Vanjee 720 + cartographer 2D navigation

1、Operating environment

Ubuntu 18.04

Ros melodic

2、Source code path

cartographer source code path：

```
src/cartographer
```

```
src/cartographer_ros
```

Vanjee 720 16-line radar driver：

```
src/vanjee_lidar_720
```

3、Parameter configuration

The example workspace name is wlr_720_cartographer_ws, and the workspace name can be customized. Place the src folder of the data folder under the wlr_720_cartographer_ws folder.

2D mapping launch file path

```
~/wlr_720_cartographer_ws/src/cartographer_ros/cartographer_ros/launch/wlr_720_cartographer_2d.launch
```

2D mapping lua file path

```
~/wlr_720_cartographer_ws/src/cartographer_ros/cartographer_ros/launch/wlr_720_2d_no_imu.lua
```

4、Run navigation

Here, the navrobo unmanned vehicle chassis is used as an example for navigation. The navigation environment has been installed by default.

Open the terminal on the host and enter the command：

```
cd ~/wlr_720_cartographer_ws

source devel/setup.bash

roslaunch yahboom_scout_mini_localization
yahboom_scout_mini_navigation_mbf.launch
```

文件　搜索

navrobo_yahboom_scout_mini_navigation_mbf.launch

```
<launch>
    <arg name="map_file"                default="mymap_imu_jiyuecheng.yaml" />
    <arg name="open_rviz"               default="true" />

    <arg name="initial_pose_x"          default="0.0" />
    <arg name="initial_pose_y"          default="0.0" />
    <arg name="initial_pose_a"          default="0.0" />

    <!-- AMCL parameters -->
    <arg name="scan_topic"              default="scan" />

    <arg name="odom_model_type"         default="diff"/>
    <arg name="odom_alpha1"             default="0.2"/>
    <arg name="odom_alpha2"             default="0.2"/>
    <arg name="odom_alpha3"             default="0.2"/>
    <arg name="odom_alpha4"             default="0.2"/>
    <arg name="odom_frame_id"           default="odom"/>
    <arg name="base_frame_id"           default="base_footprint"/>

    <!-- move_base parameters -->
    <arg name="move_forward_only"       default="false" />
    <!-- <arg name="odom_topic"              default="odom_cmd" /> -->
    <arg name="odom_topic"              default="odometry/filtered" />

    <!-- BringUP
    <include file="$(find scout_bringup)/launch/scout_mini_robot_base_wlr720.launch" >
    </include>-->

    <!-- ekf
    <include file="$(find robot_localization)/launch/yahboom_scout_mini_ekf.launch" >
    </include>-->

    <!-- Map server -->
```

For my project, I need to modify the path of the map

After the startup is completed, you can use rviz to deliver the target point for navigation, as shown in the figure below.