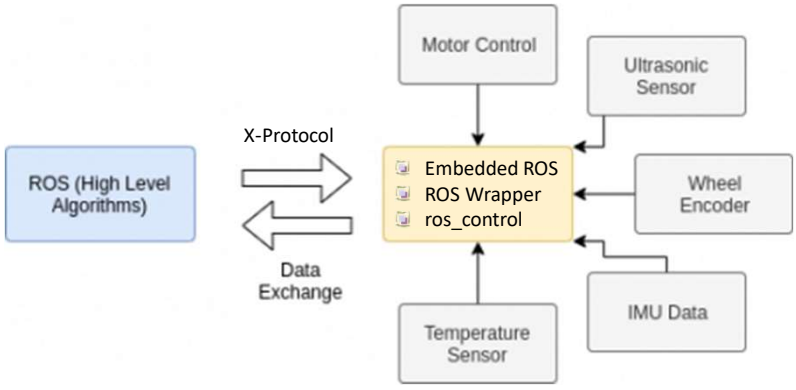
Servo position control

SEMTRON



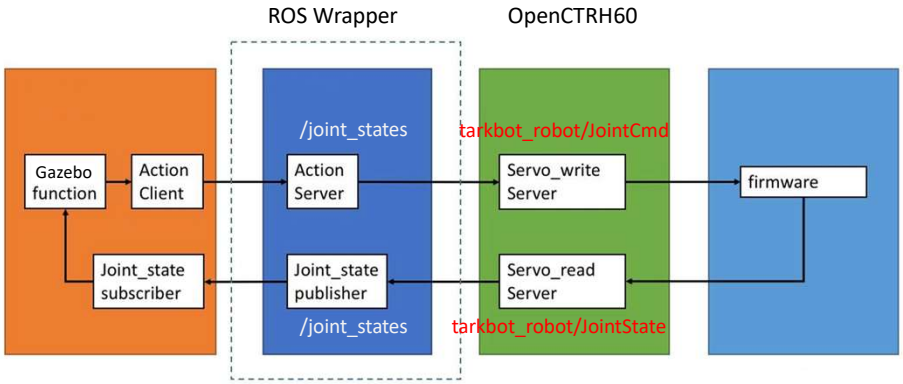
Servo position control

SEMTRON



ROS servo driver

SEMTRON



ROS servo driver

```
xtark@tarkbot:~$ rostopic pub /arm/arm_set tarkbot_robot/JointCmd "header:
  seq: 0
  stamp:
    secs: 0
    nsecs: 0
  frame_id: ''
joint_num: 0
joint_pos: [0.5, -0.67, -1.5, -1.0, 0.0, 0.0]"
```

radian

```
xtark@tarkbot:~$ rostopic echo /arm/arm_state
header:
  seq: 30631
  stamp:
    secs: 0
    nsecs:         0
  frame_id: ''
joint_num: 0
joint_pos: [28.0, -38.0, -85.0, -57.0, 0.0, 0.0]
---
header:
  seq: 30632
  stamp:
    secs: 0
    nsecs:         0
  frame_id: ''
joint_num: 0
joint_pos: [28.0, -38.0, -85.0, -57.0, 0.0, 0.0]
---
```

tarkbot_robot/JointState

degree

XTARK servo topics

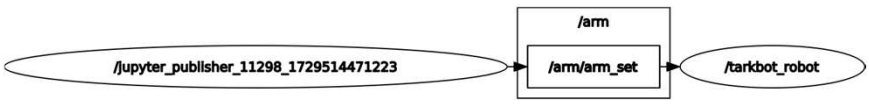
```
sensor_msgs::JointState topic:joint_states:

std_msgs/Header header
string[] name
float64[] position
float64[] velocity
float64[] effort
```

```
header:
  seq: 228
  stamp:
    secs: 1479873728
    nsecs: 257888078
  frame_id: ''
name: ['shoulder_base', 'upper_arm_shoulder', 'elbow_upper_arm',
'forearm_elbow', 'wrist_forearm', 'gripper_wrist', 'left_jaw_gripper',
'right_jaw_gripper']
position: [0.0, 0.0, 0.0, 0.0, 0.0, 1.2491756999999999, 0.0, 0.0]   ← DOF
velocity: []
effort: []
```

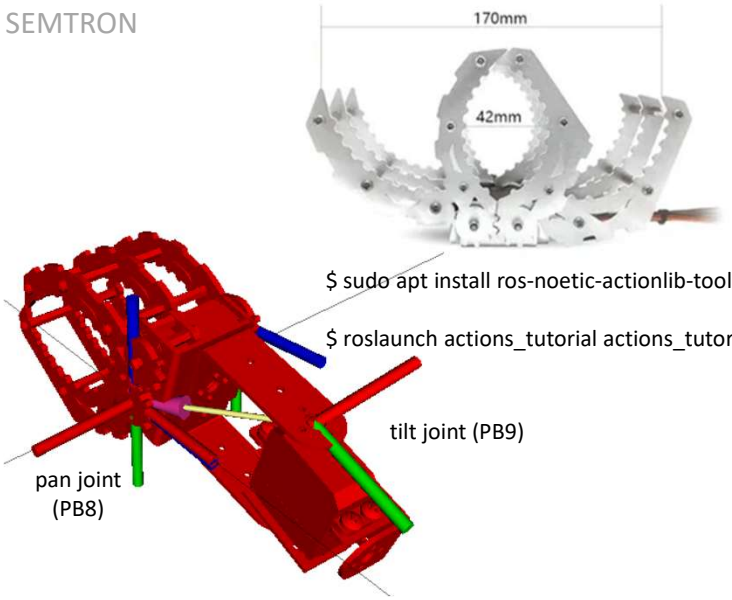
ROS JointState message

SEMTRON



Servo control in rospy

SEMTRON

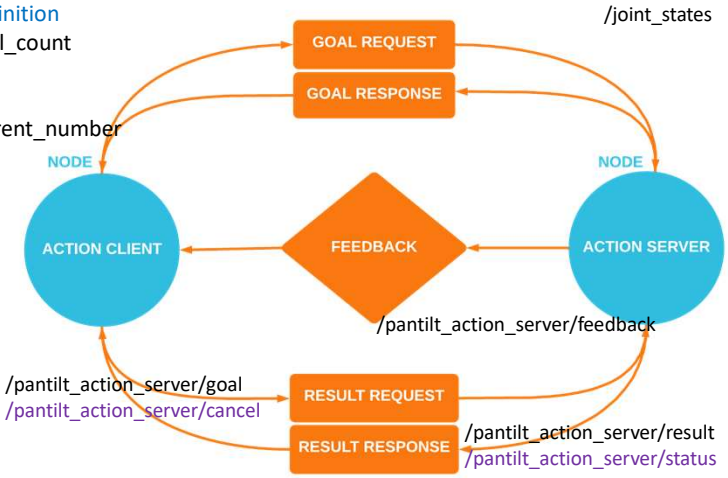


$ sudo apt install ros-noetic-actionlib-tools

$ roslaunch actions_tutorial actions_tutorial.launch

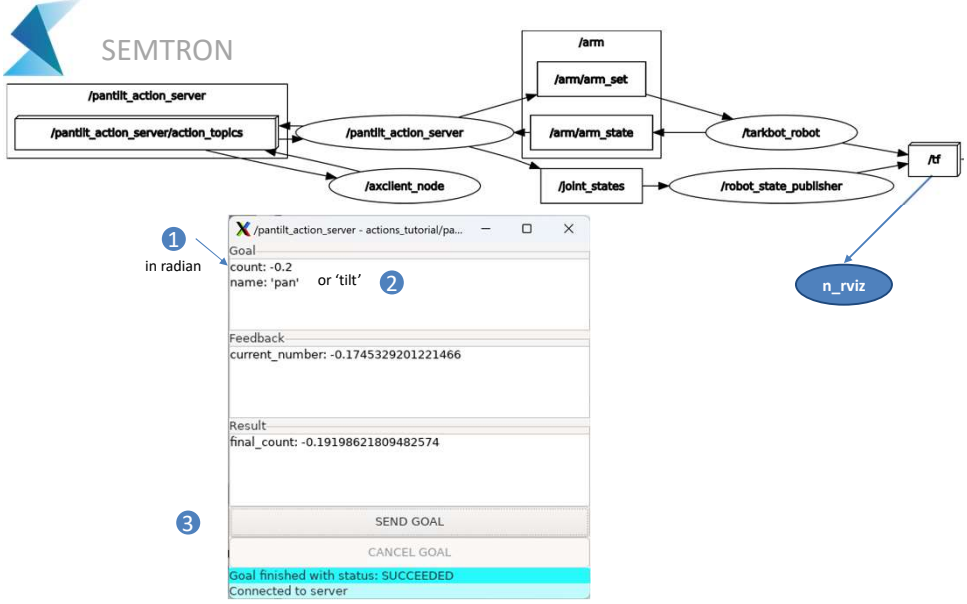
Demo servo actions

```
# goal definition (request)
float32 count
string name
---
# result definition
float32 final_count
---
# feedback
float32 current_number
```



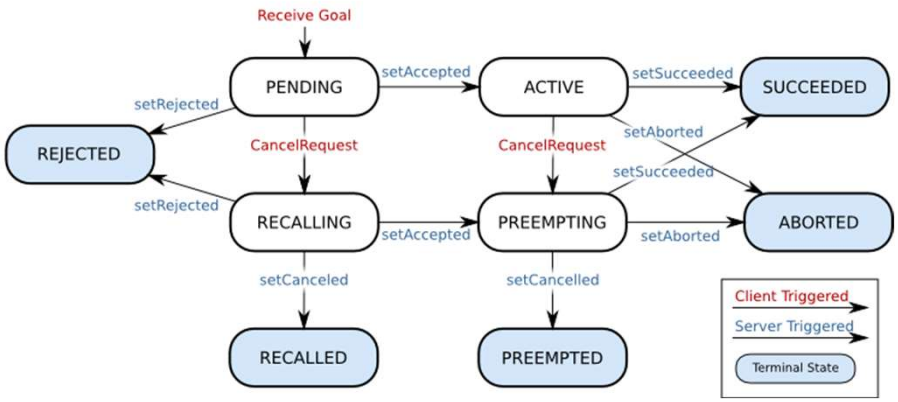
Demo servo actions

SEMTRON



Demo servo actions

SEMTRON



Demo servo actions