



Milestone 1

TEAM 4

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1. FIRST REQUIREMENT

1.1 The Standalone Gazebo Running

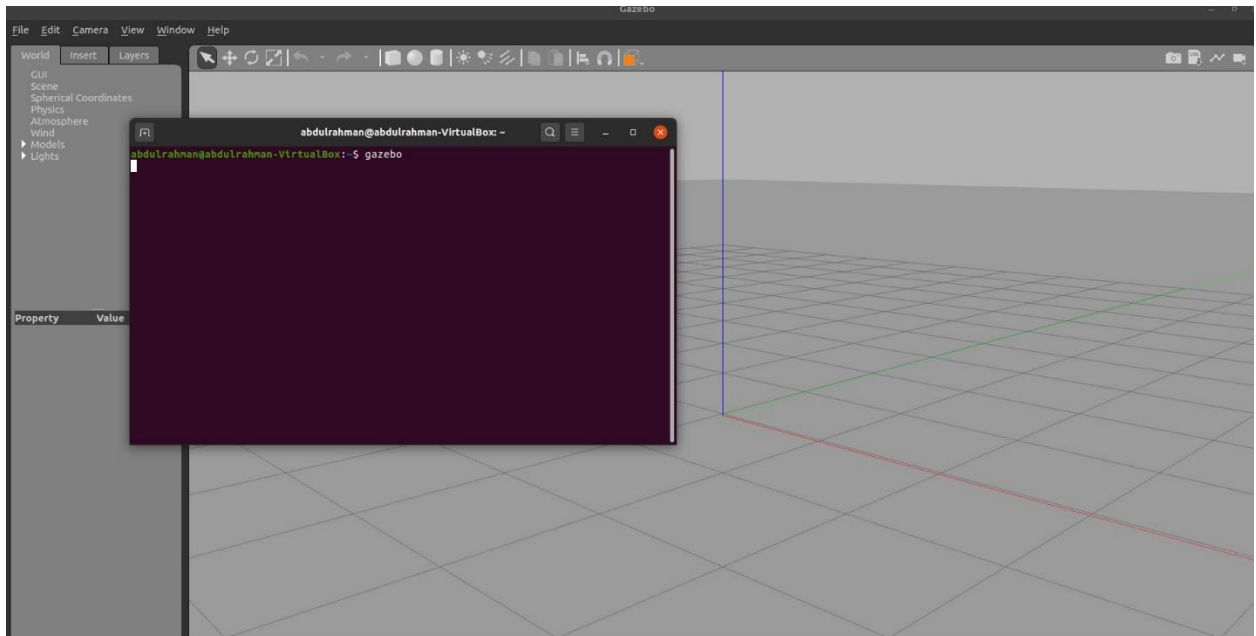


Figure 1: The standalone Gazebo running.

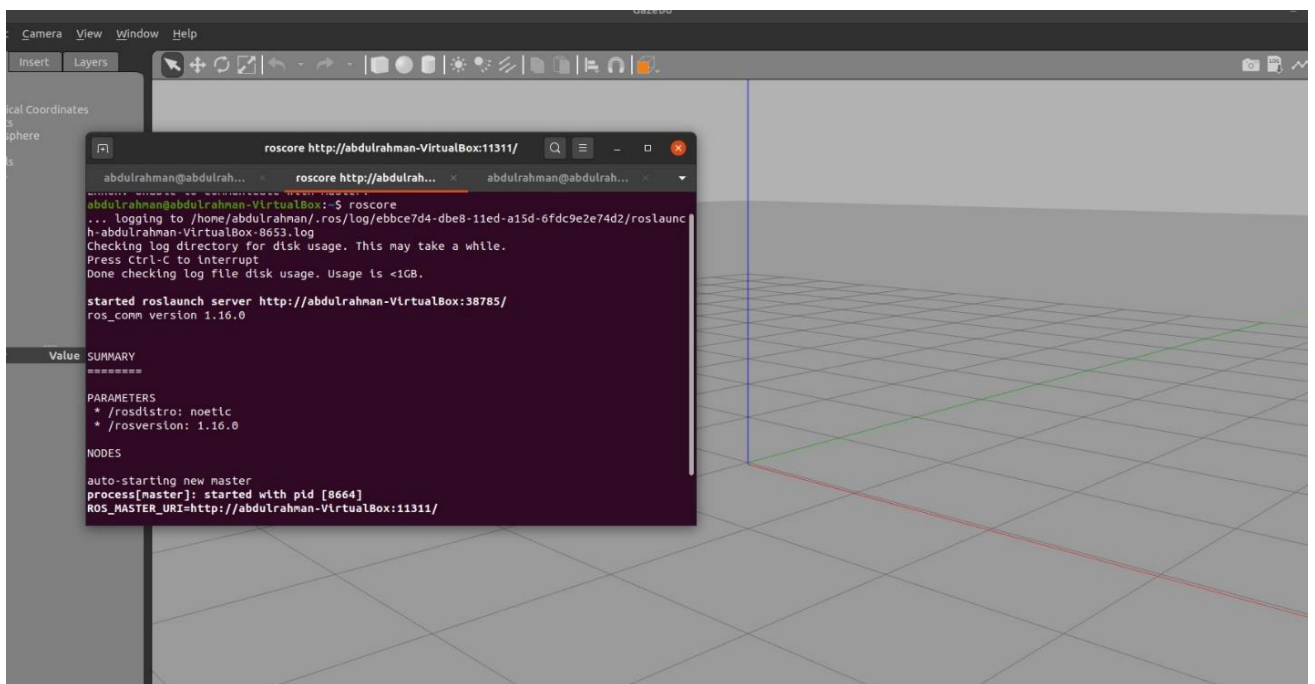


Figure 2: Roscore running.

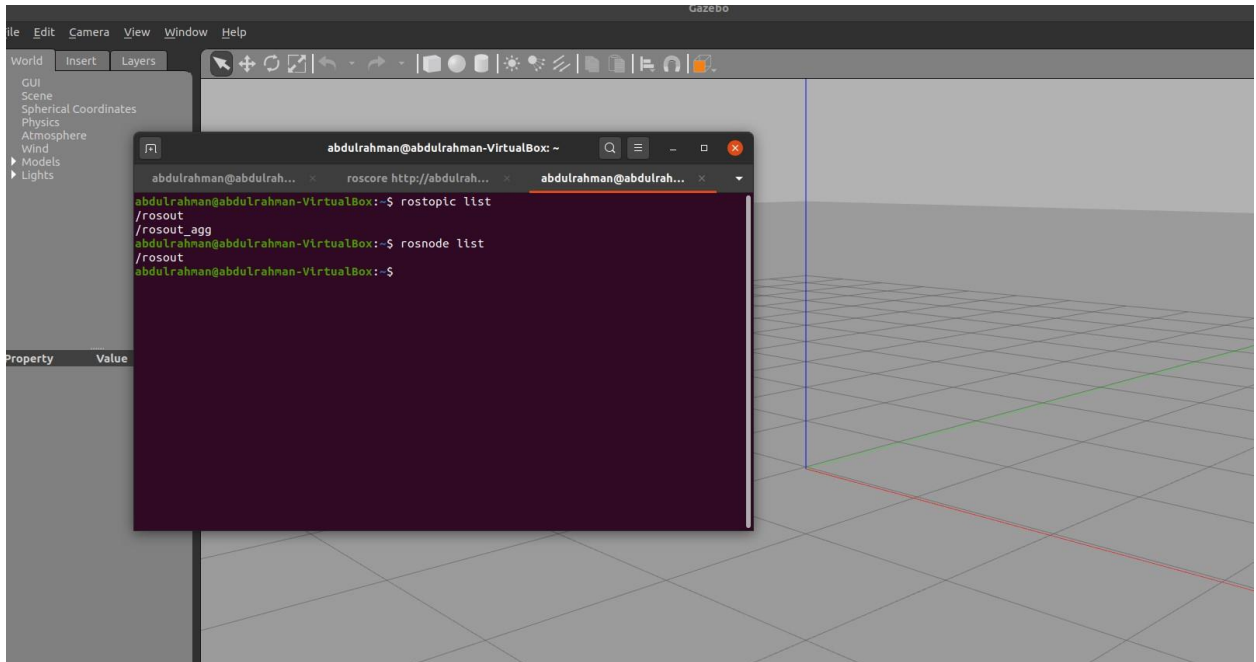


Figure 3: The active topics and nodes when use Gazebo standalone.

1.2 Gazebo Running with The Gazebo Ros Package

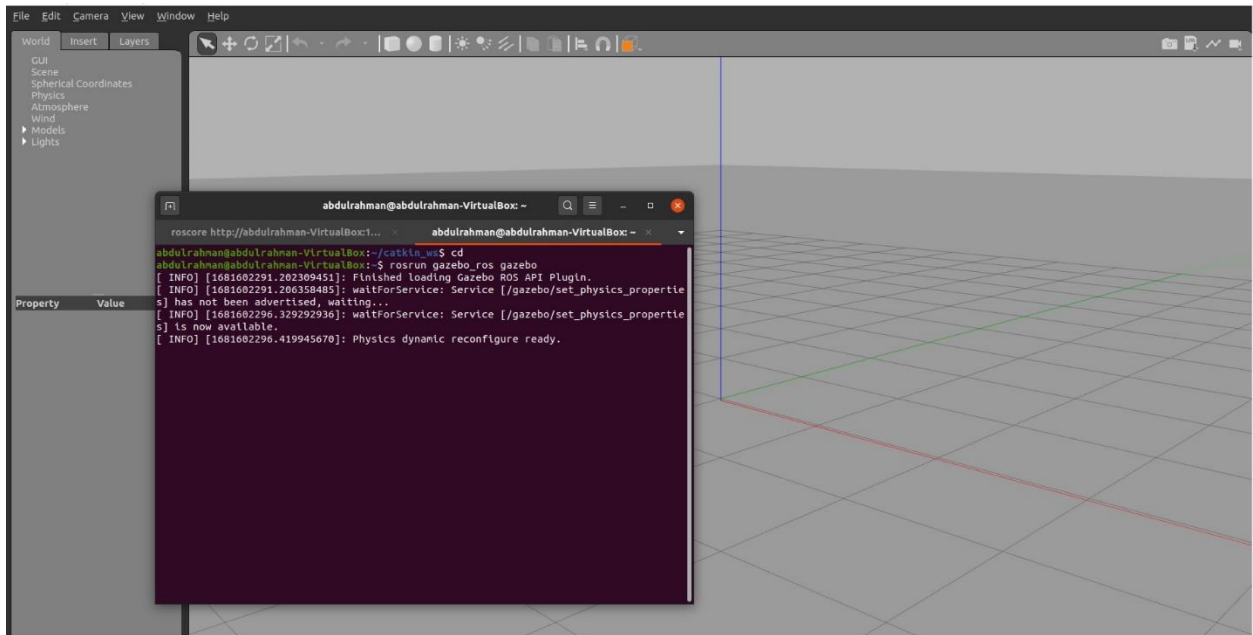


Figure 4: Gazebo runs by Gazebo-Ros package.

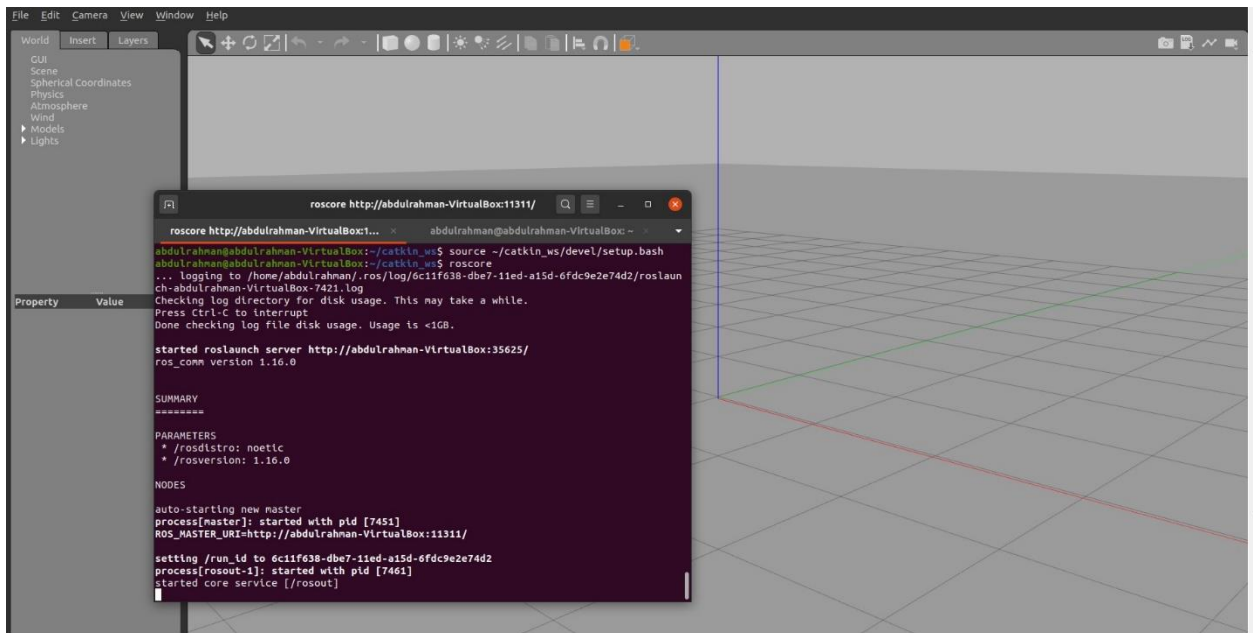


Figure 5: Roscore running.

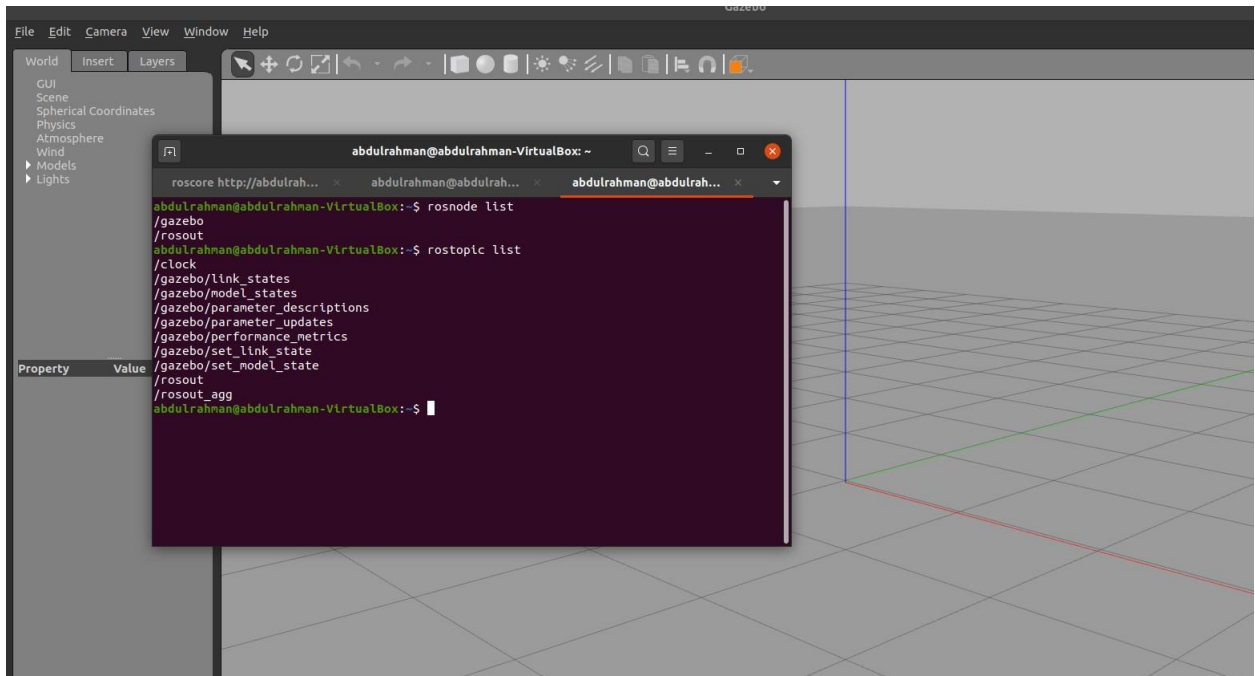


Figure 6: The active topics and nodes when use Gazebo-Ros package.

- **Comment:**

In the case of standalone Gazebo running can be considered without topics and nodes. However, the running of Gazebo with Ros packages, where several topics appear in addition to the Gazebo node.

2. SECOND REQUIREMENT

2.1 Husky Mobile Robot Spawned at The Origin of Gazebo

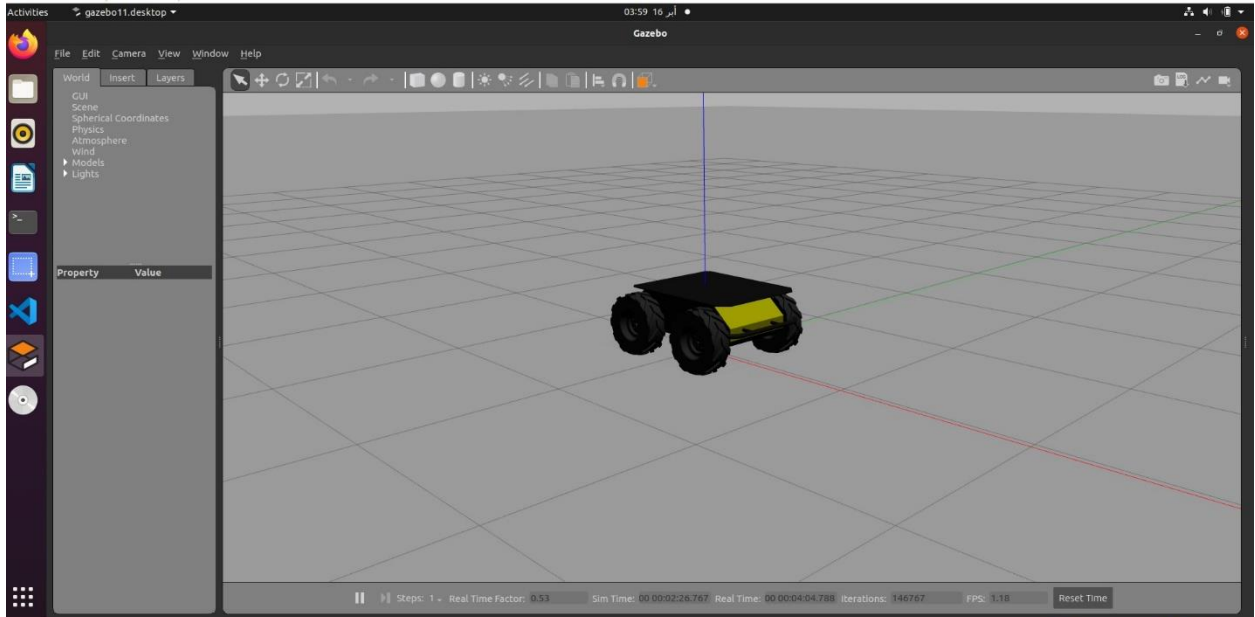


Figure 7: Gazebo launched with the Husky mobile robot spawned at the origin.

2.2 Topics List Available When Launching Gazebo with The Husky Mobile Robot

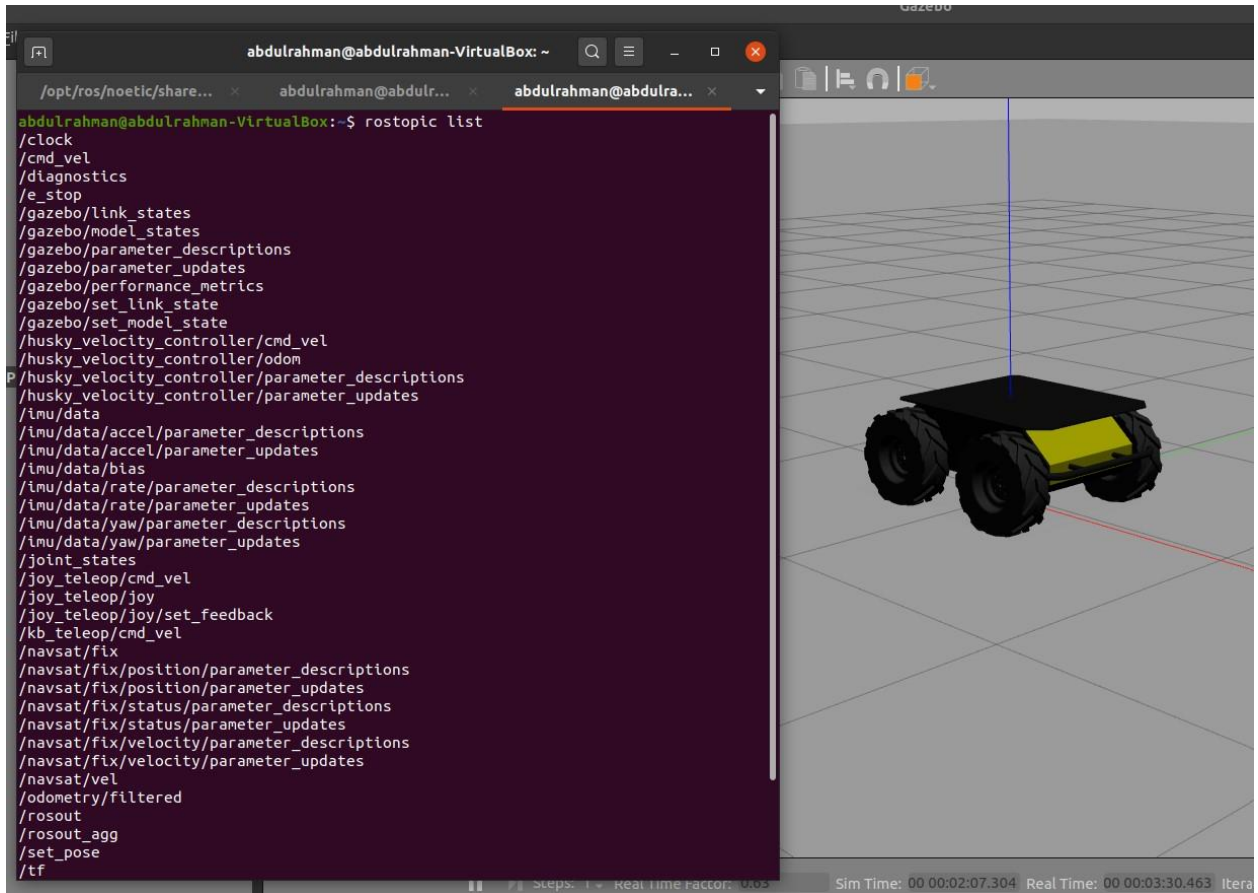


Figure 8: list of topics available when launching Gazebo with the Husky mobile robot.

3. THIRD REQUIREMENT

3.1 The Husky Robot Start Moving

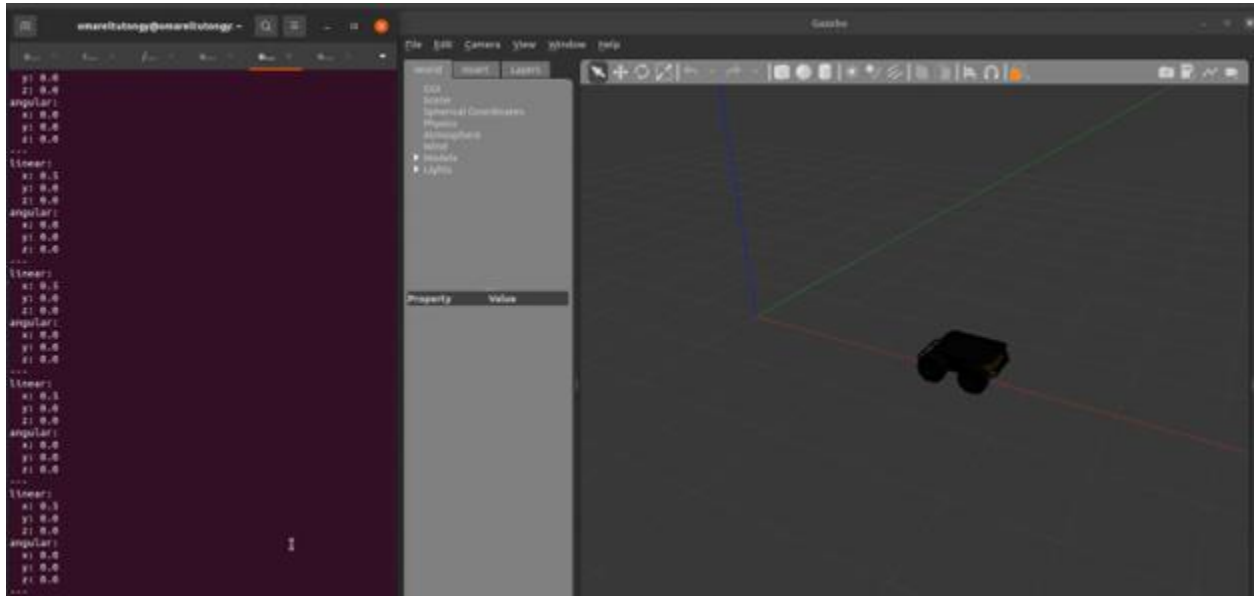


Figure 9: Snapshot of the Husky mobile robot moves in gazebo by publishing the matching message with the matching topic.

- **Third Requirement Video Link:**

https://drive.google.com/file/d/1-m_xjpq8DhnGa_AF2CshFWdIa3ywKNjK/view?usp=share_link

4. FORTH REQUIREMENT

4.1 The Husky Robot Start Moving and Calling a Service.

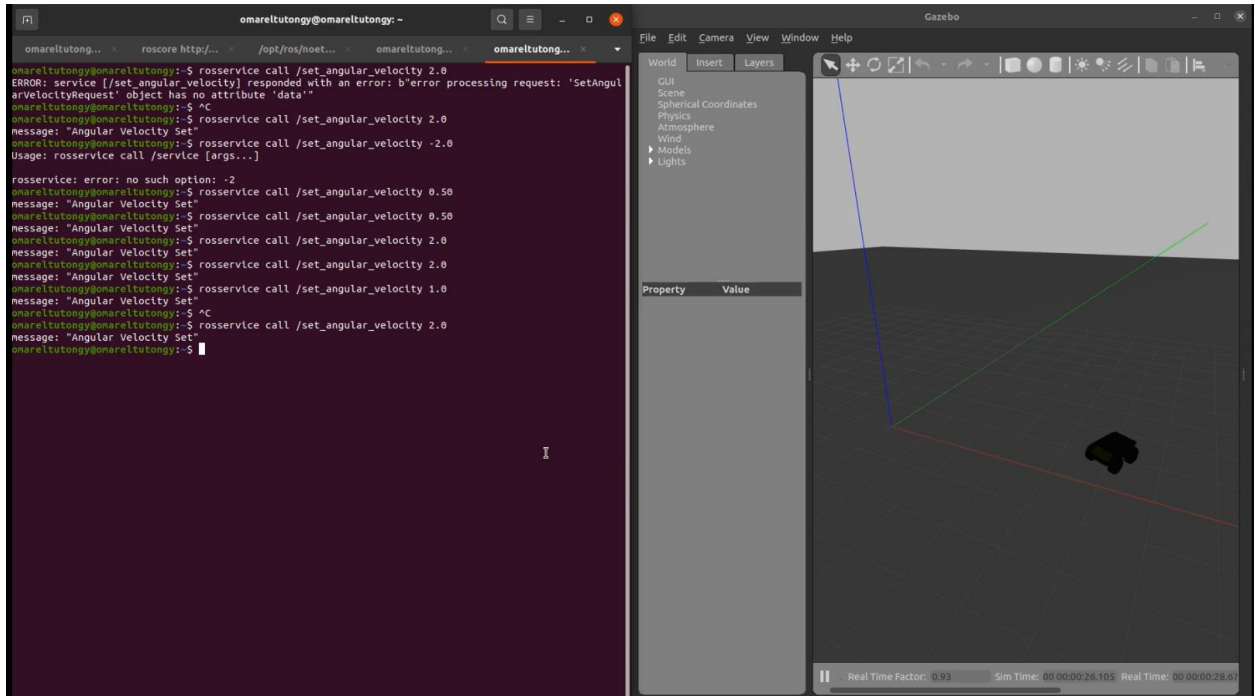


Figure 10: Snapshot of the service which is responsible for changing the angular velocity of the Husky mobile robot.

- **Forth Requirement Video Link:**

https://drive.google.com/file/d/1uOij7rPOdaxnMWiN_jDqKHKoL9PsADH_/view?usp=share_link

4.2 Procedures:

We imported the required ROS packages and messages, and created a callback function for the service that sets the robot's angular velocity.

The main function is modified to include a loop that publishes the Twist message with the current angular velocity, and sleeps for 3 seconds, followed by stopping the robot for 1 second.

A ROS Rate object with a frequency of 10 Hz is created to ensure that the loop runs at a constant rate. Finally, we added comments to the code to explain what each line does.

5. DRIVE LINK

https://drive.google.com/drive/folders/1Zmxo2KZ-OkN7wyYOHWe5Rx10jrfnhnzA?usp=share_link