

A tablet-based 3D parking assistance system for vehicles with sidestick steering

*Cooperation of International Graduate School for Science and Engineering,
TUM-Institute for Advanced Study and Siemens AG*

1 General data

Type: BA, SA, MA

Supervisor: Prof. Dr.-Ing. habil. Alois Knoll

Project leader: Prof. Dr.-Ing. Gernot Spiegelberg

Advisor: Ljubo Mercep, M.Comp.Sc.

Research area: Automotive, Embedded, Embedded 3D and GUI Programming

Programming language: Objective C / C++ / C

Required skills: Network programming, GUI Programming, C / C++

Language: English or German

2 General overview of the project Innotruck

Worldwide activities in the field of electric powered personal vehicles are in constant state of growth. However, the complex interconnect between the vehicle, the infrastructure and user behavior are only marginally taken into account. Due to the considerably higher energy consumption and CO₂ output inherent to goods transport vehicles, these factors have to be thoroughly considered and dealt with accordingly.

The goal of our project is to implement a holistic approach to electromobility, with an emphasis on the goods transport. Focus is being placed onto three research areas:

- System architecture
- Drive train and energy management
- Human-machine interface

The experimental vehicle platform was provided by the project leader Prof. Dr.-Ing. Gernot Spiegelberg, a senior research fellow at the Institute for Advanced Studies of the Technical University of Munich.



3 Task description

Developing a tablet-oriented application, or a significant part thereof, supporting the driver during the parking of a sidestick-controlled vehicle.

Preferred deployment platform is Apple iPad 2.

Basic knowledge of OpenGL for embedded systems is a bonus, but is at no means required.

All vehicle sensor data, camera feed inclusive, is obtained over a WIFI connection.

The application should suggest the sidestick movements necessary in order to safely bring the vehicle to the desired location and issue appropriate warnings and information messages.

It is assumed that the vehicle is already outfitted with distance sensors and cameras covering the vehicle immediate surroundings and that these data stand at disposal over a WIFI connection.

For more information and for applications contact Ljubo Mercep (mercep@fortiss.org)

For more information on the Innotruck project please visit: <http://www.innotruck.de>