9.1、Basic communication of ROS robot

9.1.1、Node settings

Jetbot-mini needs to realize the functions: trolley movement speed, direction control, battery voltage feedback, buzzer control, LED light control, steering gear control.

The content of setting the Jetbot-mini bottom driver node according to the requirements is as follows:

- Topic

  Publish battery voltage message【/voltage】

- Service (client)

  Receive buzzer control message【/Buzzer】

  Receive blue LED control message【/LEDBLUE】

  Receive green LED control message【/LEDGREE】

  Receive servo control message【/Servo】

  Receive motor control messages【/Motor】

9.1.2、Node data view

1. Start up

```
roscore
rosrun jetbot_ros jetbotmini_driver.py
```

2. View service

```
rosservice list
```

The system will print the following content:

```
/Buzzer
/LEDBLUE
/LEDGREE
/Motor
/Servo
/driver_node/get_loggers
/driver_node/set_logger_level
/rosout/get_loggers
/rosout/set_logger_level
```

Command publishing service

```
# buzzer
rosservice call /Buzzer "buzzer: 1" # Turn on the buzzer
rosservice call /Buzzer "buzzer: 0" # Turn off the buzzer
# Blue LED
rosservice call /LEDBLUE "ledblue: 1" # Turn on the blue LED
```

```
rosservice call /LEDBLUE "ledblue: 0" # Turn off the blue LED
# Green LED
rosservice call /LEDGREE "ledgree: 1" # Turn on the green LED
rosservice call /LEDGREE "ledgree: 0" # Turn off the green LED
# Servo
rosservice call /Servo "angle: 0
servoid: 1"                          # Servo steering gear 1 angle 0
# Motor
rosservice call /Motor "rightspeed: 0.4
leftspeed: 0.4"                         # The left and right motors move forward
at a speed of 40%
```

- Servo

  【servoid】: [1: Servo S1, 2: Servo S2]
  【angle】: [0, 180], Corresponding to the servo angle.

- Motor

  【rightspeed】: [-1, 1], The right motor speed is less than 0 to reverse, and greater than 0 to forward.
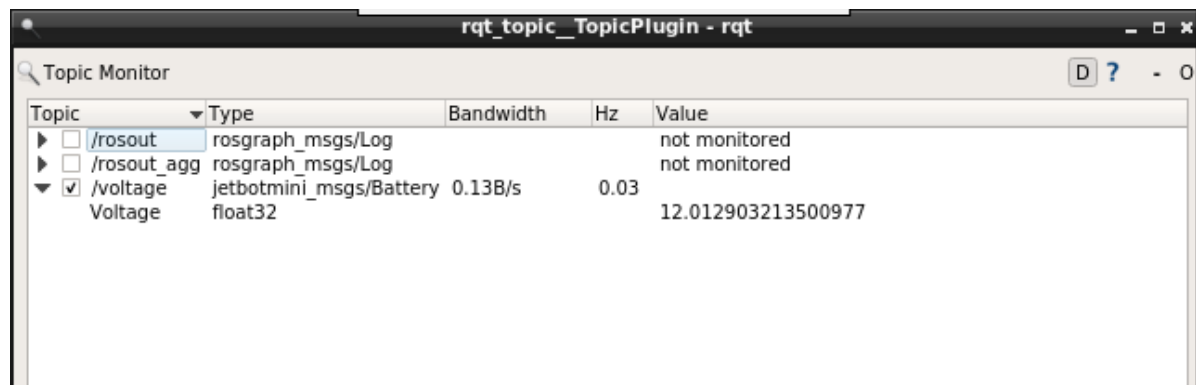 【leftspeed】: [-1, 1], The motor speed on the left is less than 0 for reverse rotation, and greater than 0 for forward rotation.

Note: Do not copy when issuing the control command, you must enter the keyboard, double-click the [Tab] key to complete it.

3. View topic messages

Use rqt_topic tool.

```
rosrun rqt_topic rqt_topic
```


It can be seen from the figure that the data can be printed only if a check mark is marked in the front box. At this time, the battery voltage is 12.0V, and the battery voltage is obtained every 30s.

code path: /home/jetson/workspace/catkin_ws/src/jetbot_ros/scripts/jetbotmini_driver.py