

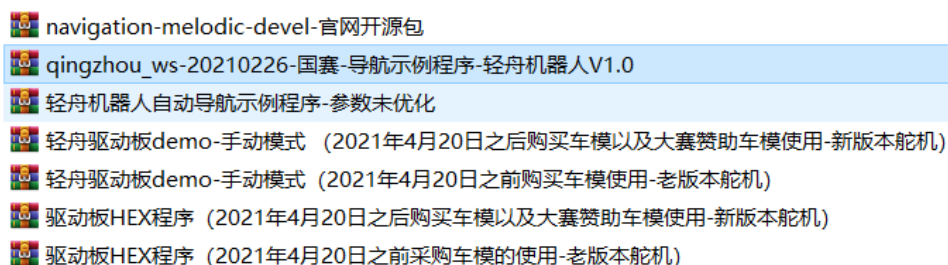
qingzhou_ws 导航示例程序的编译

AI 航团队

截至到目前，你一定已经对 ROS 的软件的使用有所了解，并且已经完成对轻舟机器人的工控机 nano 烧录好了系统，并且安装了 ROS，在此基础上我们来编译导航示例程序。

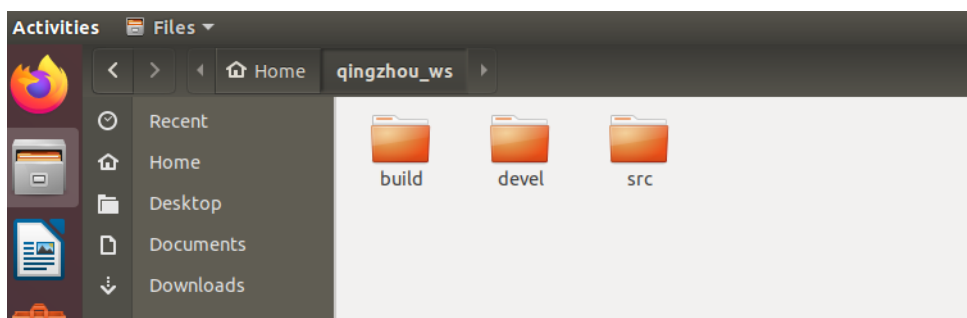
（1）获取导航示例程序 qingzhou_ws

在轻舟机器人配套的资料中，找到示例程序文件夹，将其中的 **qingzhou_ws-20210226-国赛-导航示例程序-轻舟机器人 V1.0** 压缩包复制到你的 ubuntu 主机的 home 目录下，然后解压（注意不要再 windows 电脑解压!!!）。

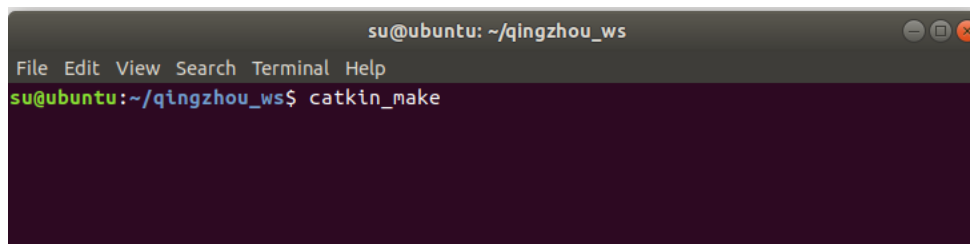


（2）编译 qingzhou_ws

代码包在 ubuntu 电脑上解压后，将 qingzhou_ws 文件夹复制到 home 目录，打开代码包如下所示，将 build 和 devel 文件夹删除（如果没有则忽略此项操作）：



在 qingzhou_ws 文件夹下打开终端，执行编译命令：catkin_make



在编译过程中存在依赖包没有安装的问题，类似如下：

```
your environment so that it can be found.
CMake Error at /opt/ros/melodic/share/catkin/cmake/catkinConfig.cmake:83 (find_package):
  Could not find a package configuration file provided by "serial" with any
  of the following names:

    serialConfig.cmake
    serial-config.cmake

Add the installation prefix of "serial" to CMAKE_PREFIX_PATH or set
"serial_DIR" to a directory containing one of the above files. If "serial"
provides a separate development package or SDK, be sure it has been
installed.
```

此问题即为串口 serial 依赖包没有安装，对 serial 安装即可，使用如下指令安装：

```
sudo apt-get install ros-melodic-serial
```

然后继续重新编译，根据提示缺少的包进行补全：

主要安装包括如下几个：

```
sudo apt-get install ros-melodic-bfl
```

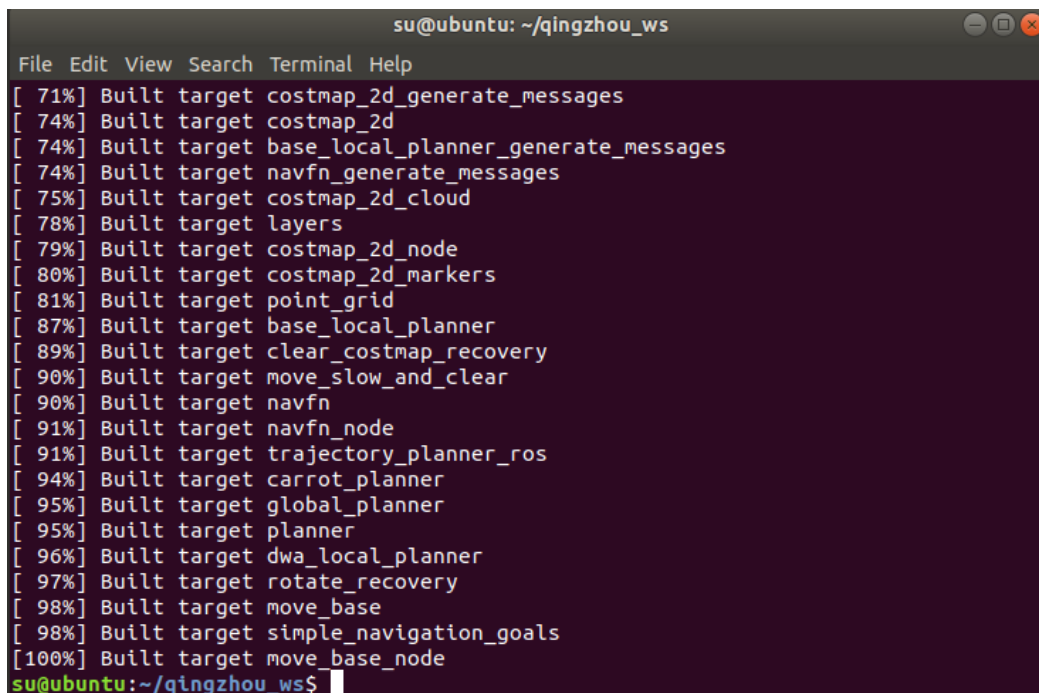
```
sudo apt-get install ros-melodic-tf2-sensor-msgs
```

```
sudo apt-get install ros-melodic-voxel-grid
```

```
sudo apt-get install ros-melodic-gmapping
```

```
sudo apt-get install ros-melodic-map-server
```

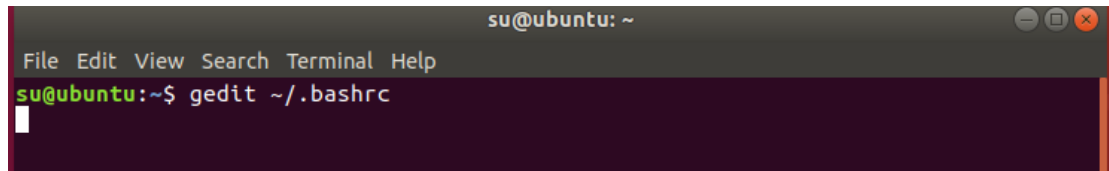
编译成功如下：



```
su@ubuntu: ~/qingzhou_ws
File Edit View Search Terminal Help
[ 71%] Built target costmap_2d_generate_messages
[ 74%] Built target costmap_2d
[ 74%] Built target base_local_planner_generate_messages
[ 74%] Built target navfn_generate_messages
[ 75%] Built target costmap_2d_cloud
[ 78%] Built target layers
[ 79%] Built target costmap_2d_node
[ 80%] Built target costmap_2d_markers
[ 81%] Built target point_grid
[ 87%] Built target base_local_planner
[ 89%] Built target clear_costmap_recovery
[ 90%] Built target move_slow_and_clear
[ 90%] Built target navfn
[ 91%] Built target navfn_node
[ 91%] Built target trajectory_planner_ros
[ 94%] Built target carrot_planner
[ 95%] Built target global_planner
[ 95%] Built target planner
[ 96%] Built target dwa_local_planner
[ 97%] Built target rotate_recovery
[ 98%] Built target move_base
[ 98%] Built target simple_navigation_goals
[100%] Built target move_base_node
su@ubuntu:~/qingzhou_ws$
```

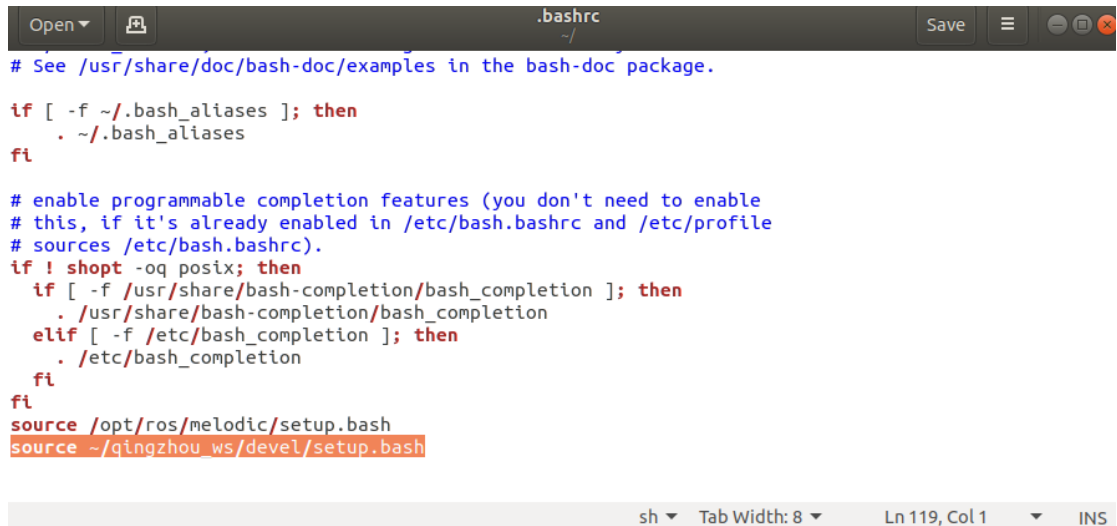
（2）添加环境变量

打开终端，输入指令： `gedit ~/.bashrc`



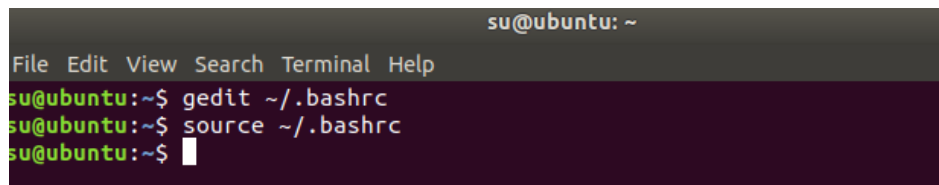
```
su@ubuntu: ~  
File Edit View Search Terminal Help  
su@ubuntu:~$ gedit ~/.bashrc
```

加入下图所示路径，保存并退出：



```
.bashrc  
# See /usr/share/doc/bash-doc/examples in the bash-doc package.  
  
if [ -f ~/.bash_aliases ]; then  
    . ~/.bash_aliases  
fi  
  
# enable programmable completion features (you don't need to enable  
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile  
# sources /etc/bash.bashrc).  
if ! shopt -oq posix; then  
    if [ -f /usr/share/bash-completion/bash_completion ]; then  
        . /usr/share/bash-completion/bash_completion  
    elif [ -f /etc/bash_completion ]; then  
        . /etc/bash_completion  
    fi  
fi  
source /opt/ros/melodic/setup.bash  
source ~/qingzhou_ws/devel/setup.bash
```

输入如下指令进行更新环境变量：source ~/.bashrc



```
su@ubuntu: ~  
File Edit View Search Terminal Help  
su@ubuntu:~$ gedit ~/.bashrc  
su@ubuntu:~$ source ~/.bashrc  
su@ubuntu:~$
```

2021 年 5 月