

EN530.603 Applied Optimal Control Project

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1 Overview

The goal of the course project is to apply the Numerical Optimization and Estimation algorithms learned during the class on a practical robotic system. Various implementations of these robotic systems will be provided to you. This is an individual project and each student submit their own individual work. Every student should present a report not exceeding [FILL] pages and present their results in a 5 minute presentation to the class. The report is due[FILL] and presentation will be [FILL]

2 Suggested Projects

1. Optimal Control:

- (a) Robotic manipulator
- (b) Car model
- (c) Quadcopter model
- (d) Mobile manipulator (a manipulator mounted on a mobile robot)
- (e) Unmanned surface vehicle (USV)
- (f) Satellite with underactuated Degrees of Freedom

2. Estimation:

- (a) Object Shape based on noisy range only measurements.
- (b) Position of car based on Odometry information and GPS data.

3 Deliverables

Dates	Presentations	Hand-in
3/31	Discuss chosen project with instructor	
5/10	Final Presentations (15 min. per team)	Project report (up to 6 pages)