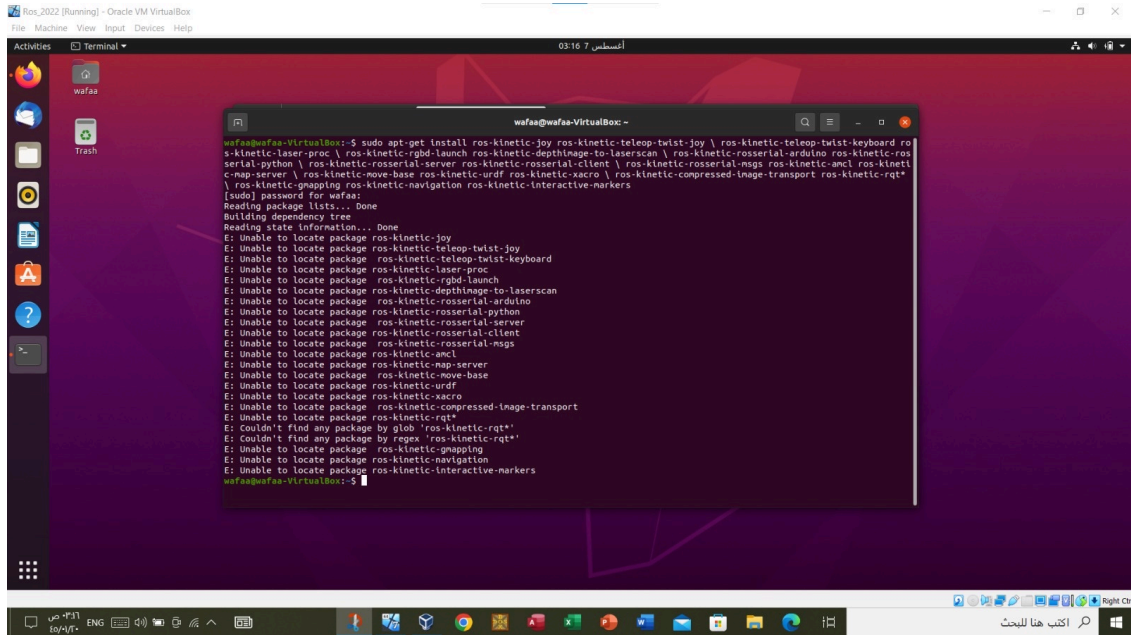
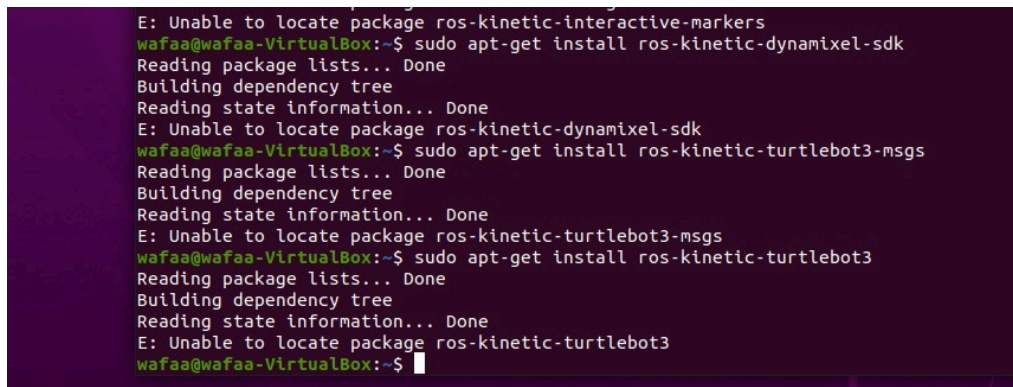


Install Dependent ROZ Packages



```
wafaa@wafaa-VirtualBox:~$ sudo apt-get install ros-kinetic-joy ros-kinetic-teleop-twist-joy \ ros-kinetic-teleop-twist-keyboard ro
s-kinetic-laser-proc \ ros-kinetic-rgb-launch ros-kinetic-depthimage-to-laserscan \ ros-kinetic-rosserial-arduino ros-kinetic-ros
serial-python \ ros-kinetic-rosserial-server ros-kinetic-rosserial-client \ ros-kinetic-rosserial-msgs ros-kinetic-amcl ros-kineti
c-map-server \ ros-kinetic-move-base ros-kinetic-urdf ros-kinetic-xacro \ ros-kinetic-compressed-image-transport ros-kinetic-rqt*
 \ ros-kinetic-mapping ros-kinetic-navigation ros-kinetic-interactive-markers
[sudo] password for wafaa:
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-kinetic-joy
E: Unable to locate package ros-kinetic-teleop-twist-joy
E: Unable to locate package ros-kinetic-teleop-twist-keyboard
E: Unable to locate package ros-kinetic-laser-proc
E: Unable to locate package ros-kinetic-rgb-launch
E: Unable to locate package ros-kinetic-depthimage-to-laserscan
E: Unable to locate package ros-kinetic-rosserial-python
E: Unable to locate package ros-kinetic-rosserial-server
E: Unable to locate package ros-kinetic-rosserial-client
E: Unable to locate package ros-kinetic-rosserial-msgs
E: Unable to locate package ros-kinetic-amcl
E: Unable to locate package ros-kinetic-map-server
E: Unable to locate package ros-kinetic-move-base
E: Unable to locate package ros-kinetic-urdf
E: Unable to locate package ros-kinetic-xacro
E: Unable to locate package ros-kinetic-compressed-image-transport
E: Unable to locate package ros-kinetic-rqt*
E: Couldn't find any package by glob 'ros-kinetic-rqt*'
E: Couldn't find any package by regex 'ros-kinetic-rqt*'
E: Unable to locate package ros-kinetic-mapping
E: Unable to locate package ros-kinetic-navigation
E: Unable to locate package ros-kinetic-interactive-markers
wafaa@wafaa-VirtualBox:~$
```

Install TurtleBot3 Packages



```
E: Unable to locate package ros-kinetic-interactive-markers
wafaa@wafaa-VirtualBox:~$ sudo apt-get install ros-kinetic-dynamixel-sdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-kinetic-dynamixel-sdk
wafaa@wafaa-VirtualBox:~$ sudo apt-get install ros-kinetic-turtlebot3-msgs
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-kinetic-turtlebot3-msgs
wafaa@wafaa-VirtualBox:~$ sudo apt-get install ros-kinetic-turtlebot3
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-kinetic-turtlebot3
wafaa@wafaa-VirtualBox:~$
```

```
Ros_2022 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Activities Terminal 03:46 أغسطس 7

wafaa

wafaa@wafaa-VirtualBox: ~/catkin_ws
$ sudo apt-get install ros-kinetic-turtlebot3
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package ros-kinetic-turtlebot3
wafaa@wafaa-VirtualBox:~$ mkdir -p ~/catkin_ws/src
wafaa@wafaa-VirtualBox:~/catkin_ws/src$ git clone -b kinetic-devel https://github.com/ROBOTIS-GIT/DynamixelSDK.git
fatal: cannot open 'DynamixelSDK' for reading
wafaa@wafaa-VirtualBox:~/catkin_ws/src$ git clone -b kinetic-devel https://github.com/ROBOTIS-GIT/DynamixelSDK.git
Cloning into 'DynamixelSDK'...
remote: Enumerating objects: 13861, done.
remote: Counting objects: 100% (1235/1235), done.
remote: Compressing objects: 100% (535/535), done.
remote: Total 13861 (delta 629), reused 1146 (delta 598), pack-reused 12626
Receiving objects: 100% (13861/13861), 28.58 MB | 704.00 KIB/s, done.
Resolving deltas: 100% (7877/7877), done.
wafaa@wafaa-VirtualBox:~/catkin_ws/src$ git clone -b kinetic-devel https://github.com/ROBOTIS-GIT/turtlebot3_msgs.git
fatal: destination path 'turtlebot3_msgs' already exists and is not an empty directory.
wafaa@wafaa-VirtualBox:~/catkin_ws/src$ git clone -b kinetic-devel https://github.com/ROBOTIS-GIT/turtlebot3.git
fatal: destination path 'turtlebot3' already exists and is not an empty directory.
wafaa@wafaa-VirtualBox:~/catkin_ws/src$ cd ~/catkin_ws && catkin_make
Base path: /home/wafaa/catkin_ws
Source space: /home/wafaa/catkin_ws/src
Build space: /home/wafaa/catkin_ws/build
Devel space: /home/wafaa/catkin_ws/devel
Install space: /home/wafaa/catkin_ws/install
####
#### Running command: "cmake /home/wafaa/catkin_ws/src -DCATKIN_DEVEL_PREFIX=/home/wafaa/catkin_ws/devel -DCMAKE_INSTALL_PREFIX=/home/wafaa/catkin_ws/install -G Unix Makefiles" in "/home/wafaa/catkin_ws/build"
####
-- Using CATKIN_DEVEL_PREFIX: /home/wafaa/catkin_ws/devel
-- Using CMAKE_PREFIX_PATH: /home/wafaa/catkin_ws/devel/opt/ros/noetic
-- This workspace may have another workspace at /home/wafaa/catkin_ws/devel/inst/ros/noetic
```

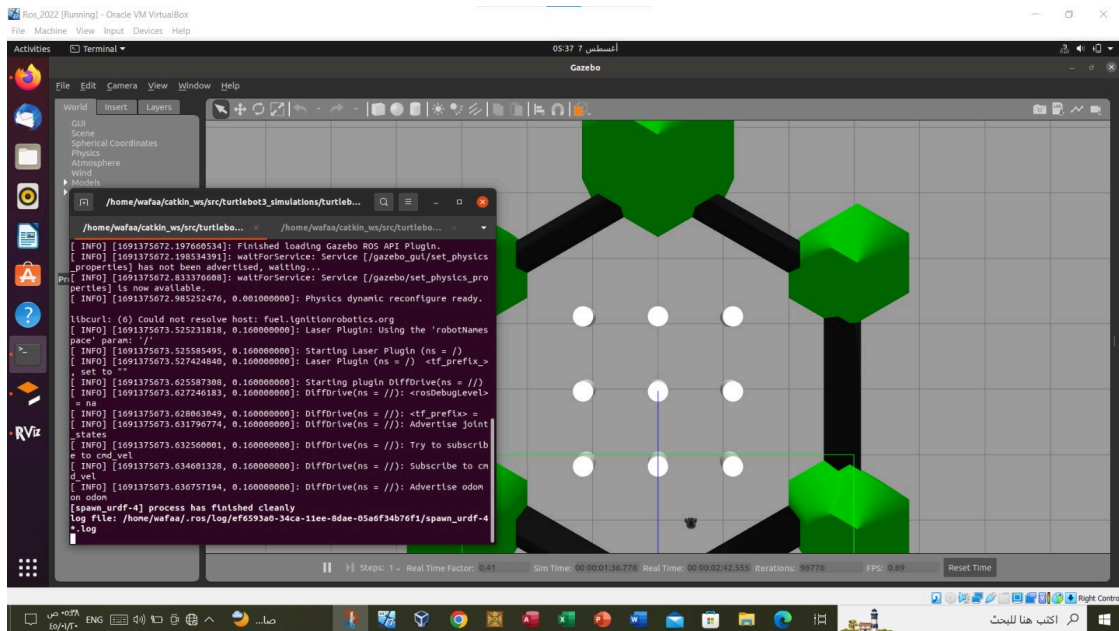
```
Ros_2022 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Activities Terminal 03:47 أغسطس 7

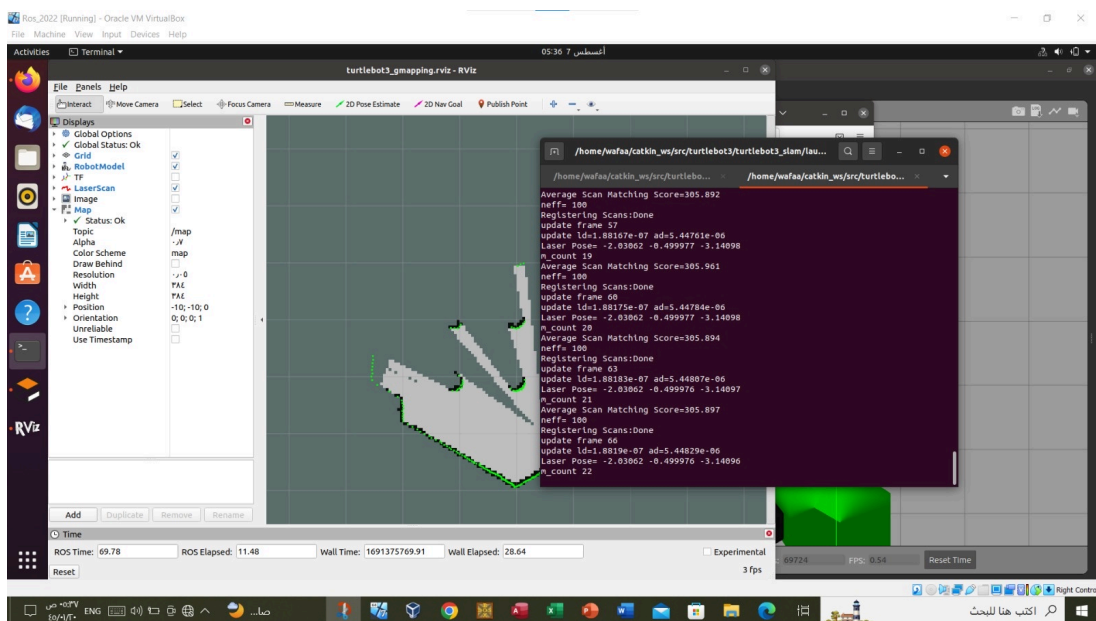
wafaa

wafaa@wafaa-VirtualBox: ~/catkin_ws
[ 95%] Linking CXX shared library /home/wafaa/catkin_ws/devel/lib/libgazebo_ros_diff_drive.so
[ 96%] Built target gazebo_ros_diff_drive
[ 96%] Linking CXX shared library /home/wafaa/catkin_ws/devel/lib/libgazebo_ros_range.so
[ 96%] Built target gazebo_ros_range
[ 97%] Linking CXX shared library /home/wafaa/catkin_ws/devel/lib/libdefault_robot_hw_sim.so
[ 97%] Built target default_robot_hw_sim
[ 97%] Linking CXX shared library /home/wafaa/catkin_ws/devel/lib/libgazebo_ros_control.so
[ 98%] Built target gazebo_ros_control
[ 98%] Built target moveit_ros_manipulation_gencfg
[ 98%] Built target object_recognition_msgs_generate_messages_eus
[ 98%] Built target object_recognition_msgs_generate_messages_cpp
[ 98%] Built target shape_msgs_generate_messages_cpp
[ 98%] Built target moveit_msgs_generate_messages_nodejs
[ 98%] Built target moveit_msgs_generate_messages_lisp
[ 98%] Built target moveit_msgs_generate_messages_cpp
[ 98%] Built target shape_msgs_generate_messages_py
[ 98%] Built target object_recognition_msgs_generate_messages_lisp
[ 98%] Built target octomap_msgs_generate_messages_eus
[ 98%] Built target shape_msgs_generate_messages_nodejs
[ 98%] Built target object_recognition_msgs_generate_messages_py
[ 98%] Built target shape_msgs_generate_messages_lisp
[ 98%] Built target shape_msgs_generate_messages_eus
[ 98%] Built target moveit_msgs_generate_messages_eus
[ 98%] Built target object_recognition_msgs_generate_messages_nodejs
[ 98%] Built target octomap_msgs_generate_messages_cpp
[ 98%] Built target octomap_msgs_generate_messages_py
[ 98%] Built target moveit_ros_planning_gencfg
[ 98%] Built target octomap_msgs_generate_messages_lisp
[ 98%] Built target octomap_msgs_generate_messages_nodejs
[100%] Linking CXX executable /home/wafaa/catkin_ws/devel/lib/moveit_pkg/move_group_node
[100%] Built target move_group_node
[100%] Built target turtlebot3_description_xacro_generated_to_devel_space
```

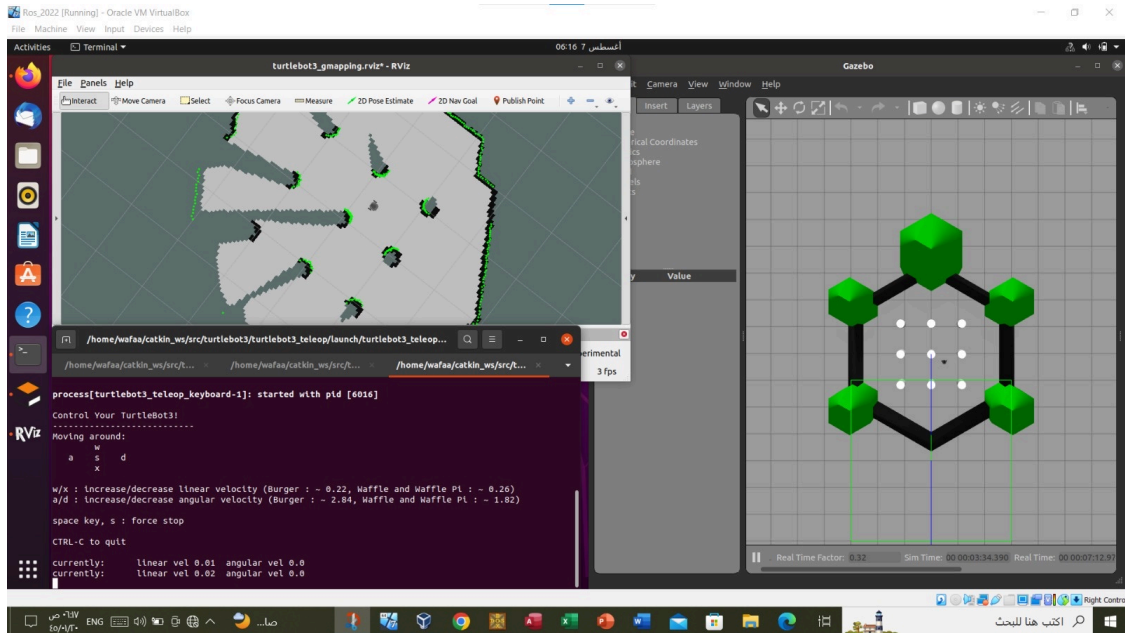
Run gazebo



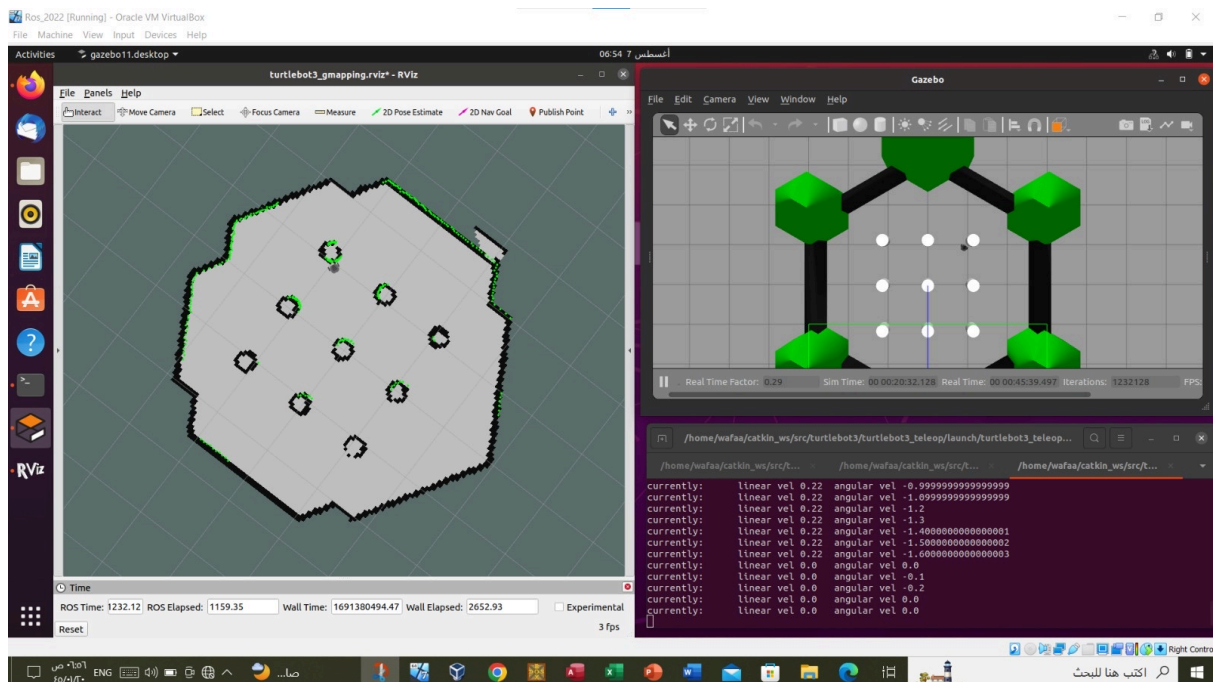
Run Slam



To control TurtleBot3



after scans all map



Save the Map

