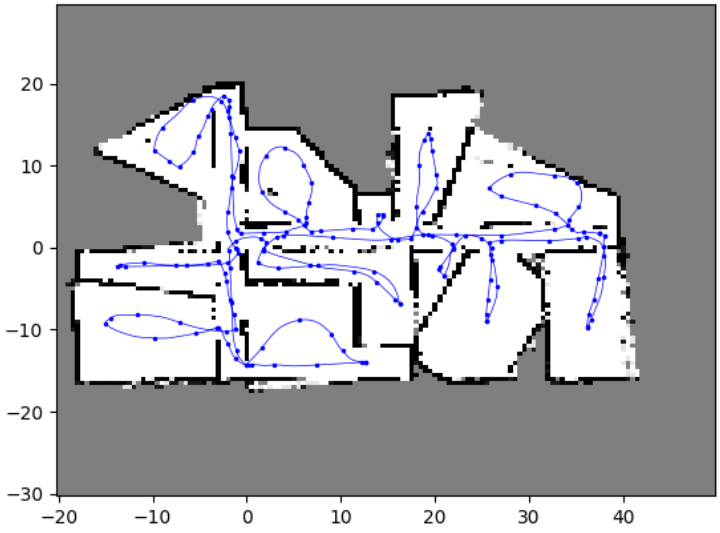
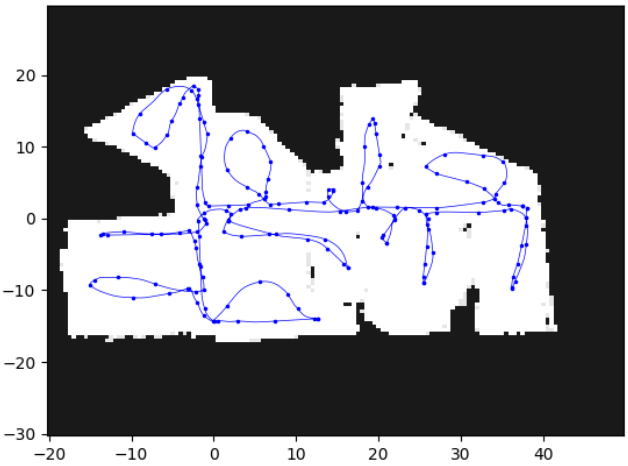
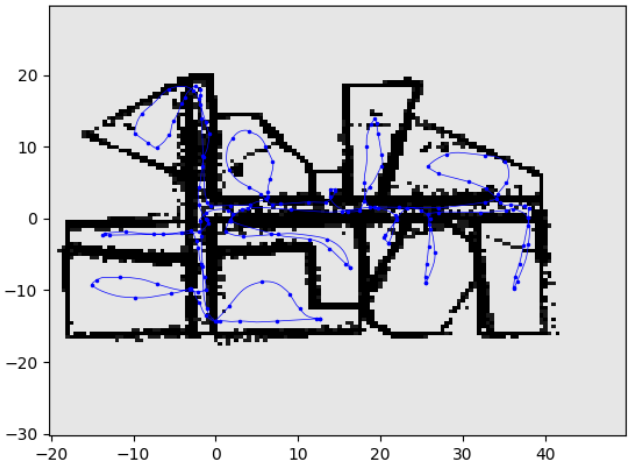
Coding Set 2 Occupancy Grid Mapping





QUESTION: **Why do these differences in the map occur?** This image to the left is with a prior of 0.9. It shows a map that believes almost every cell is unoccupied. The outer edges of the map are very clearly defined, but the inner walls are non-existent. This makes sense because the log odds of a high probability is a relatively high number. It is subtracted from the value of the cell every time the integrate_laser_range_ray function is called, which should result in small values, unless there are many measurements that give a high probability (p_occup), which is what happens at the edge of the map.

The image to the right is with a low prior which results in a lot of certainty in the location of walls and other obstacles. This is because as the cells are updated there is a



low number being subtracted due to the log odds prior.

QUESTION: **What about the way we handle occupancy grids contributes to this?**

- Every time step the map is updated, making it straightforward to plot the robot's current map every n timesteps. This discretization makes it much easier to step through the process and see how the map changes with given measurements.