ASSIGNMENT-8

Create the Robot Simulation Environment and Perform Build navigation applications using Turtlebot3 Burger.

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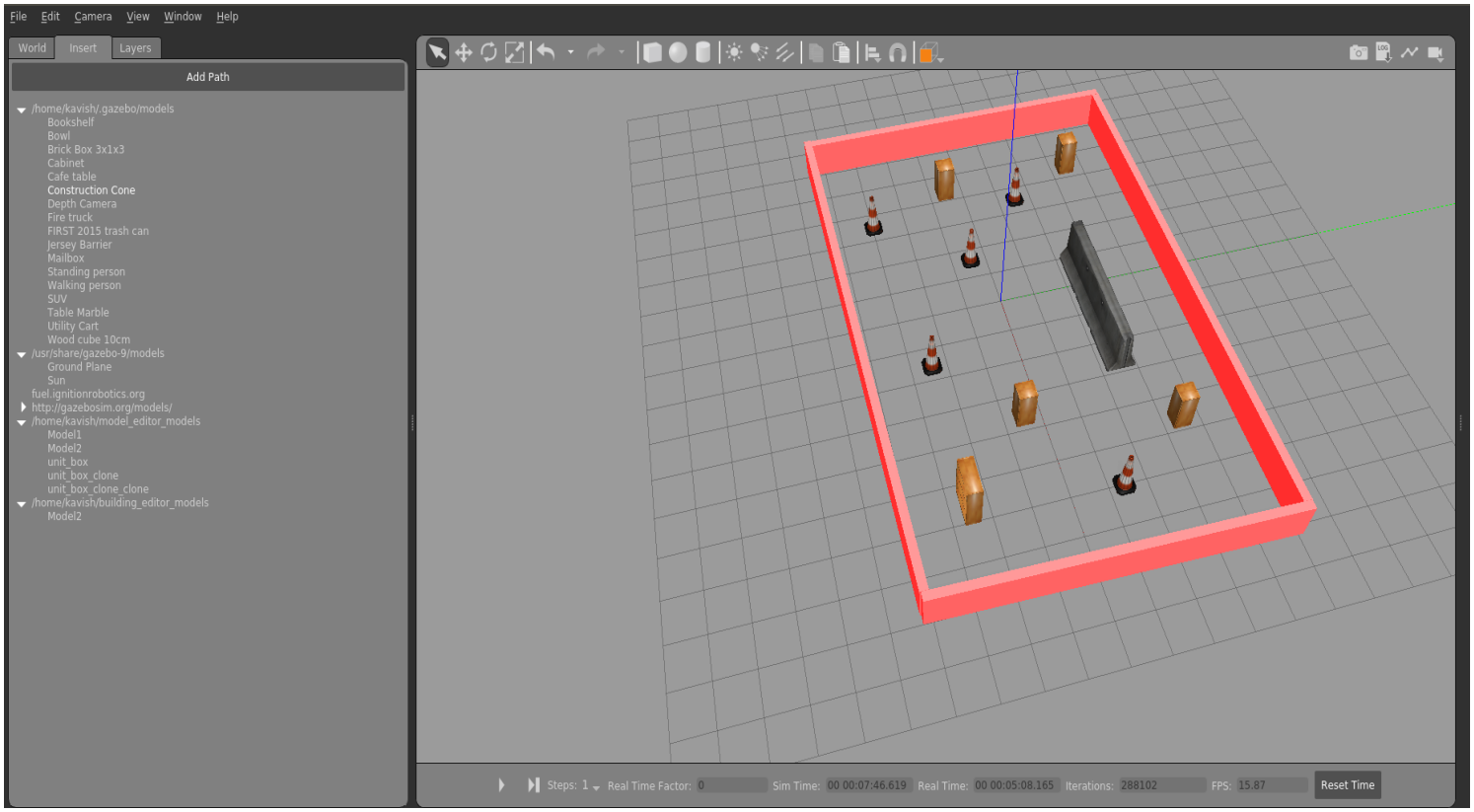
1) Creating a Custom World in Gazebo Simulator

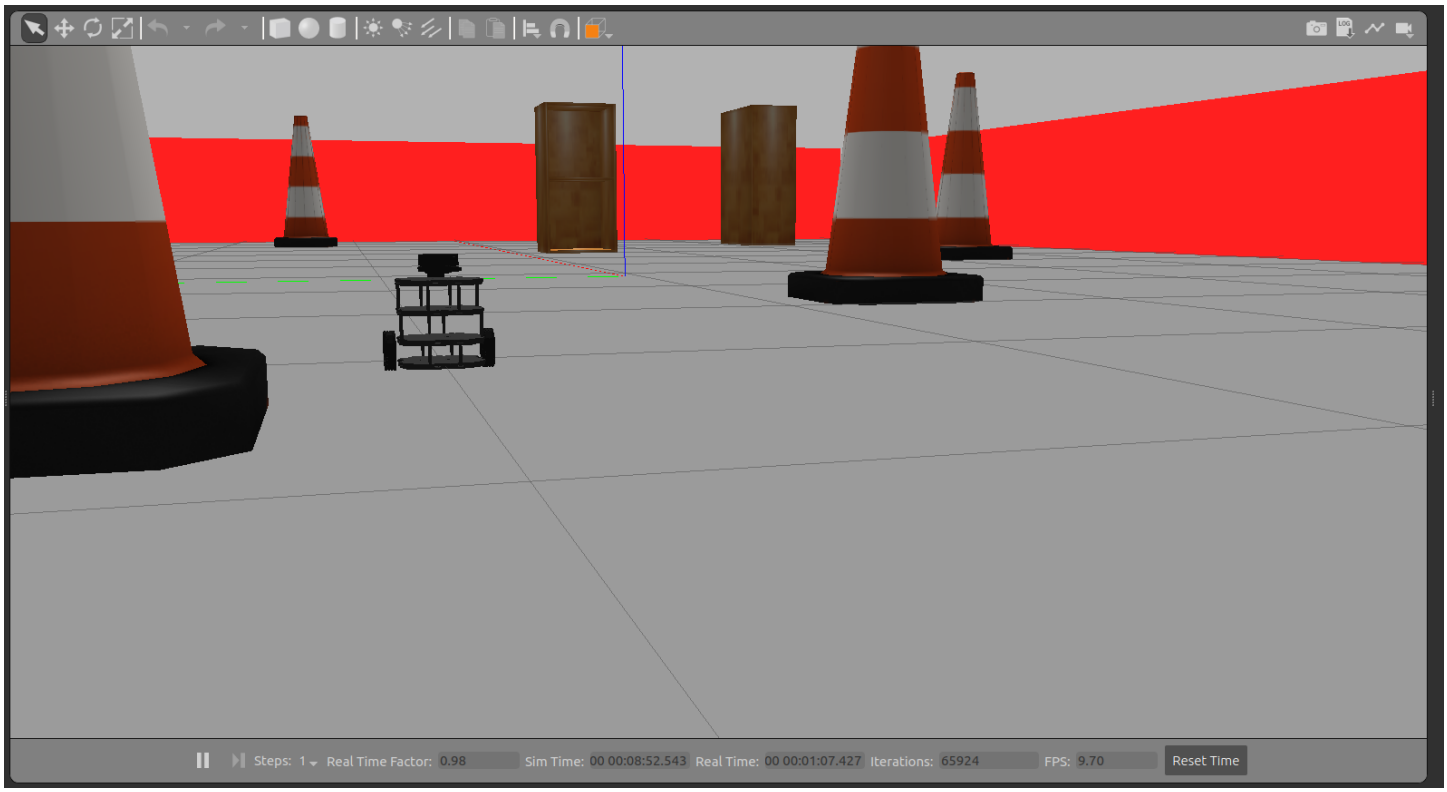


2) Creating a Launch file to launch turtlebot burger in the newly created environment

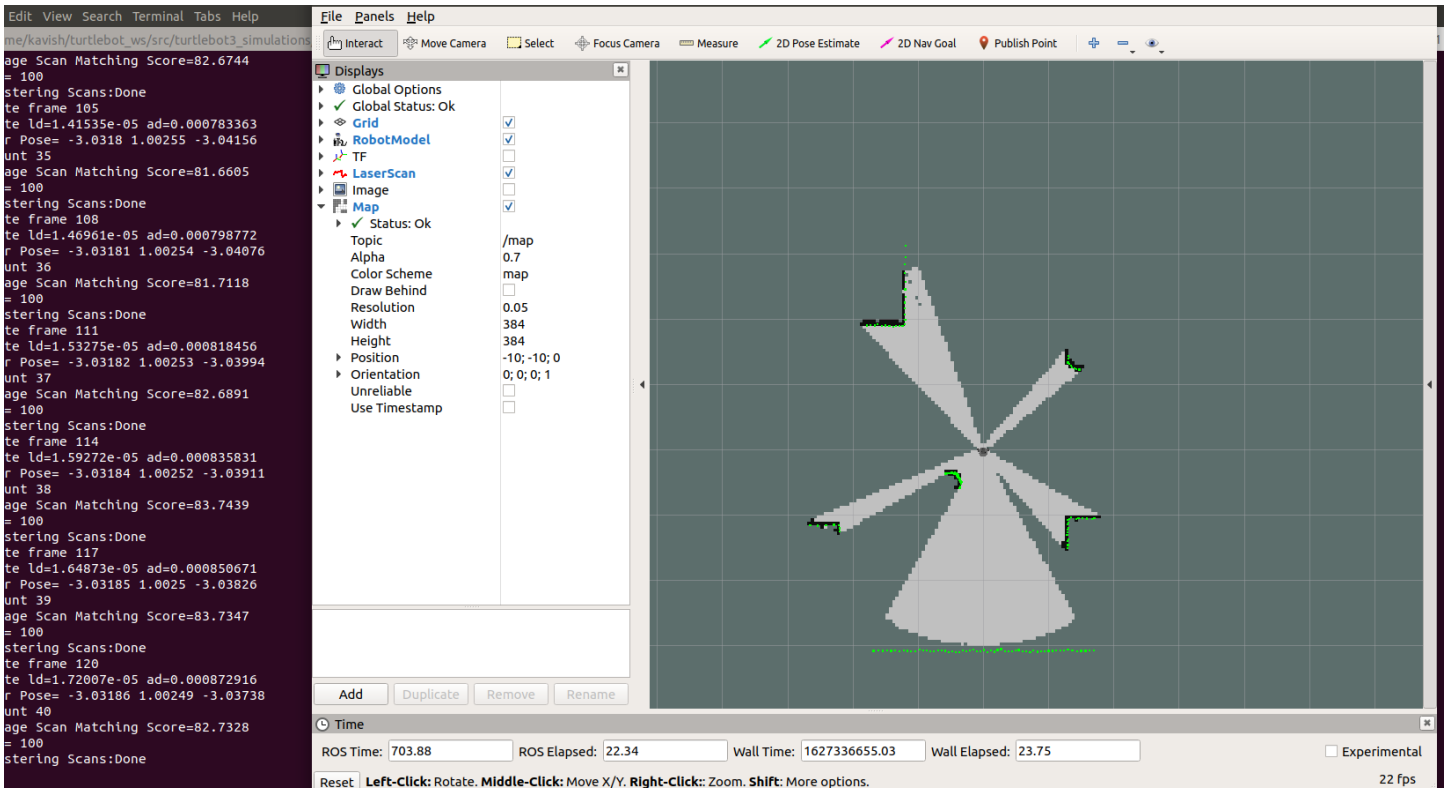
CustomWorld.launch U

src > turtlebot3_simulations > turtlebot3_gazebo > launch > CustomWorld.launch

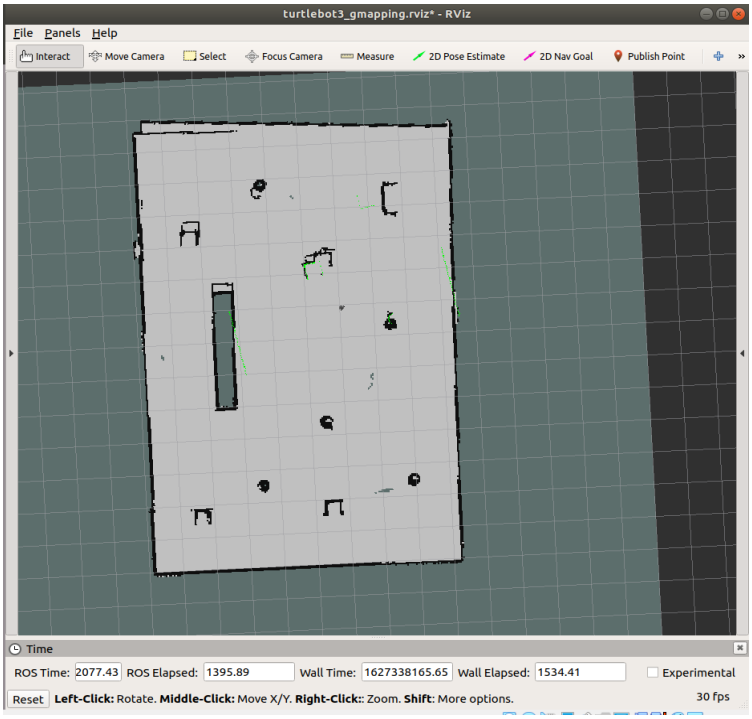
```
<launch>
  <arg name="model" default="$(env TURTLEBOT3_MODEL)" doc="model type [burger, waffle, waffle_pi]"/>
  <arg name="x_pos" default="-3.0"/>
  <arg name="y_pos" default="1.0"/>
  <arg name="z_pos" default="0.0"/>

  <include file="$(find gazebo_ros)/launch/empty_world.launch">
    <arg name="world_name" value="$(find turtlebot3_gazebo)/worlds/CustomWorld.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 $(find turtlebot3_description)/urdf/turtlebot3_$(arg model).urdf.xacro" />

  <node name="spawn_urdf" pkg="gazebo_ros" type="spawn_model" args="-urdf -model turtlebot3 -x $(arg x_pos) -y $(arg y_pos) -z $(arg z_pos) -param
</launch>
```

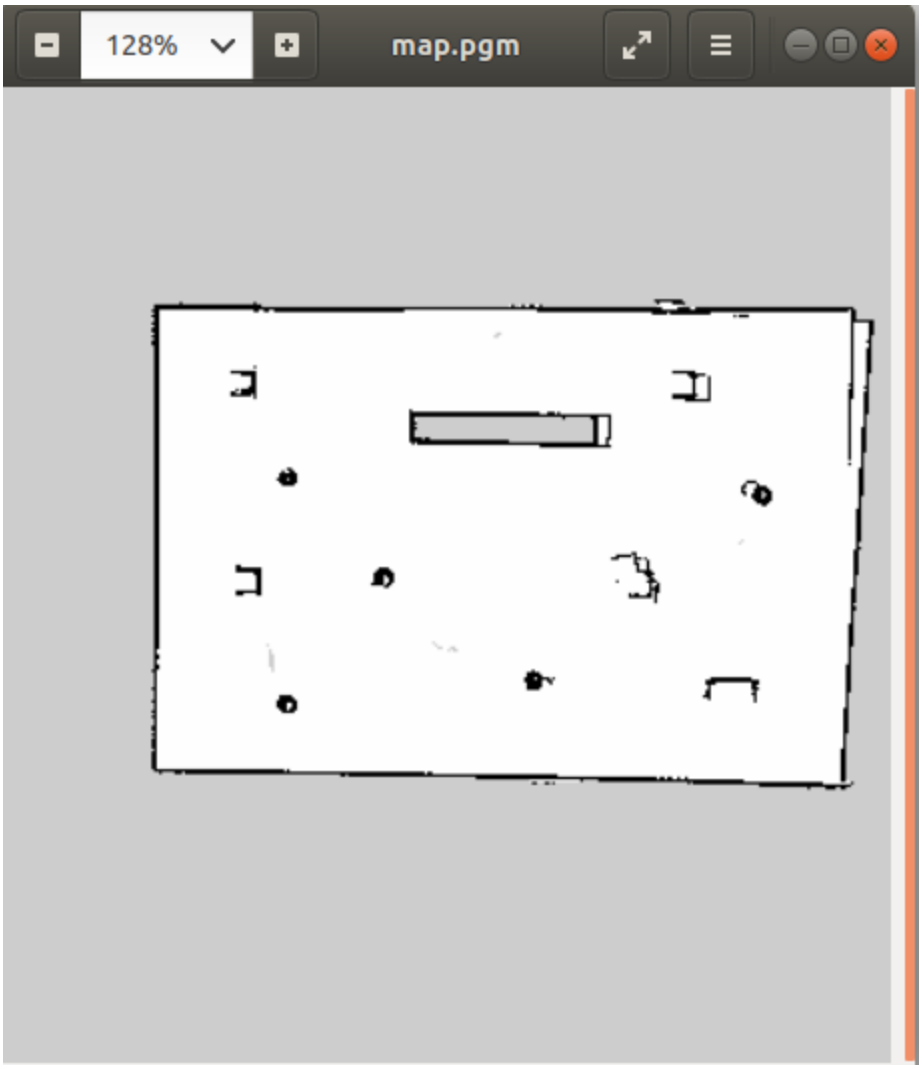


3) Running the SLAM node to create a map of the new environment

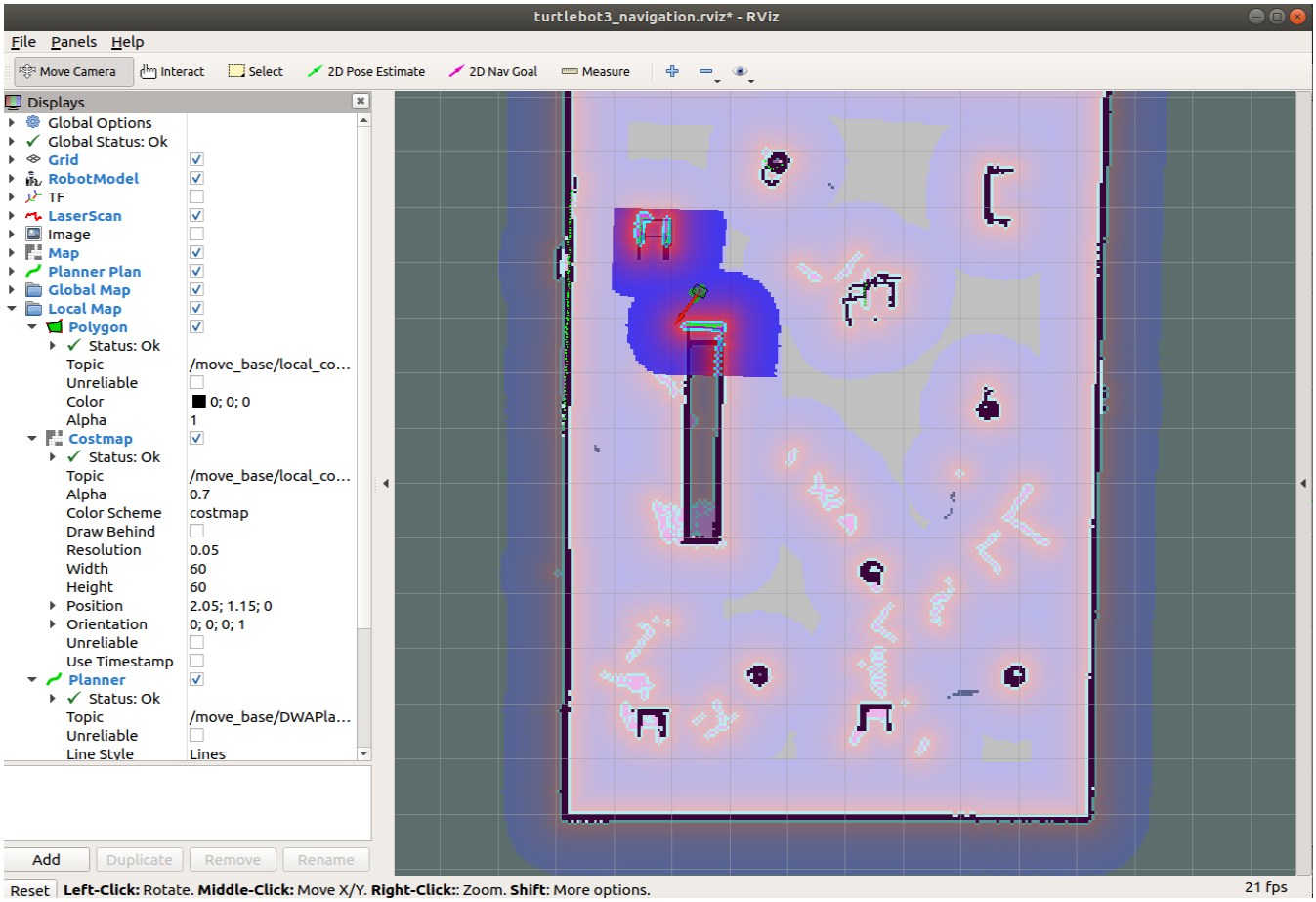


4) Navigating Manually and creating a map using teleop node:




128%
map.pgm

5) Launching Navigation:



6) Setting Goal and robot reaches goal