Task description

Development of a Ride-Sharing Algorithm for On-Demand Transport Systems

Increasing urbanisation and the demand for individual mobility pose an increasing challenge for the traffic infrastructure and for the public transport system. Due to the increasing popularity of mobile applications, new transport concepts (e.g. UBER) emerged beside of the traditional transport systems (taxi, bus, rail). These transport systems respond on-demand and individually to the requests of customers. By ride-sharing, the usage of the vehicle fleet, as well as the reduction of traffic congestion could be achieved.

In this work a ride-sharing algorithm should be developed, which processes travel requests with start and destination efficiently and combines them with similar routes. The implementation and the conduction of experiments are done with publicly available datasets, which enables a comparison of the results with other ride-sharing algorithms.

The steps for the tasks are as follows:

- Literature research and study about the topic ride-sharing
- Development and implementation of a ride-sharing algorithm
- Application of the ride-sharing algorithm with real transport-data
- Evaluation and comparison of the results with other ride-sharing algorithms
- Discussion and documentation of the results

This work requires good programming experience in JAVA and an independent working attitude.

The lecture „Trends in Automotive Engineering“ or „Road Vehicles: Design and Simulation“ can be attended in preparation or during the project.

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