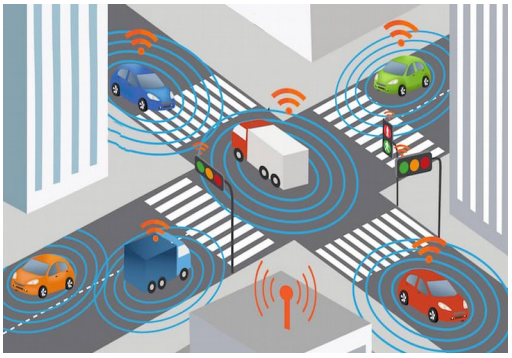
Institut für Kommunikations-Technik

Leibniz Universität Hannover

HiWi Job:

Integration and Evaluation of LTE and VLC in VANET simulation



The platooning application of autonomous vehicles, where the vehicles travel together in the form of a platoon, requires continuous information from the vehicles in the vicinity. The traditional adaptive cruise controller faced problems with the string stability and hence was enhanced with vehicular communications. With the cooperative ACC (CACC), the vehicles can form and travel in a platoon with a time gap of approximately 0.7sec which leads to a large distance between vehicles at high speed. To reduce the distance between vehicles the communication network must be more reliable. The information should be sent via LTE as well as WiFi. Further, if we add visible light communication (VLC), the distance between the vehicles can be reduced to 5m.

This work focuses on integrating different simulation frameworks to have a common platform to simulate VANET that deploys WiFi, LTE and VLC. The framework will be an extension to the VENTOS simulation framework which couples OMNeT++, a communication network simulator, and SUMO, a traffic simulator.

Tasks :

- Integrating SimuLTE and VENTOS
- Integrating Veins VLC and VENTOS
- Evaluating the performance with respect to the minimum safe distance between platoon vehicles for the different technologies

Requirements:

- Knowledge in the field of communication networks
- Good programming skills
- High motivation

If you are interested please contact:

Rahi Avinash Shet
Institut für Kommunikationstechnik (IKT)
Raum 1401, 14. Etage
Appelstr. 9A
rahi.shet@ikt.uni-hannover.de
Tel: +49 (511) 762-2831