

# CSCI (ARTI) 4530/6530 Introduction to Robotics - Fall 2021

## Assignment 3 - SLAM; Algorithms in ROS

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### Question 2:

SLAM Package	Base Algorithm(s)	Accuracy	Efficiency	Robustness
GMapping	Rao-Blackwellized Particle Filter SLAM	Less Accurate map generated	Only create maps for the sensed region, less efficiently and need to explore more regions to develop a full map.	Less robust for regions with more obstacles and wide open areas.
Cartographer	Scan Matching Probability Model	High accuracy but less than Hector SLAM	Create maps in less time than gmapping and less exploration	Highly robust than Gmapping for mapping of regions with obstacles and wide area coverage.
Hector	Scan Matching with Extended Kalman Filter	Highly accurate mapping found	Highly efficient in developing a full map with only internal exploration of the region. Created map beyond sensed region.	More Robust than both other approaches, able to develop maps of regions beyond sensing range and obstructed areas.

