ROS FOR BEGINNERS
BASICS, MOTION AND OPENCV

ANIS KOUBAA

Turtlebot 3

https://www.udemy.com/user/anis-koubaa/
2020

Install Turtlebot 3

Before installing Turtlebot3, make sure to make the following two commands:

`sudo apt-get update`

`sudo apt-get upgrade`

The installation may fail if you do not an upgrade.

Then, do the following (if you install for ***noetic***, make `-b noetic-devel` to get the right branch)

```
$ cd ~/catkin_ws/src/
$ git clone https://github.com/ROBOTIS-GIT/turtlebot3_msgs.git -b noetic-devel
$ git clone  https://github.com/ROBOTIS-GIT/turtlebot3.git -b noetic-devel
$ cd ~/catkin_ws && catkin_make
```

If you install on ***melodic***, change `-b noetic-devel` with `-b melodic-devel`

This will install the core packages of Turtlebot3.

Install Turtlebot 3 Simulator

Afterward, and **after the correct compilation of the catkin_ws,** you can download and installation the simulation packages$ cd

```
~/catkin_ws/src/
$ git clone https://github.com/ROBOTIS-GIT/turtlebot3_simulations.git
$ cd ~/catkin_ws && catkin_make
```

As such the Turtlebot3 simulator should be installed.

Set your .bashrc file

Then, make the modification in .bashrch file as follows:

```
 cd
gedit .bashrc
```

Inside the bashrc file put the following aliases to make it easier access to different executables in the **alias** section.

```
alias burger='export TURTLEBOT3_MODEL=burger'
alias waffle='export TURTLEBOT3_MODEL=waffle'
alias tb3fake='roslaunch turtlebot3_fake turtlebot3_fake.launch'
alias tb3teleop='roslaunch turtlebot3_teleop turtlebot3_teleop_key.launch'
alias tb3='roslaunch turtlebot3_gazebo turtlebot3_empty_world.launch'
alias tb3maze='roslaunch turtlebot3_gazebo turtlebot3_world.launch'
alias tb3house='roslaunch turtlebot3_gazebo turtlebot3_house.launch'
```

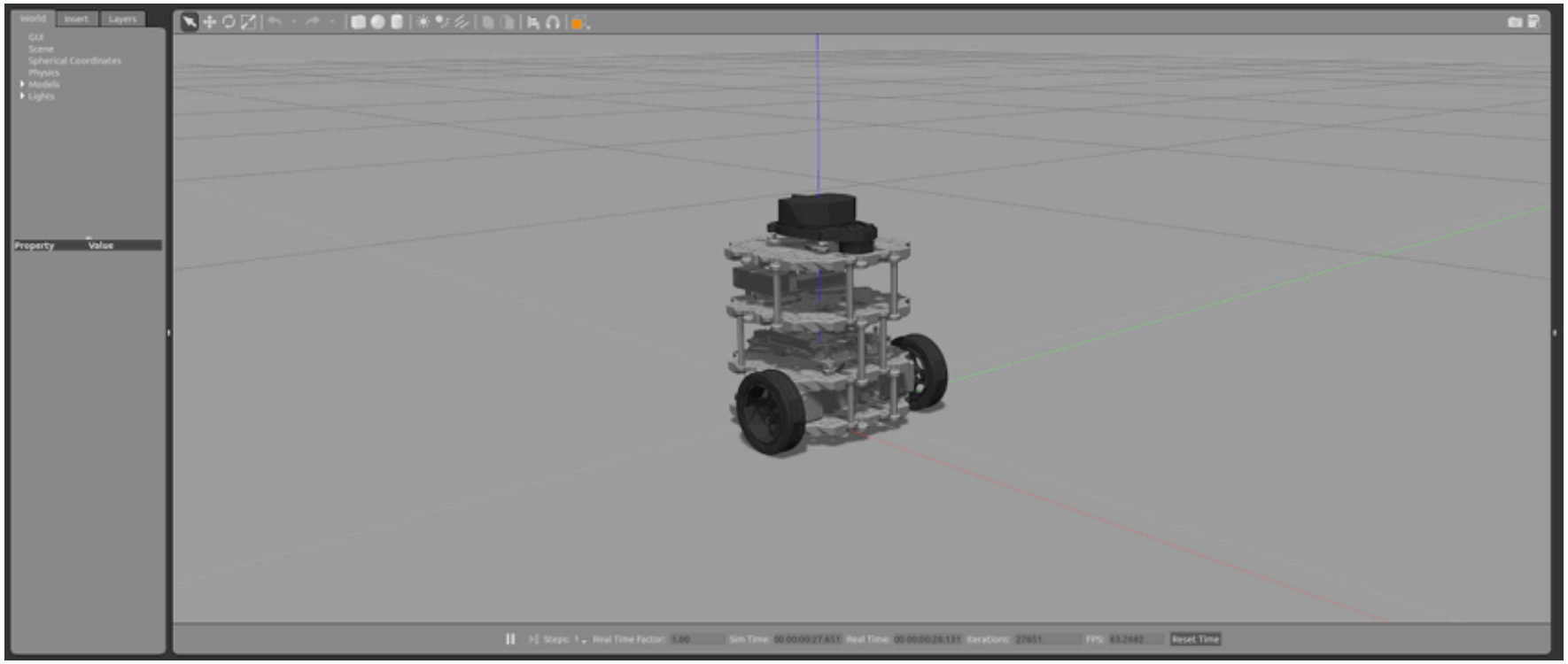
also at the end of the file, write the following commands

```
source /opt/ros/noetic/setup.bash
source /home/akoubaa/catkin_ws/devel/setup.bash
export TURTLEBOT3_MODEL=waffle
export SVGA_VGPU10=0
```

The last command will let you open Gazebo on a Virtual Machine and avoid crashing its display.

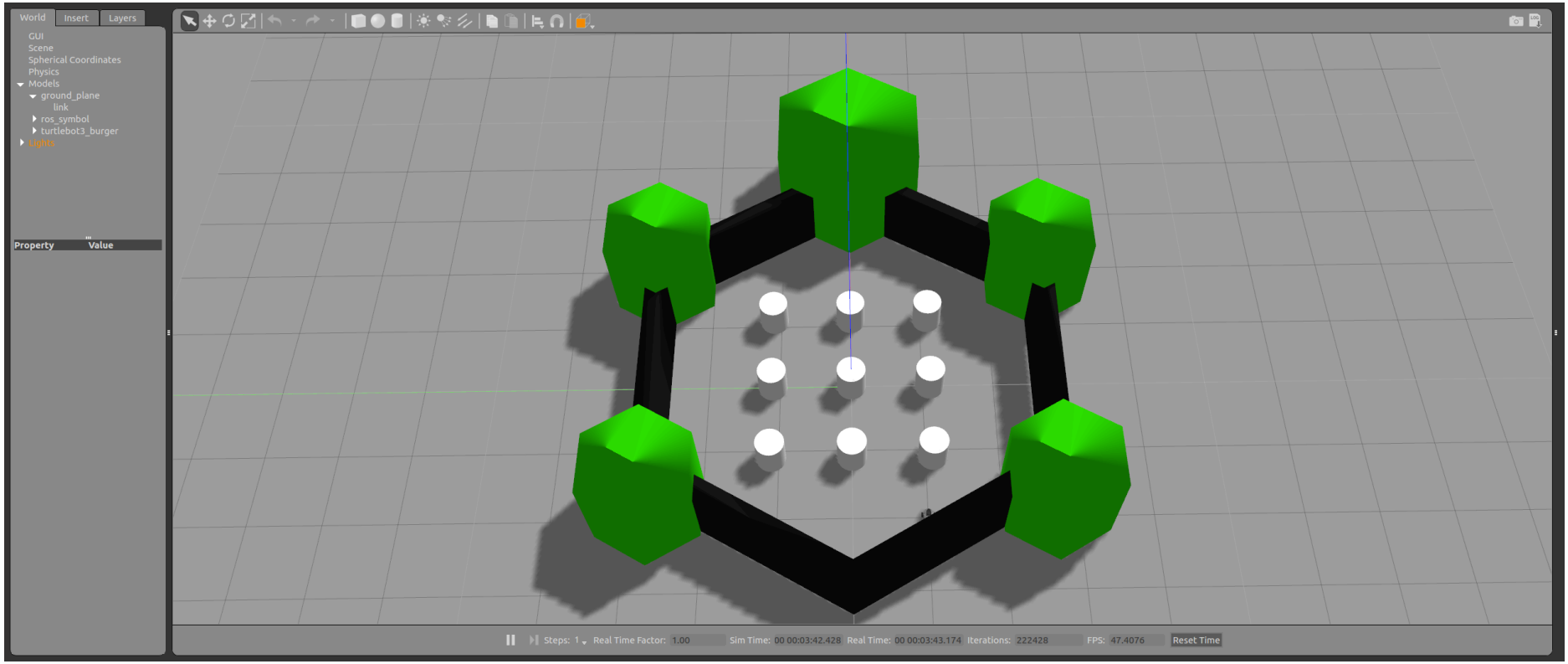
You can change `export TURTLEBOT3_MODEL=waffle` by export `TURTLEBOT3_MODEL=burger` if you want to use TB3 Burger.

Turtlebot3 Empty World Environment



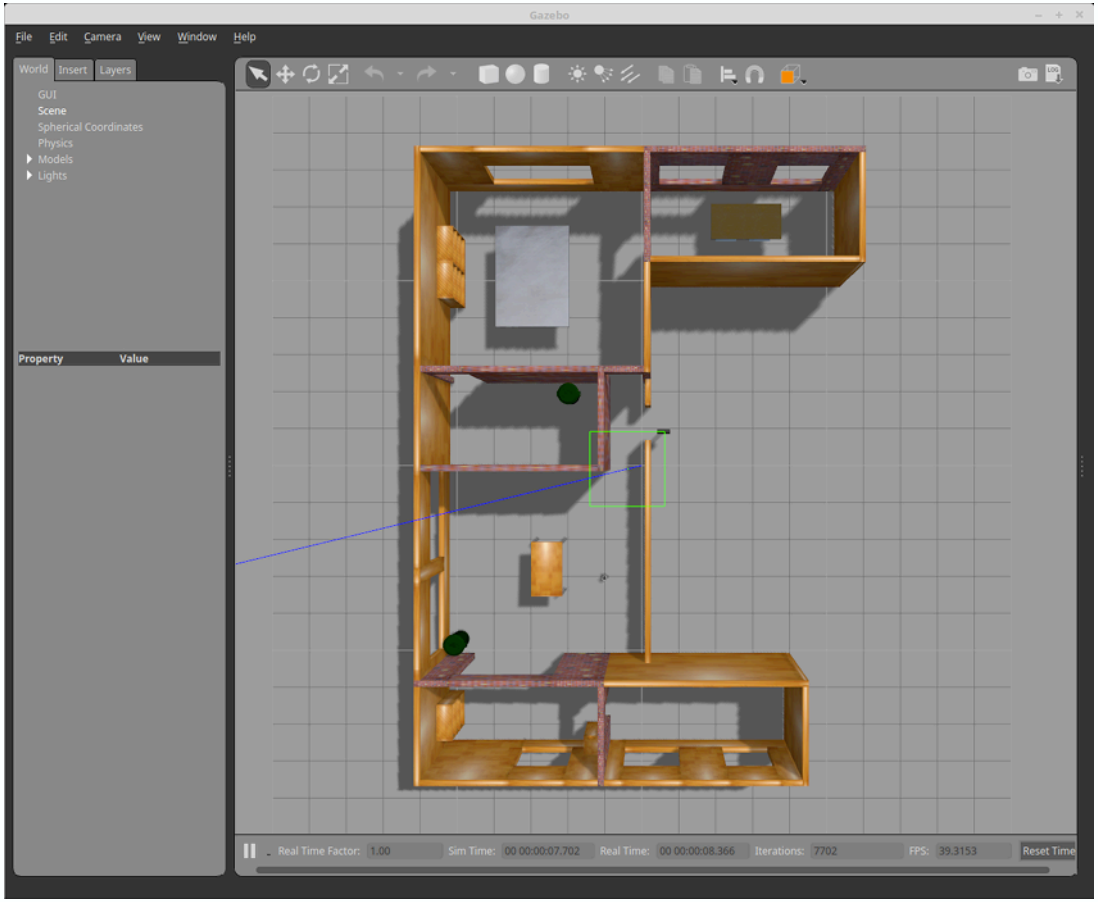
roslaunch turtlebot3_gazebo turtlebot3_empty_world.launch

Turtlebot3 World Environment



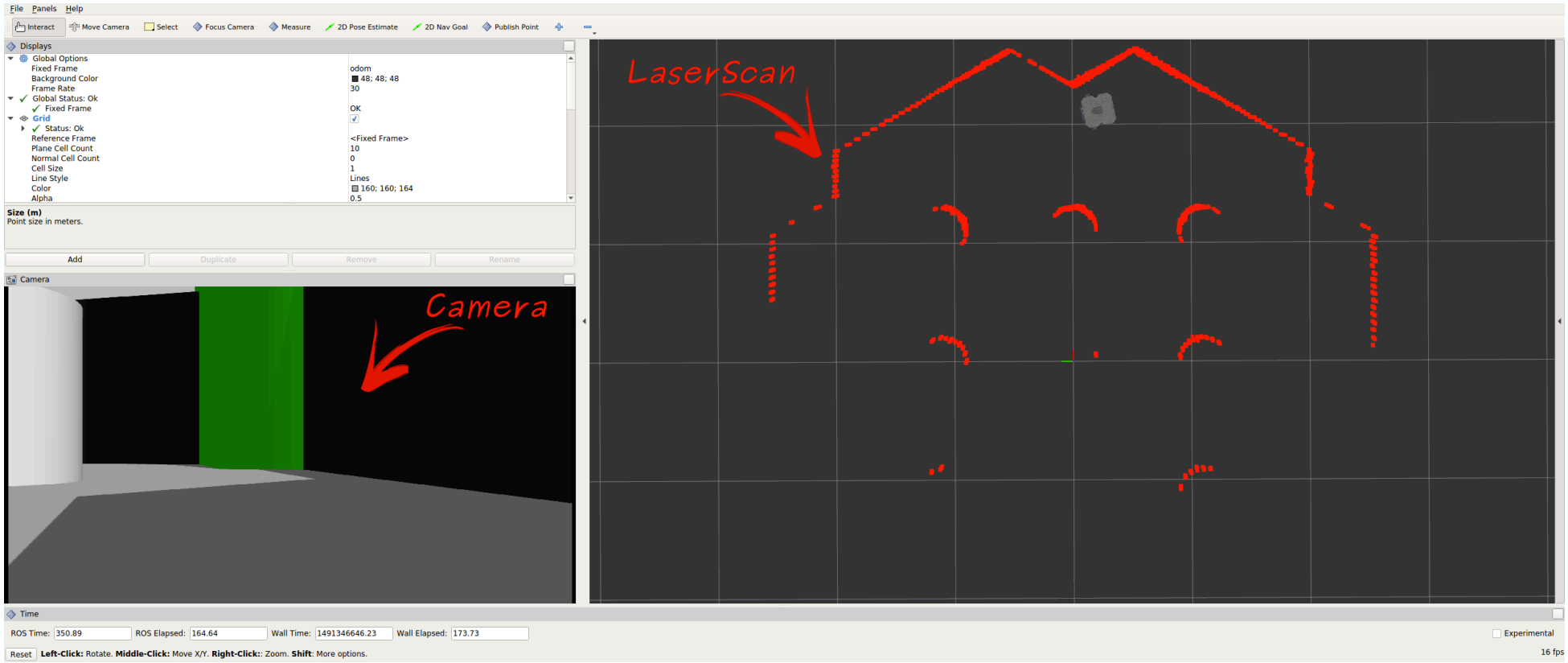
roslaunch turtlebot3_gazebo turtlebot3_world.launch

Turtlebot3 House Environment



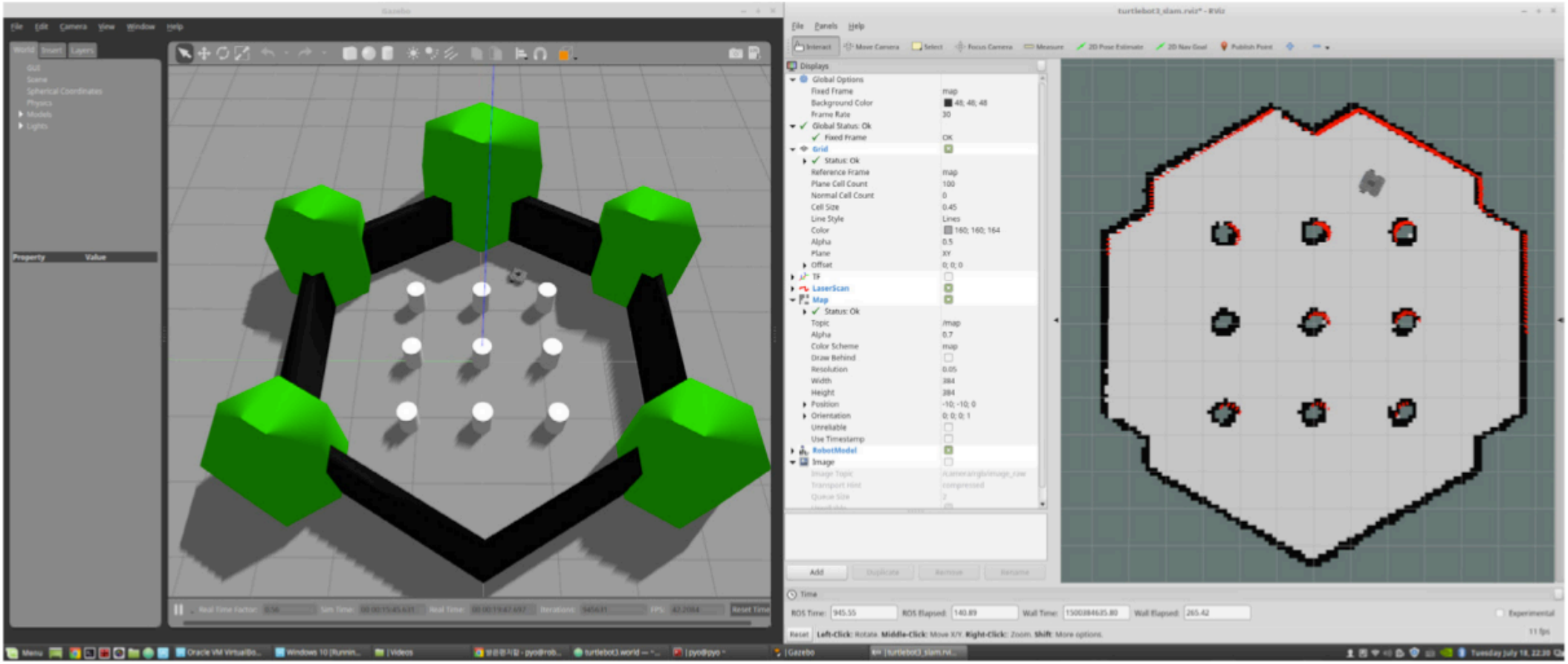
roslaunch turtlebot3_gazebo turtlebot3_house.launch

Turtlebot3 RVIZ



roslaunch turtlebot3_gazebo turtlebot3_gazebo_rviz.launch

Turtlebot3 SLAM for Map Building



```
roslaunch turtlebot3_slam turtlebot3_slam.launch slam_methods:=gmapping
roslaunch turtlebot3_teleop turtlebot3_teleop_key.launch
```