Univ.-Prof. Dr.-Ing. W. Reinhardt

Master Thesis

Eco-Friendly Routing: Optimizing Freight Transport Considering CO2 Emission

The aim of the master thesis is to create a routing system for logistic operators, which calculates the optimal route for freight transport based on specific criteria. The optimal route here is the most ecological one (i.e. with the least emission), but for comparison the most economical one should also be calculated. The routing should consider the CO2 emission based on properties of vehicles, slope and elevation. To be able to consider the emission as a criteria first a model should be developed based on researching existing literature. Possibly the weather conditions could be also considered as a criteria (by including temporary speed limits and restricted road segments). The test area is in the Alpine region.

Within this master thesis a complex routing system should be developed based on PostgreSQL/PostGIS or Neo4j databases. Additionally a web interface should be developed where the criteria for the routing can be chosen and the resulting route visualized.

Prerequisites:

Basic knowledge about:

- Relational or graph-based databases
- SQL
- Routing algorithms
- A programming language for creating a web interface (JavaScript, Python, etc.)

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