

Using LMS1xx laser and Gmapping notes

- Installation

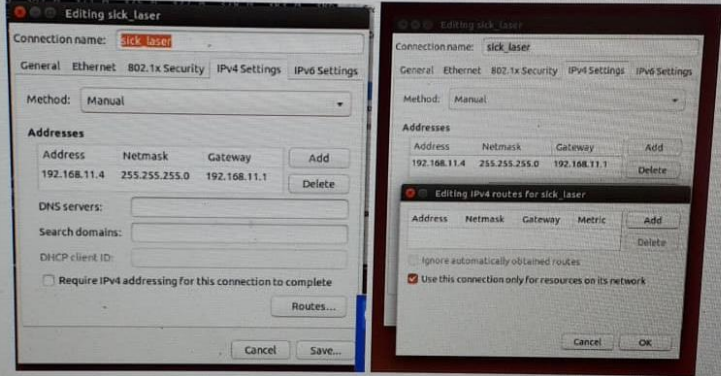
```
$ sudo apt-get install ros-kinetic-gmapping
$ sudo apt-get install ros-kinetic-slam-gmapping
$ sudo apt-get install ros-kinetic-map-server
$ sudo apt-get install ros-kinetic-navigation
```

Ros Aria

```
$ git clone https://github.com/amor-ros-pkg/rosaria.git
$ sudo apt-get install libaria*
$ sudo apt-get install ros-kinetic-teleop-twist-keyboard
```

LMS1xx

For SICK 100
edit Ethernet network connection
ipv4-> manual
192.168.11.4 255.255.255.0 192.168.11.1
[*noted*]for avoid conflict between wifi and local laser, click routes for setting "use this connection only for resources on its network"



install laser driver
sudo apt-get install ros-indigo-lms1xx
set host ip and connect to laser
roslaunch lms1xx LMS1xx_node _host:=192.168.11.100
it will show:
[INFO] [1494929030.139804815]: Connected to master at [localhost:11311]
[INFO] [1494929030.147244935]: Connecting to laser at 192.168.11.100
[INFO] [1494929030.155740874]: Connected to laser.

Enter .bashrc

```
# for ROS-kinetic
source /opt/ros/kinetic/setup.bash
source ~/catkin_ws/devel/setup.bash
```

For indigo, just change kinetic to indigo

Build up new package in your work space, naming gmapping_ros, adding geometry_msgs 、roscpp 、rospy 、std_msgs

```
$ catkin_create_pkg gmapping_ros geometry_msgs roscpp rospy std_msgs
```

mkdir launch and add slam_gmapping.launch

```
1  <?xml version="1.0"?>
2  <launch>
3      <node pkg="gmapping" type="slam_gmapping" name="gmapping" >
4          <param name="odom_frame" value="odom" />
5          <param name="base_frame" value="base_footprint" />
6          <param name="laser" value="base_scan"/>
7      </node>
8      <node pkg="tf"
9          type="static_transform_publisher"
10         name="link1_broadcaster"
11         args="0 0 0 0 0 1 base_footprint base_scan 100" />
12 </launch>
```

- Implementation

Get connection with pioneer by usb port:

```
$ sudo chmod 777 /dev/ttyUSB0
$ roscore
$ rosruncat rosaria RosAria
$ rostopic list # find topic with 'cmd_vel'
$ rosruncat teleop_twist_keyboard teleop_twist_keyboard.py /cmd_vel:=/RosAria/cmd_vel # map /cmd_vel to the topic you find
```

Run gmapping node

```
$ roslaunch gmapping_ros slam_gmapping.launch
```

```
$ rviz
```

Add->by topic->map

Using map_server to save the map

```
$ rosruncat map_server map_saver -f YOUR_PATH/MAP_NAME
```