Homework 1: Motion Planning

Question 1

Figure 1a represents the movement of the tables along the PR2 side along the side of PR2. Another representation of the same problem would be as given in Figure 1b.

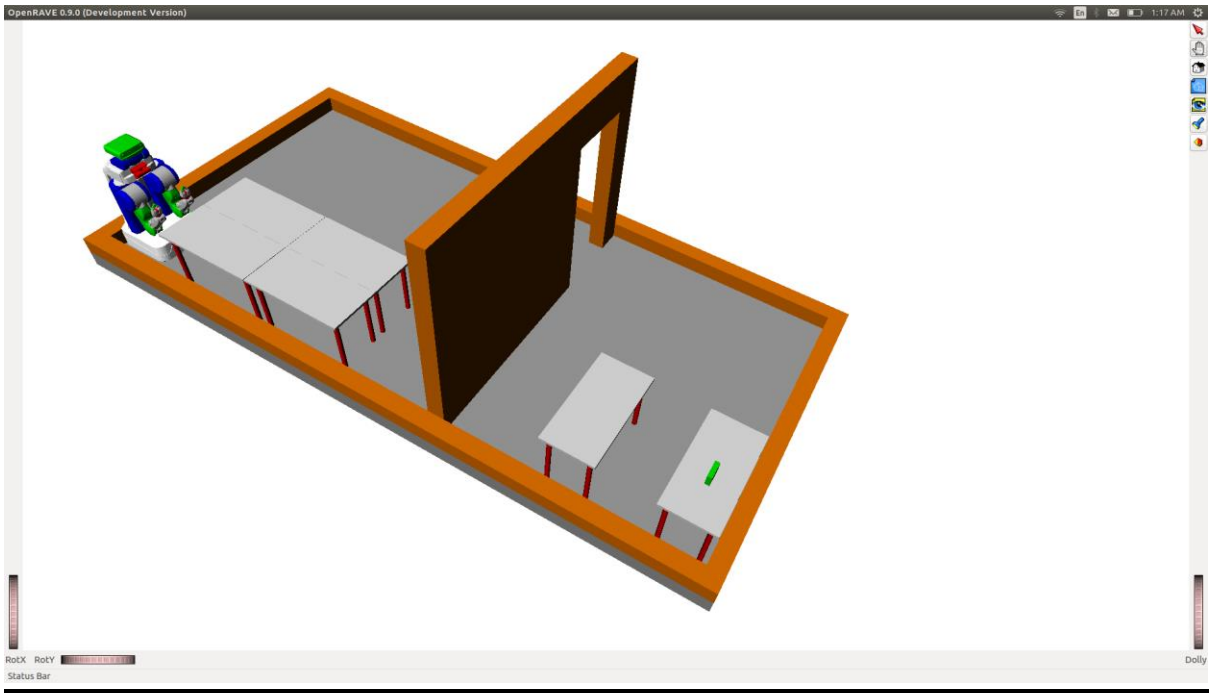

Figure 1a

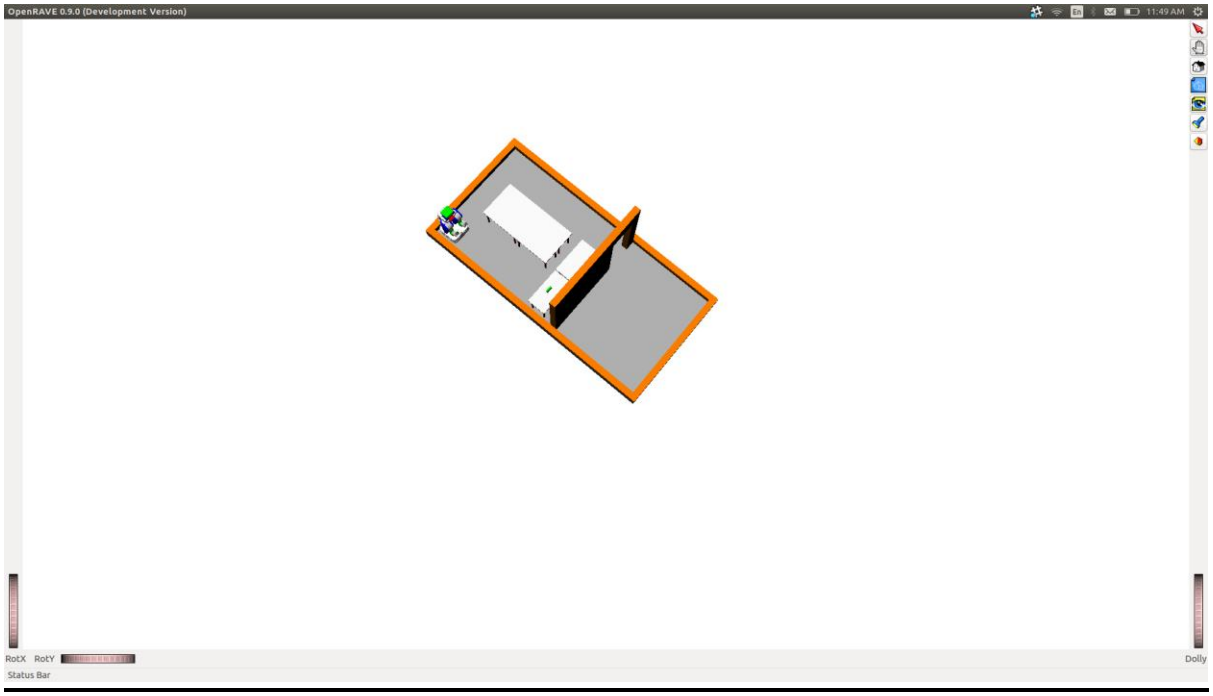

Figure 1b

Question 2

Figure 2 represents the placement of the puma robot along the PR2. The Left gripper of the PR2 touches the puma robot. The collision check is displayed in the terminal by using CheckCollision() function.

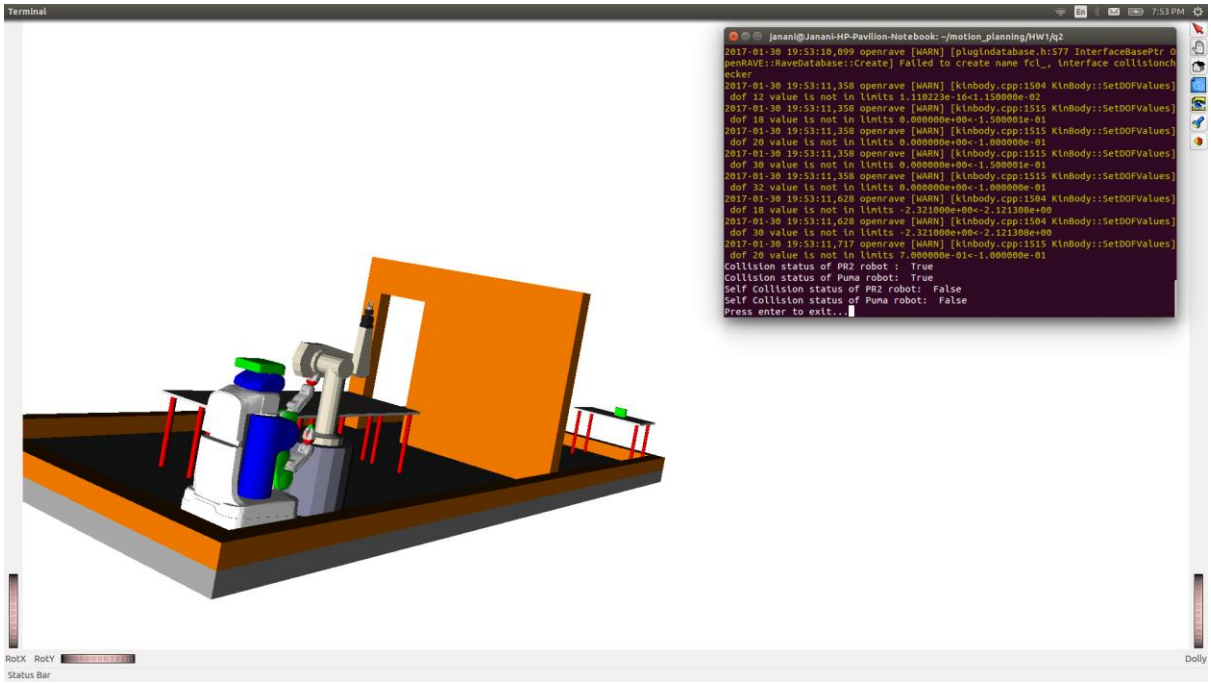

Figure 2

Question 3

Figure 3 represents the drawing of red rectangles around the table and blue circles around the environment.

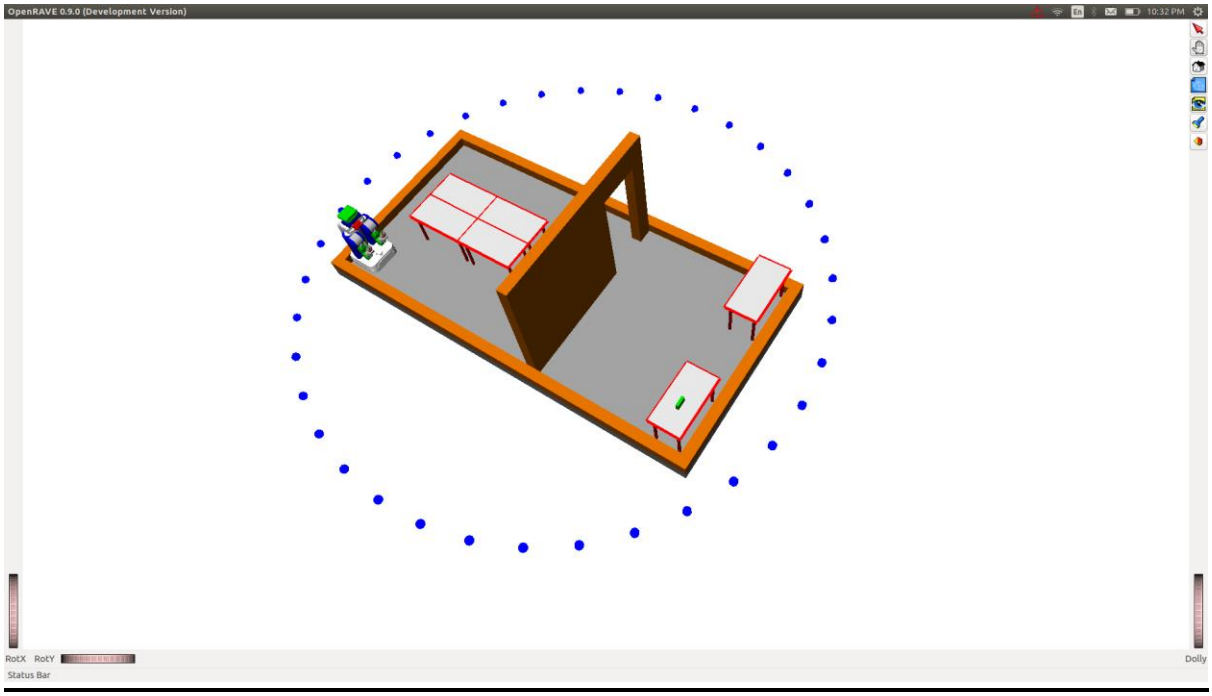

Figure 3

Question 4

Figure 4 shows the collision of the robot with the wall. The waitRobot() command placed inside the env: block will not

result in moving the robot to the desired configuration and will take forever for the robot to reach the desired state. Since the planning of the actions for the robot is a set of discrete motions it cannot move the arm is one go so the waitRobot() command placed outside the env: block gives sufficient time for the robot to execute the motion and reach the desired configuration.

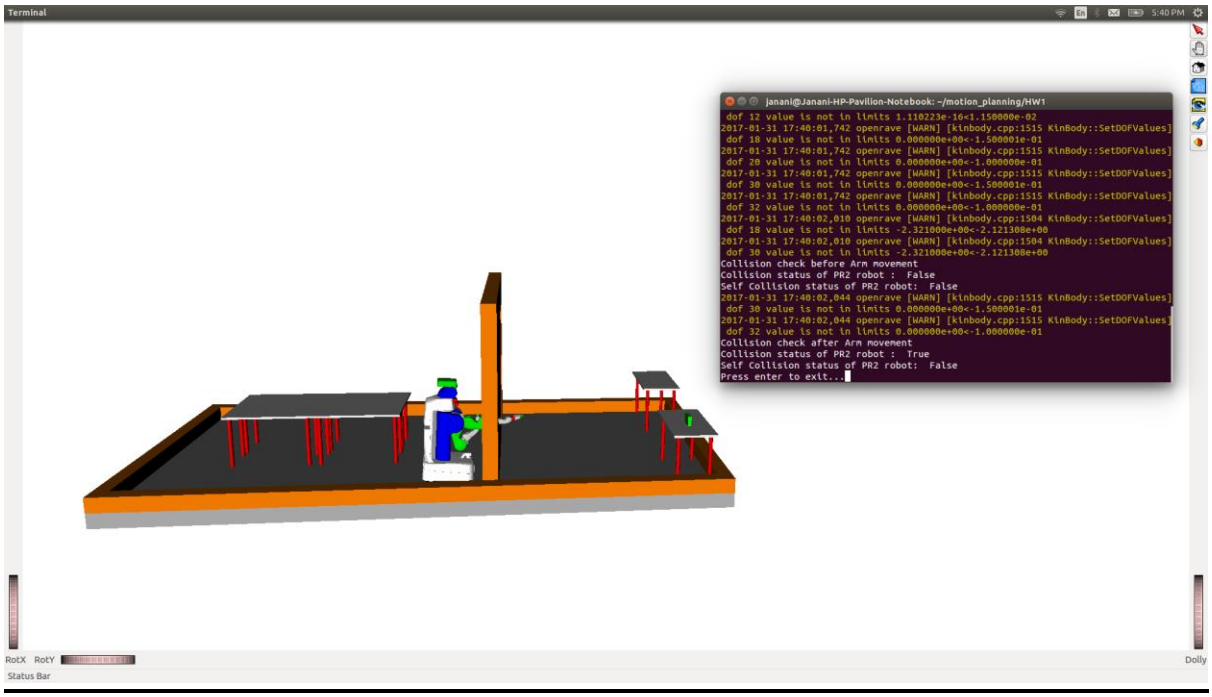

Figure 4