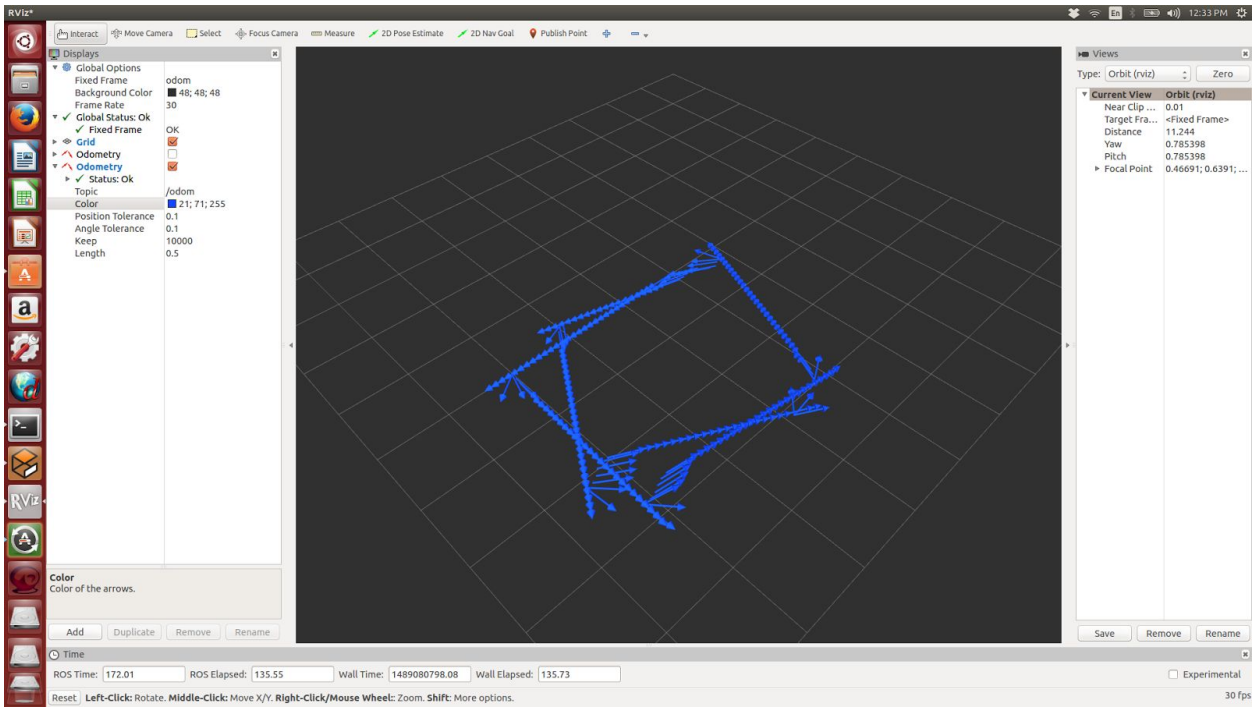
Problem 1: Open-Loop Square :

In this implementation, linear velocity was provided to the robot for a certain duration. Then the linear velocity was made zero and angular velocity was provided to the robot for a certain time so that the robot rotates 90 degrees. Then the angular velocity was made zero. The above loop is repeated and hence we can see the robot rotating in a square.

Programming language used : Python

Screen Capture:



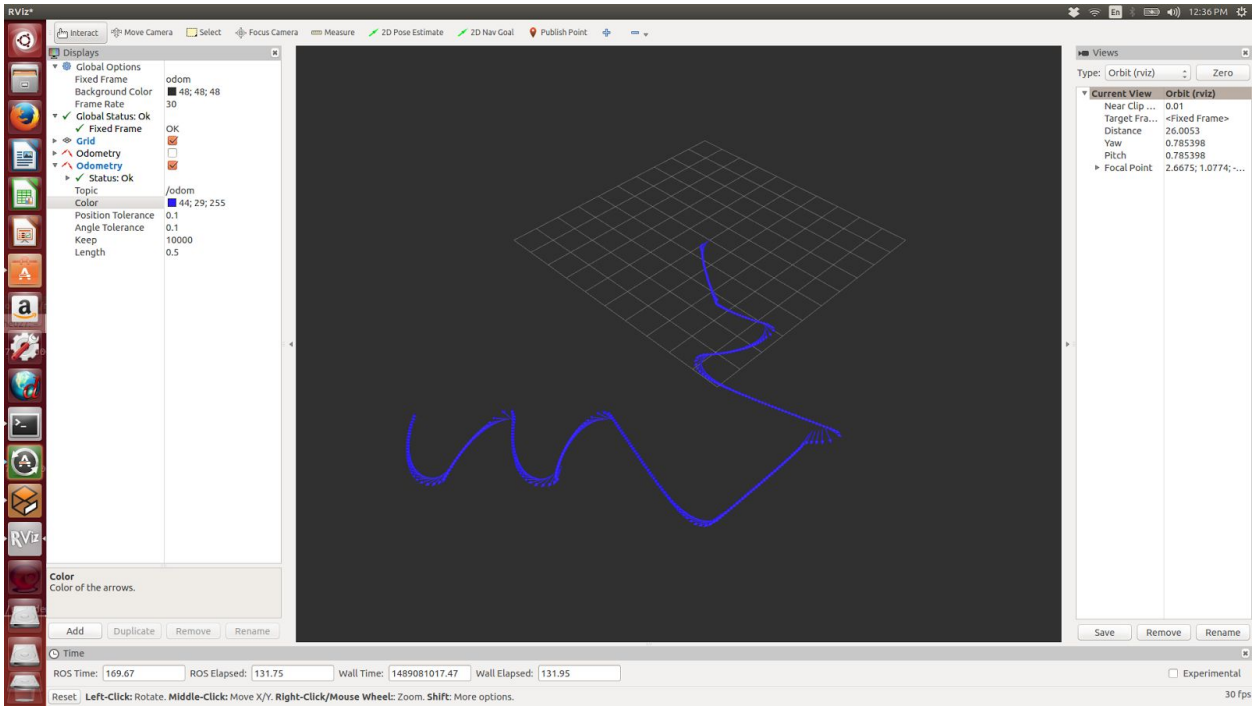
Video: https://youtu.be/oPHMyZW6z9o

Problem 2: Closed-Loop Control

In this implementation, PID controller is used to constantly find and correct the error between the heading of the robot and the direction of the next goal. The angular velocity given to the robot at any given time is proportional to this error. Hence the robot visits all the successive goals since we constantly get the feedback of the heading.

Programming language used : Python

Screen Capture:



Video: https://youtu.be/-QsMzL7inCA