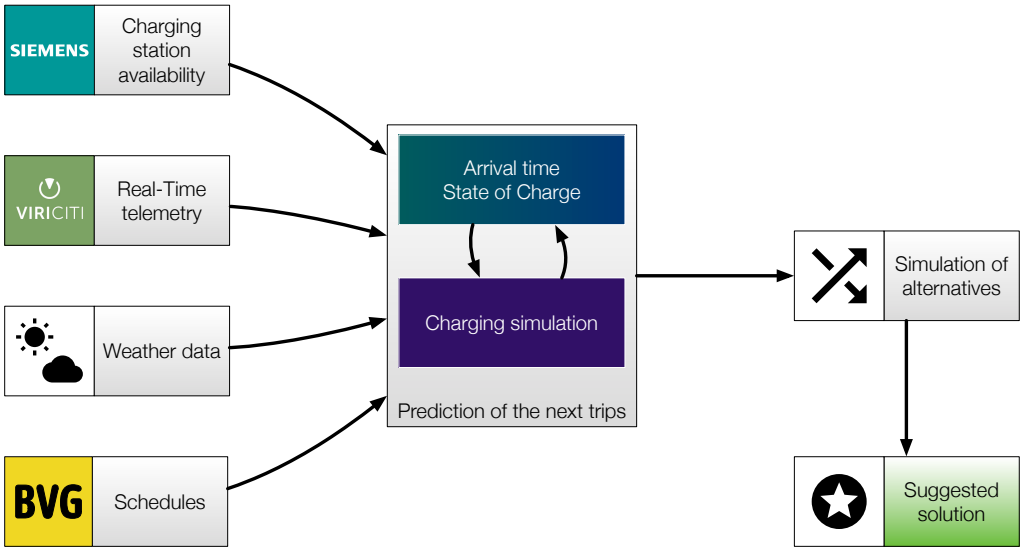
*Faculty V – Mechanical Engineering and Transport Systems*
*Methods of Product Development and Mechatronics*
*Prof. Dr.-Ing. Dietmar Göhlich*

Thesis (B. Sc./M. Sc.) or Project (M. Sc.)

# Real-Time optimization of E-Bus operations




**Project E-Metrobus** In the course of the "E-Metrobus" project the Berlin bus line 200 running from Zooologischer Garten to Prenzlauer Berg will be electrified using 15 battery-powered articulated buses automatically charging with 450 kW at each terminus. It is a joint project by TU Berlin, the Berlin Bus Operator BVG and the Rainer Lemoine Institut.

**E-Bus Oracle** To prevent the battery of electric buses from running out, we are designing a dynamic, real-time prediction system. It will utilize bus and traffic data to automatically detect critical situations ahead of time and offer suggestions to the bus operator on how to minimize service disruption. With this technology, we aim to eliminate the current overengineering of electric buses and charging stations and make emission-free bus transit significantly cheaper.

## *We offer projects on these topics:*

### Work Packages

- Import of real-time and schedule data
- Prediction of arrival time and energy consumption
- Vehicle and charger scheduling
- Visualization as a web app

### Technology Stack

- Python
- MariaDB and the SQLAlchemy ORM
- statistic regression, unsupervised machine learning, neural networks
- Flask + JQuery

**Time** Summer Term 2020

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*April 14, 2020*