For the pose and measurement included in the .mat file below, use the occupancy grid mapping techniques of chapter 9 (table 9.1 and 9.2) to create a map of the environment. You can assume the environment can be well represented by a 100 m by 100 m grid.

state_meas_data.mat Download

Use the following parameters for your inverse range sensor model: alpha = 1 m, beta = 5 deg, z_max = 150 m.

Use p(m_i) = occupied be 0.6 to 0.7 if a "hit" is detected and 0.3 to 0.4 for p(m_i) = occupied if a "hit" is not detected for a particular cell.

Once you have completed this, you can play around creating other maps if you like using these m-files.

create_map.m Download

create_meas.m Download