

EE 562 - Robot Motion Planning

Project Task # 1

Spring 2013-14

Marks: 100

Due date: 12th April, 2014(11:55pm)

In a given gazebo world(projectTask1.sdf), there are two doors to enter or exit the building. Your task is to enter the building from one door with a robot and exit the building from an other door. For the current arrangement, steer the robot manually as if you are tele-operating (Lately, you will navigate the robot autonomously). Use any robot (your own or any existing in gazebo) with an odometry and a 2D laser scanner. When the robot is inside the building, save the odometry and laser scanner data in a ROSBAG.

Once you have completed the initial task of storing the odometry and 2D laser scanner data in a rosbag, create a new empty gazebo world. Plot the data from rosbag on to the empty world with the help of point clouds.

Hint:

The overall shape of the point cloud should be similar to the original gazebo world(projectTask1.sdf) with some deformation due to noisy sensors and uncertain motion. (Later on we will remove this noise using filtering techniques.)

Topics to learn:

Rosbag, *PCL library*(you just have to look only few function from the whole PCL library to map/visualize 2D data).

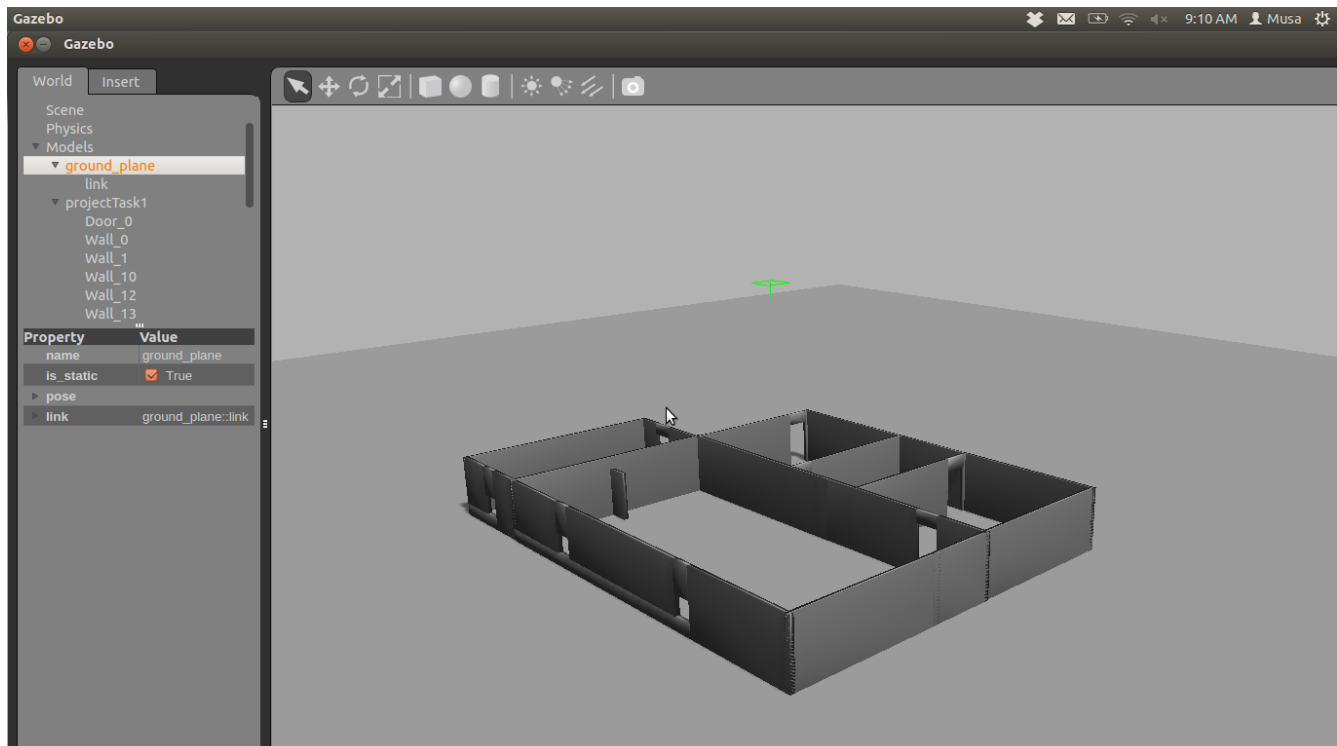


Illustration 1: Given gazebo world in 3D