CMPE 185 - Autonomous Mobile Robots

Project Proposal

Parallel Parking Using Nonlinear Model Predictive Control

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The automation parking system is one of the most advanced for assisting drivers, which can help to decrease accidents caused by any human issued. For this project we plan to create an automated parallel parking. Parallel parking can be hard for new drivers on the road so our group decided to help and fix this problem by creating a program that will enable users to utilize autonomous robots capabilities to safely park in situations that require parallel parking. The team will be creating a simulation through MATLAB where various parallel parking scenarios will be created and the robot will have to autonomously navigate itself through the parking lot and park itself into an empty and available parking spot.

Steps to achieve the desired output:

- Detecting the environment of the parking area.
- Navigate to a free parking spot
- Determine the length of the parking spot

- Path planning is carried out according to the actual length of the parking and parameters of the cars body
- Create and test various parallel parking scenarios to maximize the efficiency of the robot
- Testing

*References*

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