# TurtleBot3  and  turtlebot_simulations installation :

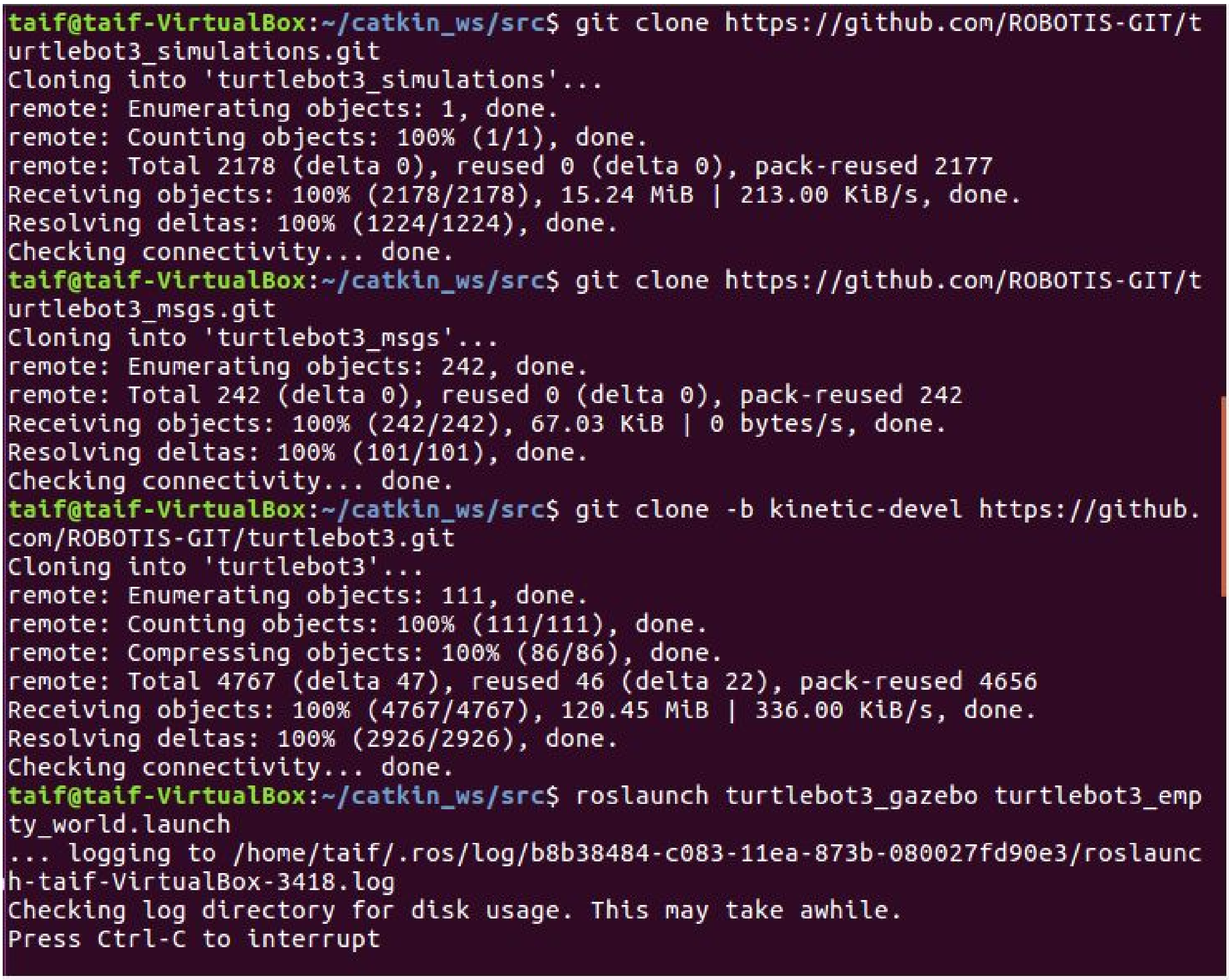
follow this steps to install TurtleBot3 :

1- Enter catkin_ws workspace into src folder by this command:

```
cd ~/catkin_ws/src/
```

2- copy this commands line one by one to install TurtleBot3 folders :

- git clone https://github.com/ROBOTIS-GIT/turtlebot3_simulations.git
- git clone https://github.com/ROBOTIS-GIT/turtlebot3_msgs.git
- git clone -b kinetic-devel https://github.com/ROBOTIS-GIT/turtlebot3.git



```
taif@taif-VirtualBox:~/catkin_ws/src$ git clone https://github.com/ROBOTIS-GIT/t
urtlebot3_simulations.git
Cloning into 'turtlebot3_simulations'...
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 2178 (delta 0), reused 0 (delta 0), pack-reused 2177
Receiving objects: 100% (2178/2178), 15.24 MiB | 213.00 KiB/s, done.
Resolving deltas: 100% (1224/1224), done.
Checking connectivity... done.
taif@taif-VirtualBox:~/catkin_ws/src$ git clone https://github.com/ROBOTIS-GIT/t
urtlebot3_msgs.git
Cloning into 'turtlebot3_msgs'...
remote: Enumerating objects: 242, done.
remote: Total 242 (delta 0), reused 0 (delta 0), pack-reused 242
Receiving objects: 100% (242/242), 67.03 KiB | 0 bytes/s, done.
Resolving deltas: 100% (101/101), done.
Checking connectivity... done.
taif@taif-VirtualBox:~/catkin_ws/src$ git clone -b kinetic-devel https://github.
com/ROBOTIS-GIT/turtlebot3.git
Cloning into 'turtlebot3'...
remote: Enumerating objects: 111, done.
remote: Counting objects: 100% (111/111), done.
remote: Compressing objects: 100% (86/86), done.
remote: Total 4767 (delta 47), reused 46 (delta 22), pack-reused 4656
Receiving objects: 100% (4767/4767), 120.45 MiB | 336.00 KiB/s, done.
Resolving deltas: 100% (2926/2926), done.
Checking connectivity... done.
taif@taif-VirtualBox:~/catkin_ws/src$ roslaunch turtlebot3_gazebo turtlebot3_emp
ty_world.launch
... logging to /home/taif/.ros/log/b8b38484-c083-11ea-873b-080027fd90e3/roslaunc
h-taif-VirtualBox-3418.log
Checking log directory for disk usage. This may take awhile.
Press Ctrl-C to interrupt
```

3- From Desktop enter your workspace and src file and enter to turtlebot_simulations.

From  turtlebot_simulations  choose turtlebot3_gazebo .

turtlebot3_gazebo

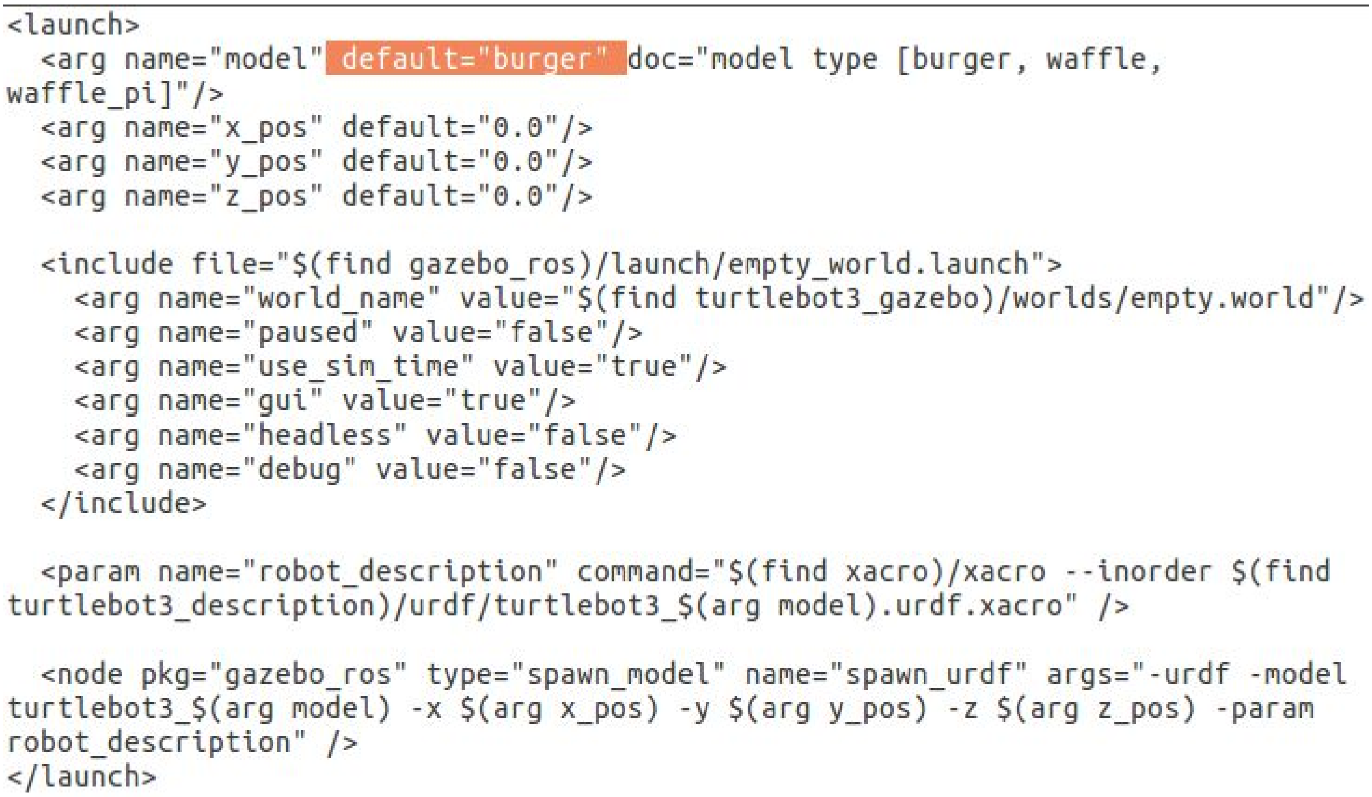
From  turtlebot3_gazebo choose launch .

launch

And from launch **open** turtlebot3_empty_world.launch file.

turtlebot3_empty_world.launch

when you open it change default value to “ burger ”

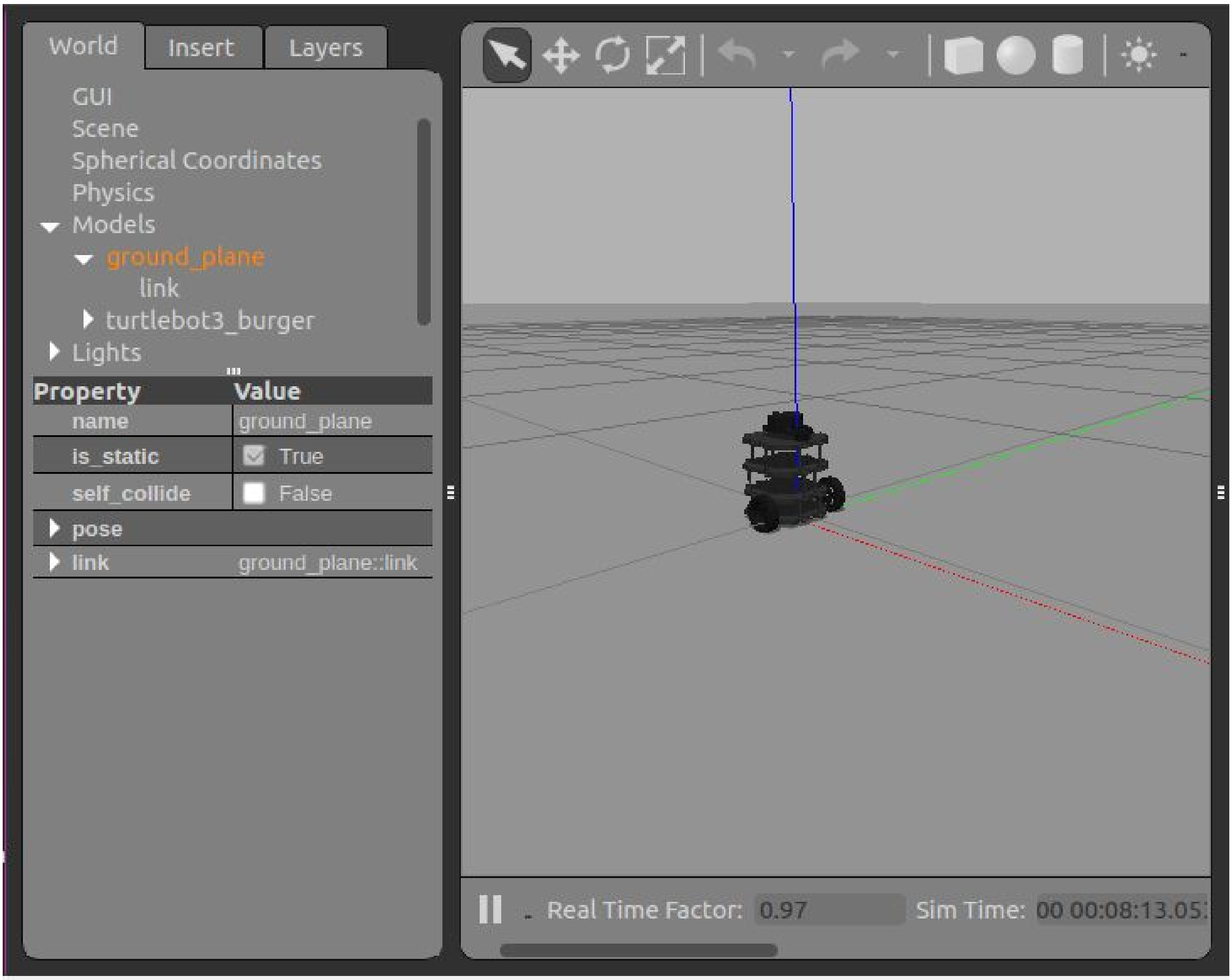


```
<launch>
  <arg name="model" default="burger" doc="model type [burger, waffle,
waffle_pi]"/>
  <arg name="x_pos" default="0.0"/>
  <arg name="y_pos" default="0.0"/>
  <arg name="z_pos" default="0.0"/>

  <include file="$(find gazebo_ros)/launch/empty_world.launch">
    <arg name="world_name" value="$(find turtlebot3_gazebo)/worlds/empty.world"/>
    <arg name="paused" value="false"/>
    <arg name="use_sim_time" value="true"/>
    <arg name="gui" value="true"/>
    <arg name="headless" value="false"/>
    <arg name="debug" value="false"/>
  </include>

  <param name="robot_description" command="$(find xacro)/xacro --inorder $(find
turtlebot3_description)/urdf/turtlebot3_$(arg model).urdf.xacro" />

  <node pkg="gazebo_ros" type="spawn_model" name="spawn_urdf" args="-urdf -model
turtlebot3_$(arg model) -x $(arg x_pos) -y $(arg y_pos) -z $(arg z_pos) -param
robot_description" />
</launch>
```

now you can  launch by write this line in ubuntu terminal :

```
roslaunch turtlebot3_gazebo turtlebot3_empty_world.launch
```

The result after write this line .



GUI
Scene
Spherical Coordinates
Physics
Models
ground_plane
link
turtlebot3_burger
Lights

| Property | Value |
|---|---|
| name | ground_plane |
| is_static | ☑ True |
| self_collide | □ False |
| pose | |
| link | ground_plane::link |

Real Time Factor: 0.97 Sim Time: 00 00:08:13.05