IDP

Development of a Frontend/Dashboard for the Simulation of Battery Electric and Autonomous Trucks in Transfer Hub-based Freight Transport

Motivation

Increasing climate protection requirements and a worsening shortage of drivers pose major challenges for logistics. One concept that addresses both problems simultaneously is a transfer hub-based freight transport, in which highway sections are handled autonomously, but drivers continue to transport goods to and from hubs near highways. By swapping trailers at the hubs, conflicting objectives with regard to range, payload and charging capacity of battery-electric tractor units can also be handled.

A simulation model for hub-based freight transport is currently being developed at the chair. To visualize the results and to enable the derivation of implications from the simulation, a frontend or dashboard for the simulation is required

IDP topic

The aim of this IDP is to develop a frontend or dashboard to dynamically visualize the simulation results. For this, relevant existing and possible additional simulation outcomes must be identified. You are encouraged to contribute your ideas and to develop a visualization concept for a smart dashboard displaying the simulation results. You can implement this concept using an approach of your choice and connect the frontend or dashboard with the simulation model.

Work packages

- Familiarization with the concept of electric and autonomous trucks in transfer hub-based transport

- Identification of relevant simulation outcomes

- Development of a visualization concept

- Implementation of a frontend/dashboard for the simulation

What you get

- The possibility to benefit from a pioneering role and to make your contribution for shaping the future of logistics

- The opportunity to implement your own ideas

- In case of excellent working performance: opportunity for a follow-up thesis work (master's thesis)

Requirements

- Passion for e-mobility and energy-transition-accelerating technologies

- Initial programming experience

- Ideally experience in building frontends/dashboards

- Independent and strategic way of working

- Very good German or English language skills

I am looking forward to receive your complete application with a CV, current overview of grades, a brief motivation, and any other documents. **The IDP can be conducted either in German or English.**

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Start date
From now
Workplace
FTM (Garching Forschungszentrum) or remote