Student Assistant / Thesis
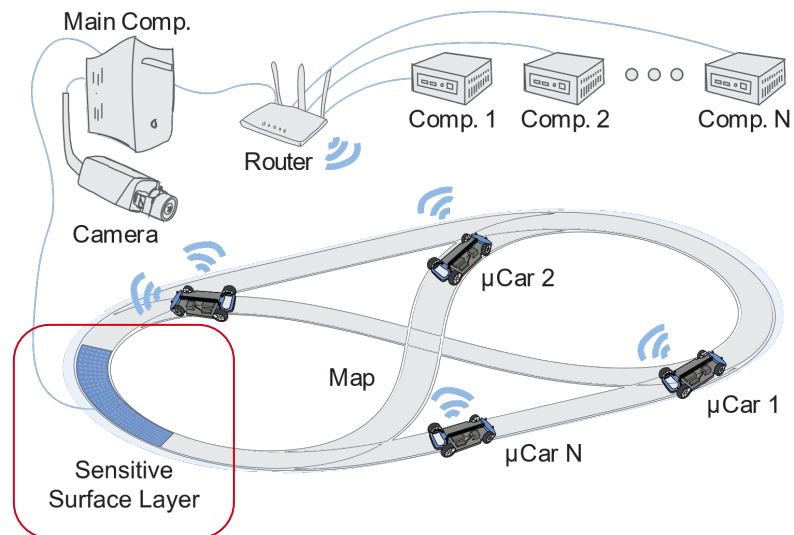
Sensitive Surface Layer for Wheel Position Detection in the CPM Lab

Problem Statement

Highly accurate position data is essential in networked and automated driving. Common positioning approaches use various combinations of sensors to determine the vehicle's position using data fusion. For example, a position determined by a Global Navigation Satellite System (GNSS) can be improved with data from an Inertial Measurement Unit (IMU) using so-called "dead reckoning".

However, existing methods disregard the road surface as a possible data source. The idea is to determine the pressure distribution and thus the wheel positions by means of a pressure-sensitive surface on the road. It may be necessary to integrate several sensors into a common model, depending on the sensor model used. The Sensitive Surface Layer (SSL) should be integrated into the existing service oriented infrastructure as an optional component.

Your Tasks

▶ Assistance with the acquisition and setup of new hardware for the CPM Lab
▶ Integration of the new sensitive surface layer into the infrastructure of the CPM Lab
▶ Extraction of wheel positions from the raw data of new sensitive surface layer

Your Profile

▶ Experience or interest in C/C++, MATLAB or comparable programming languages
▶ Reliable, motivated, independent
▶ Desired but not required: Experience with electronics, sensor data and the Robot Operating System (ROS)

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.

Simon Schäfer, E-mail: schaefer@embedded.rwth-aachen.de