

Master Thesis / Bachelor Thesis (2019)

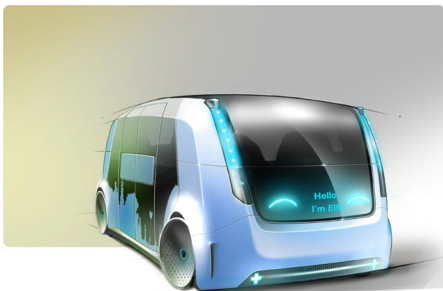
## Cornering Algorithm for Vehicle with Four Directional Wheels

In this Thesis, it is proposed to develop an algorithm for cornering in urban scenarios for a vehicle that has 4 directional wheels. This special vehicle can pass through tighter curves than a normal vehicle.

The goals of the thesis are:

1. Having a predefined path, implement two motion models to follow this path:
  - (a) Normal car model (Ackermann)
  - (b) Four directional wheels model.
2. Develop an algorithm to optimize the path planned regarding different parameters like comfort, safety, energy consumption, etc.
3. Compare both motion models and obtain conclusions, is the 4 directional wheels vehicle better in cornering than a normal one? (p.e., it can pass through tighter curves or has less lateral accelerations)

This thesis will be developed using ROS (Robot Operating System) and simulators.



We are happy to answer questions regarding the topic, reference literature or alternative topics. In this case please contact the supervisor below for further information.

Requirements: Knowledge of C++ or Python  
Knowledge of ROS (Robot Operating System)  
Independent, diligent and structured way of working

Keywords: Autonomous Vehicles, Motion Planning

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