

CSE4421: Lab 6

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Due: Before 11:59PM Mon Apr 08, 2013

This lab builds on the previous lab. In Lab 5, we assumed that the robot could measure all 8 landmarks simultaneously with the same uncertainty. In this lab, we change this assumption.

1. Suppose that the measurement covariance for each landmark is proportional to the distance between the robot and the landmark. For each landmark i let the measurement noise be given by $d_i \mathbf{Q}_i$ where d_i is the distance between the robot and landmark i at time t and \mathbf{Q}_i is the covariance matrix from Lab 5. Repeat the plot for Lab 5 using this new measurement noise model.
2. Now suppose that the measurement noise also has a directional dependence. Let the direction between the robot and landmark i be \mathbf{v}_i , and let the direction perpendicular to \mathbf{v}_i be \mathbf{w}_i . Suppose that the noise variance in direction \mathbf{v}_i be $0.16d_i$ and the noise variance in direction \mathbf{w}_i be $0.04d_i$. Repeat the plot for Lab 5 using this new measurement noise model.

Submit your Matlab files (including the commands that generate your plots) using the command

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submit 4421 L6 your-matlab-files
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