**Shoroog almalki**

Artificial Intelligence in Robotics

**Task :**

**Use Slam approach with TurtleBot3**

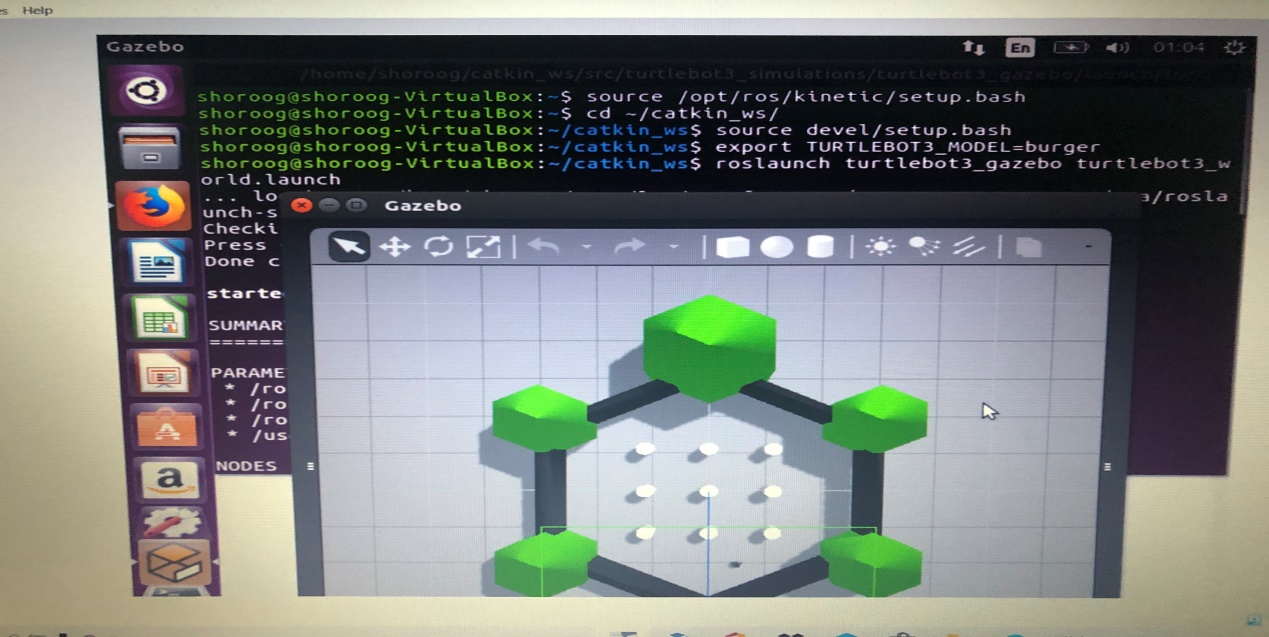
**To do simulation and mapping you should follow these steps :**

1. **Open a terminal window type "source devel/setup.bash" then write this command :**

**$ export TURTLEBOT3\_MODEL=burger**

**There are three model of turtlebot3 (burger,waffle or waffle\_pi) , we can chose any one of them ,in my case it is burger . then type this command to launch gazebo :**

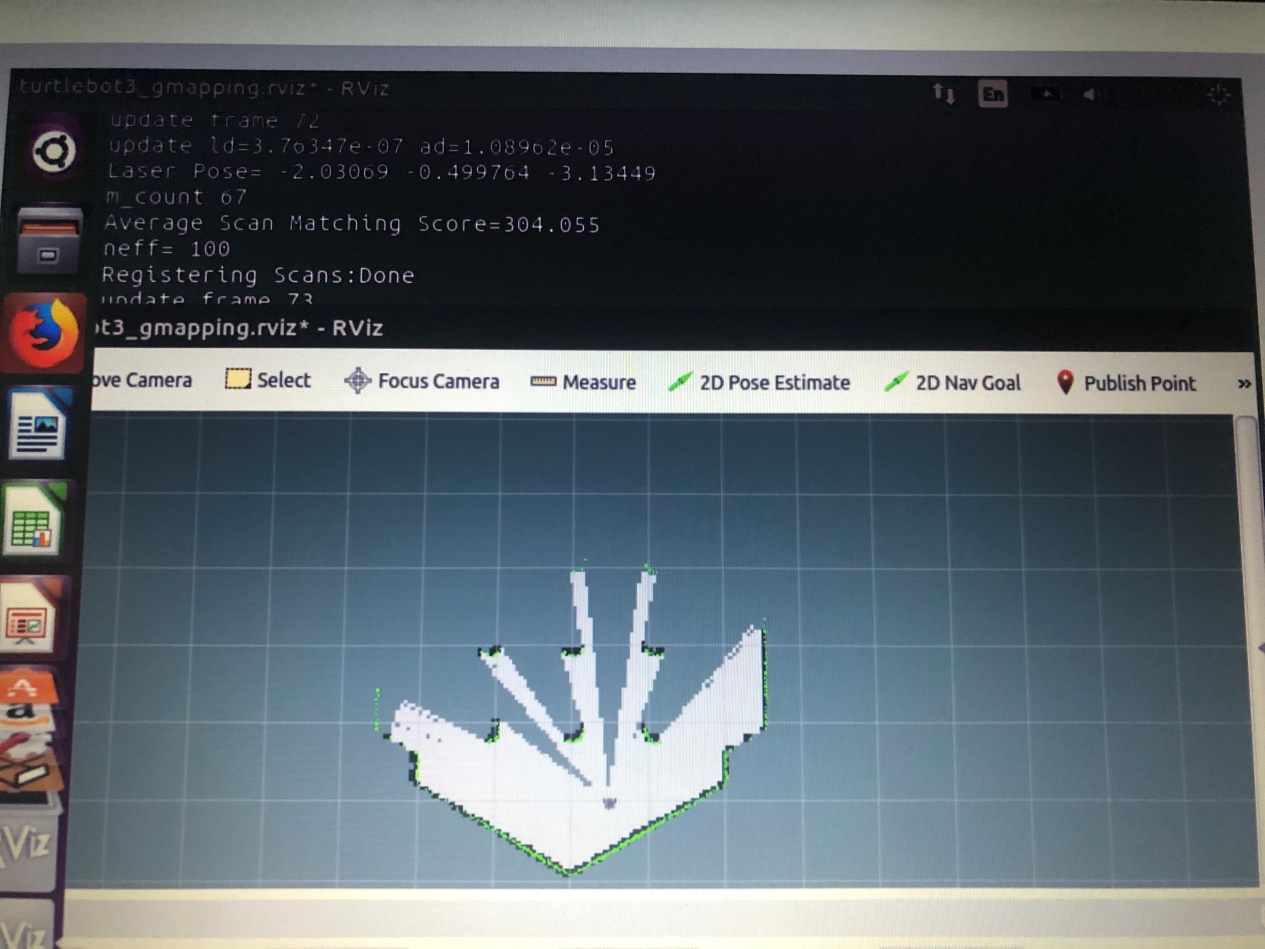
**$roslaunch turtlebot3\_gazebo turtlebot3\_world.launch .**

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1. **Open new terminal** **window , type "source devel/setup.bash" then write this command :**

**$ export TURTLEBOT3\_MODEL=burger . then type this command to launch SLAM :**

**$ roslaunch turtlebot3\_slam turtlebot3\_slam.launch slam\_methods:=gmapping .**



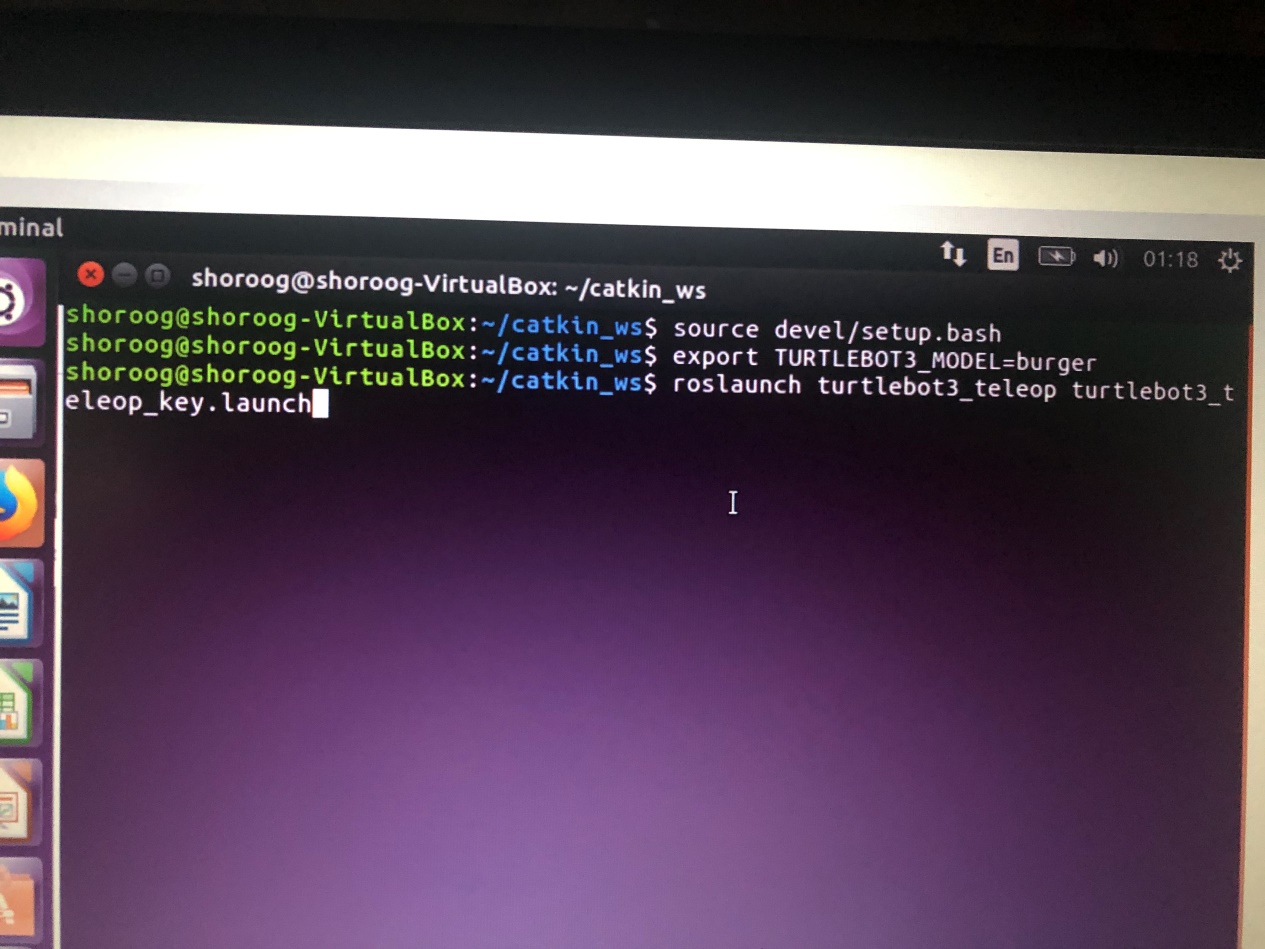
1. **To remotely control and move the robot** , **open new terminal** **window , type "source devel/setup.bash" then write this command :**

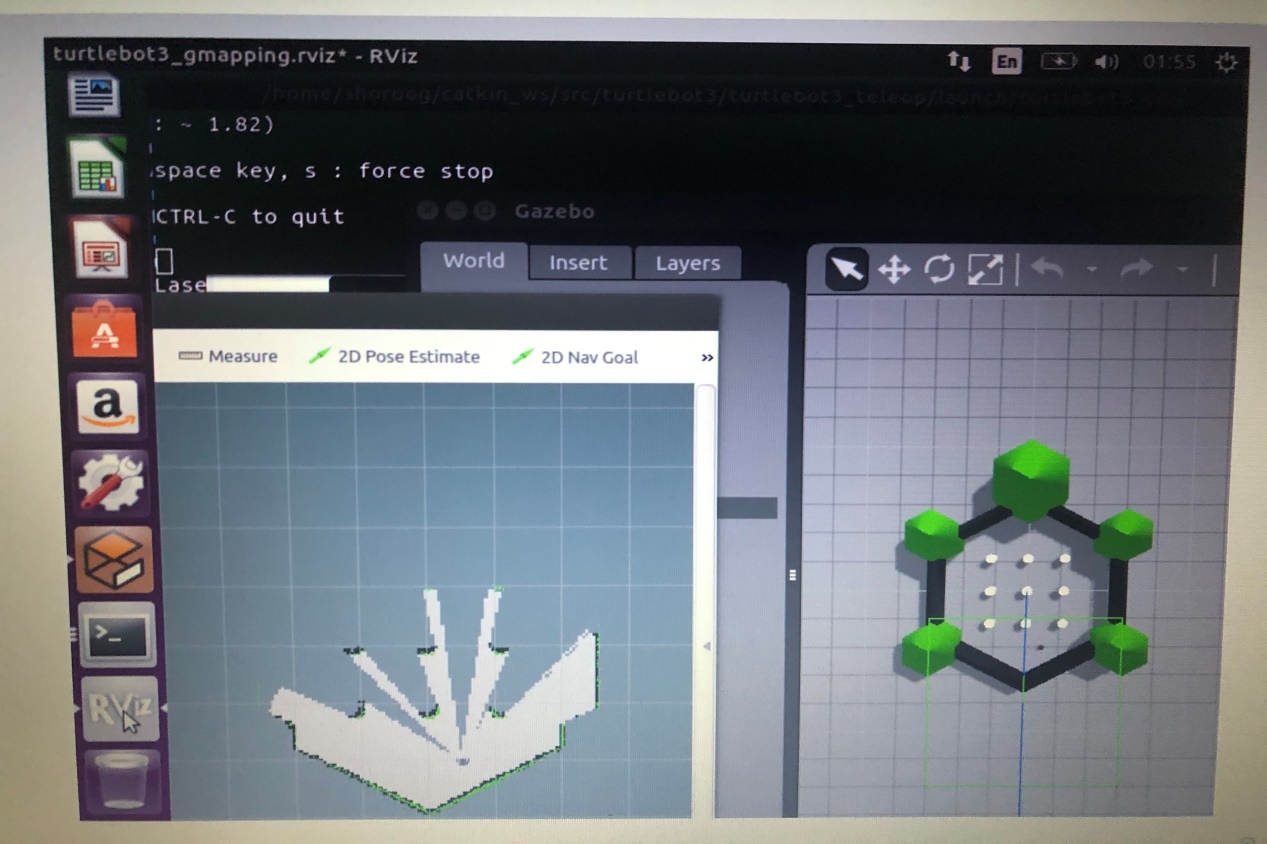
**$ export TURTLEBOT3\_MODEL=burger .**

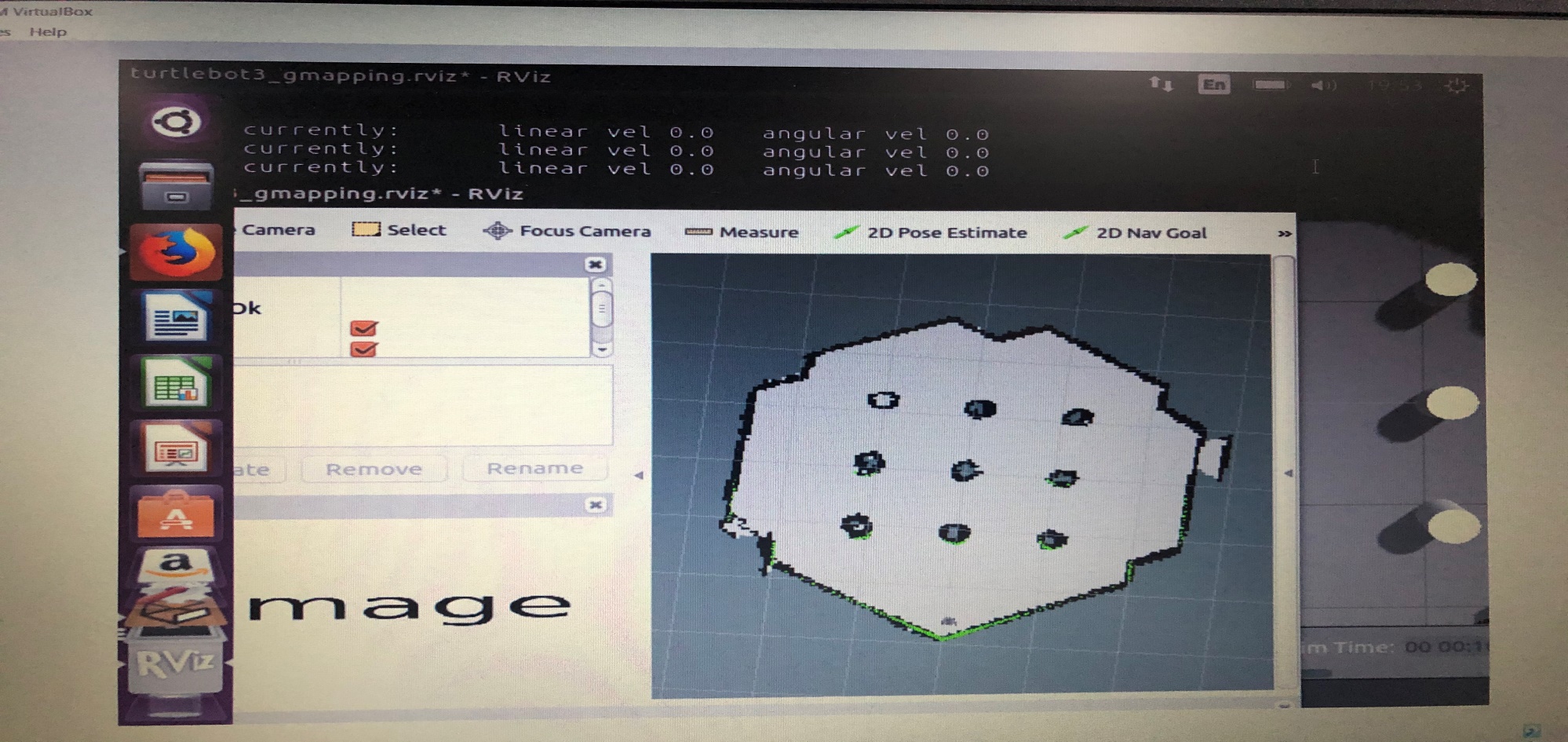
**Then type :**

**$ roslaunch turtlebot3\_teleop turtlebot3\_teleop\_key.launch**

**After moving the turtlebot3 in all direction you should have image .**

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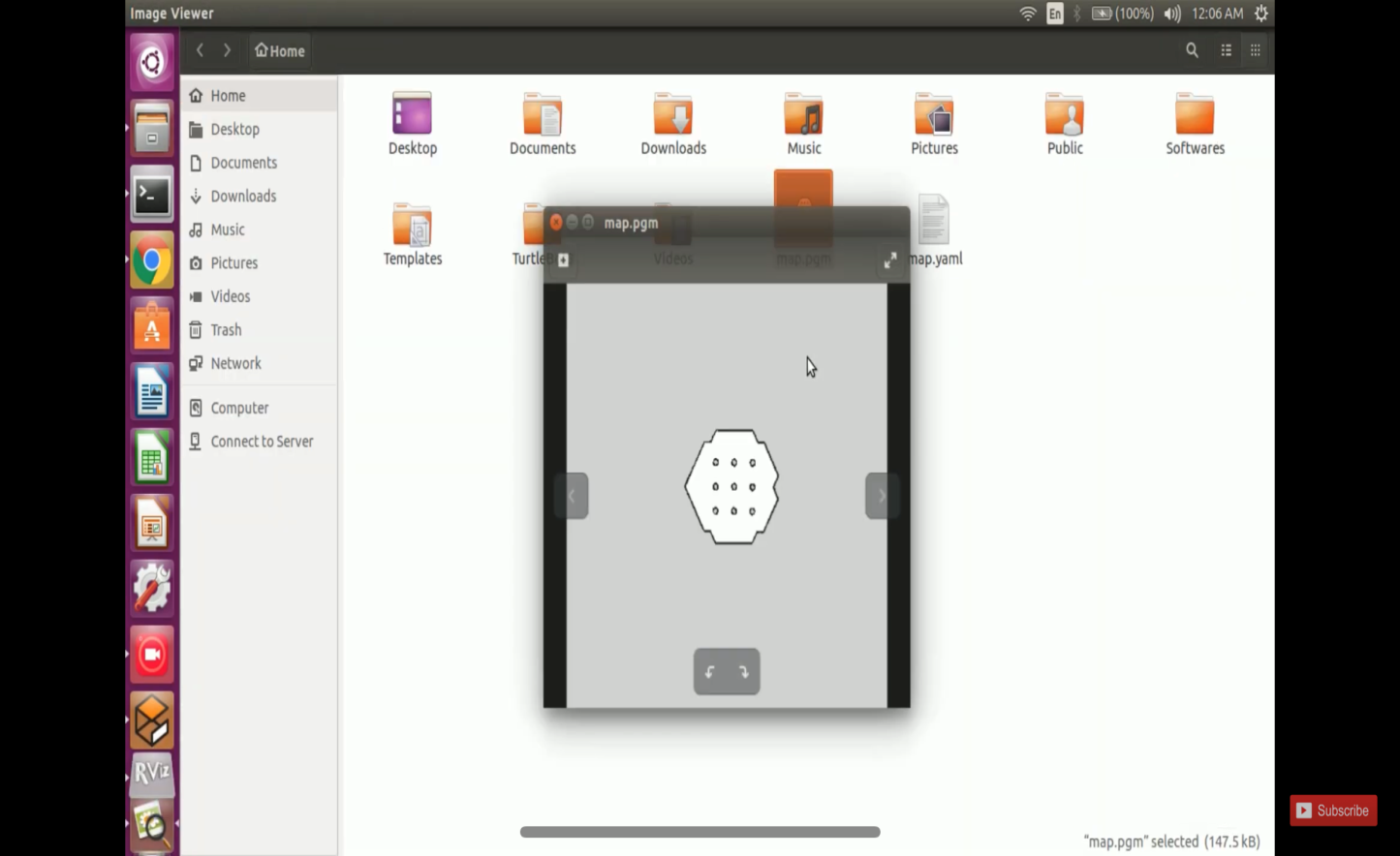
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**4 – after that you can save the map by typing this command :**

**$ rosrun map\_server map\_saver -f ~/map**

**Then you will get "map.pgm"**

**The output**

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