

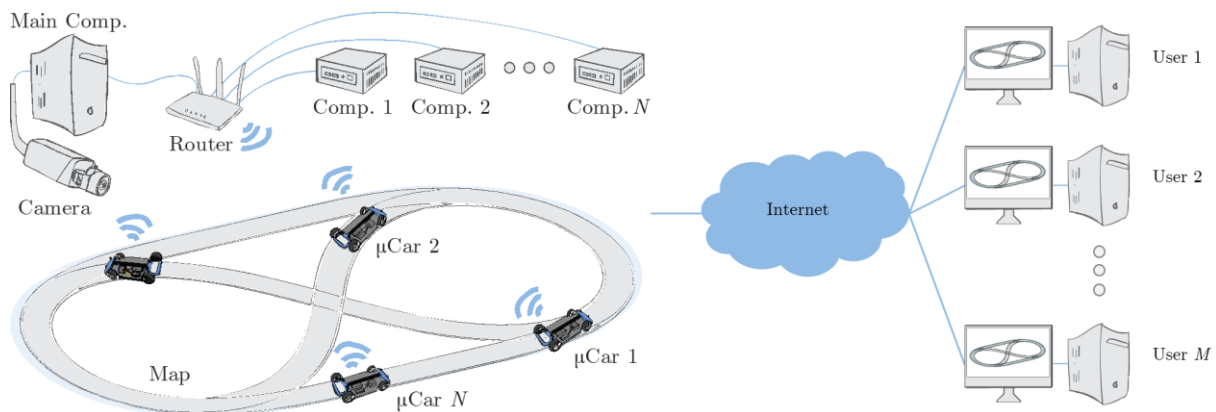
# Student Assistant / Thesis

## Cyber-Physical Mobility Lab

### Problem Statement

The Cyber-Physical Mobility Lab (CPM Lab) is an open source platform for networked and autonomous vehicles. It is our group-wide project that makes our research results tangible, both for the scientific staff as well as for students. Our vision in developing the CPM Lab is **See your Ideas Develop into Reality!** It consists of 20 model-scale vehicles for experiments and a simulation environment. The model-scale vehicles ( $\mu$ Cars) are equipped with sensors, actuators, and wireless communications. A camera-based Indoor Positioning System (IPS) computes the positions and orientations of the vehicles. The  $\mu$ Cars and the IPS communicate with external computation units that compute algorithms for networked and autonomous vehicles.

For more details on the CPM Lab visit our website [cpm.embedded.rwth-aachen.de](http://cpm.embedded.rwth-aachen.de)



### Your Tasks

- ▶ Support in the development of different subsystems
- ▶ Extensions in the vehicles' hardware
- ▶ Development of networked algorithms for motion planning of the vehicles
- ▶ Implementation of different software parts
- ▶ Your own topic suggestions are welcome and will be discussed

### Your Profile

- ▶ Knowledge of C++ and/or MATLAB
- ▶ General understanding of dynamical systems is a plus
- ▶ Student of Computer Science, Automation Engineering, Mechanical Engineering, Electrical Engineering or a similar study program

### Our Offer

Positions are to be filled as soon as possible and are limited to 3 months. If suitable, an extension is possible/desired. The regular weekly working hours are 7-9 hours.

### Contact

Please include in your application: transcript of records (Bachelor and possibly Master), CV, and certificates.

All members of the Cyber-physical Mobility Group, E-mail: [cpm-info@embedded.rwth-aachen.de](mailto:cpm-info@embedded.rwth-aachen.de)