



PROJECT OR MASTER THESIS

Development and implementation of ACC applications for the APP4MC rover
Prof. Dr.-Ing. Carsten Wolff – Institute for the Digital Transformation of Application and Living Domains

Motivation

The automotive industry permanently faces new challenges stemming from new environmental laws, safety aspects, and demand for more drivers and passengers comfort in new vehicles. Most of all innovations in these fields are driven by software. Therefore, automotive software engineering has to deal with several key issues that need to be solved. In order to validate the processes, methods, and tools that are developed to support engineers in coping with these issues, a proper demonstrator is highly required. This demonstrator shall be based on the APP4MC-rover. Rover (APP4MC-rover) is an open-source mobile robot that is designed to demonstrate the outcomes of the APP4MC and APPSTACLE projects. Rover features applications and tooling required to address complex research fields such as cloud communication, open-source tooling, multi-core and cluster computing. Rover is equipped with powerful sensors, motors, and display units to interact with the physical world.

Goal

The overall goal of this thesis is to extend the APP4MC-rover by advanced driver assistance systems (ADAS), e.g.:

- automatic parking, forward collision warning, cruise control
- Lane departure warning system, Lane change assistance
- Traffic sign recognition

An already assembled APP4MC-Rover **will be provided** for the thesis topic. Additional parts (e.g. cameras) can be ordered after consultation at the expense of FH Dortmund.

Further Information

- APP4MC-Rover Documentation: <https://app4mc-rover.github.io/rover-docs/index.html>
- APP4MC-Rover Sources: <https://github.com/app4mc-rover?tab=repositories>
- APP4MC-Rover Assembly information: <https://wiki.eclipse.org/APP4MC/Rover>

Contact

Lukas Krawczyk (lukas.krawczyk@fh-dortmund.de)

Otto-Hahn Straße 23, Raum EG-04