2、Robot information release

1、Program function description

After the program runs, combined with the ROS expansion board, you can obtain the sensor information on the ROS expansion board, control the movement of the trolley, control the light strip, buzzer and other functions.

2、Program code reference path

After entering the docker container, the location of the source code of this function is located at,

```
/root/yahboomcar_ros2_ws/yahboomcar_ws/src/yahboomcar_bringup/yahboomcar_bringup
```

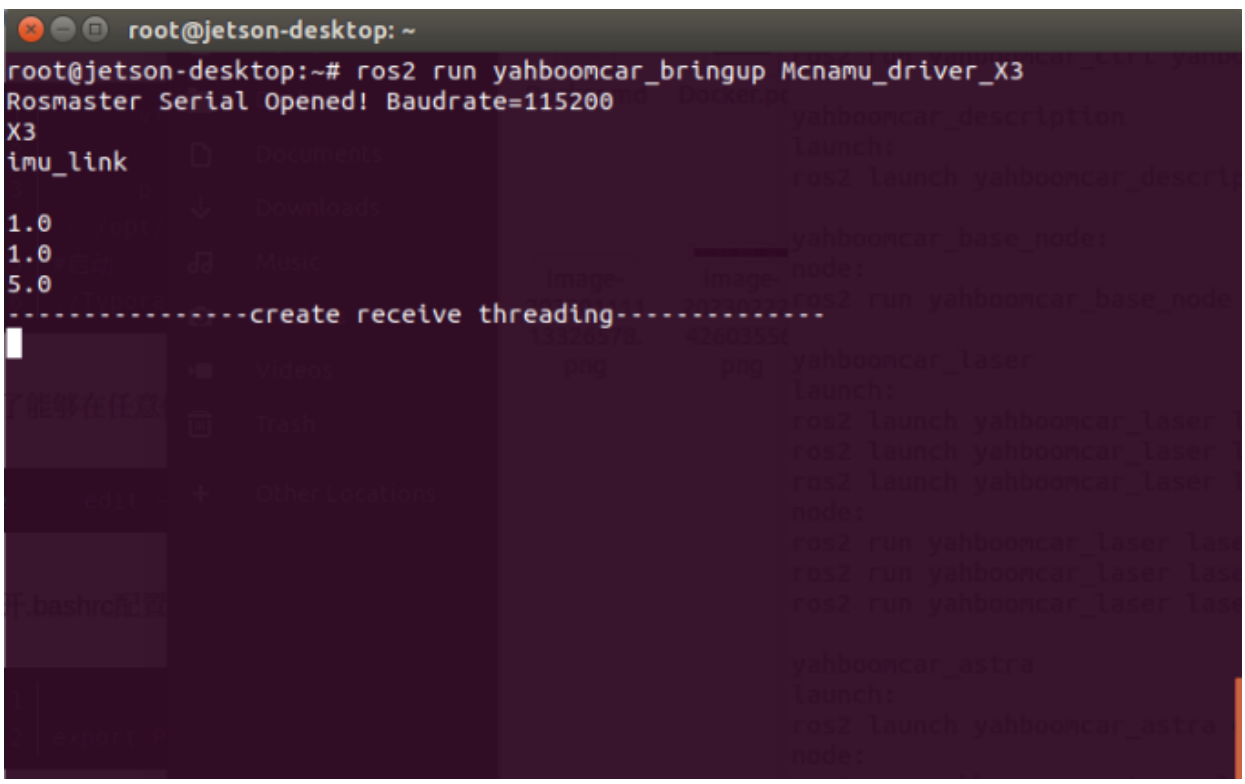
Take the X3 model as an example, **Mcnamu_driver_X3.py**, is the chassis driver code of the X3 model.

3、The program starts

3.1、start the command

After entering the docker container, according to the actual model, the terminal input,

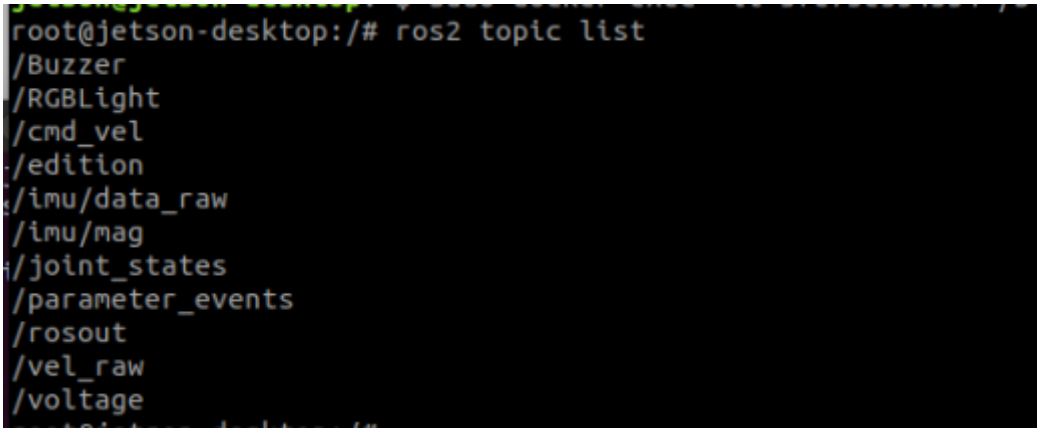
```
ros2 run yahboomcar_bringup Mcnamu_driver_X3 #X3Models
```



3.2、View node topics

Open the terminal and enter the container,

```
ros2 topic list
```



Topic name	Topic content
/Buzzer	buzzer
/RGBLight	Light strip effect control
/cmd_vel	Speed control
/edition	Version information
/imu/data_raw	IMU sensor data
/imu/mag	IMU - Magnetometer data
/vel_raw	Trolley speed information
/voltage	Battery voltage information

3.3、Read topic data

After opening the terminal and entering the container, take the reading voltage as an example,

```
ros2 topic echo /voltage
```

3.4、Publish topic data

Open the terminal and enter the container, take the release/cmd_vel data to control the trolley movement as an example,

```
ros2 topic pub /cmd_vel geometry_msgs/msg/Twist "{linear: {x: 0.5, y: 0.0, z: 0.0},
angular: {x: 0.0, y: 0.0, z: 0.2}}"
```

```
root@jetson-desktop:~# ros2 topic pub /cmd_vel geometry_msgs/msg/Twist "{linear:
 {x: 0.5, y: 0.0, z: 0.0}, angular: {x: 0.0, y: 0.0, z: 0.0}}"
publisher: beginning loop
publishing #1: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))

publishing #2: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))

publishing #3: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))

publishing #4: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))

publishing #5: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))

publishing #6: geometry_msgs.msg.Twist(linear=geometry_msgs.msg.Vector3(x=0.5, y
=0.0, z=0.0), angular=geometry_msgs.msg.Vector3(x=0.0, y=0.0, z=0.0))
```

4、Analysis of the core source code of the program

Take Mcnamu_driver_X3.py as an example,

```
from Rosmaster_Lib import Rosmaster #Import the driver library

self.car = Rosmaster()  #Instantiate the Rosmaster object

#create subcriber
self.sub_cmd_vel = self.create_subscription(Twist,"cmd_vel",self.cmd_vel_callback,1)
self.sub_RGBLight =
self.create_subscription(Int32,"RGBLight",self.RGBLightcallback,100)
self.sub_BUzzer = self.create_subscription(Bool,"Buzzer",self.Buzzercallback,100)

#create publisher
self.EdiPublisher = self.create_publisher(Float32,"edition",100)
self.volPublisher = self.create_publisher(Float32,"voltage",100)
self.staPublisher = self.create_publisher(JointState,"joint_states",100)
self.velPublisher = self.create_publisher(Twist,"vel_raw",50)
self.imuPublisher = self.create_publisher(Imu,"/imu/data_raw",100)
self.magPublisher = self.create_publisher(MagneticField,"/imu/mag",100)

#Call the library to read the information of the ROS expansion board
edition.data = self.car.get_version()*1.0
battery.data = self.car.get_battery_voltage()*1.0
ax, ay, az = self.car.get_accelerometer_data()
gx, gy, gz = self.car.get_gyroscope_data()
mx, my, mz = self.car.get_magnetometer_data()
vx, vy, angular = self.car.get_motion_data()

#Publish topic data
self.imuPublisher.publish(imu)
self.magPublisher.publish(mag)
self.volPublisher.publish(battery)
```

```
self.EdiPublisher.publish(edition)
self.velPublisher.publish(twist)

#Subscriber callback function
def cmd_vel_callback(self,msg)
def RGBLightcallback(self,msg)
def Buzzercallback(self,msg):
```

For detailed code, please refer to Code Mcnamu_driver_X3.py.