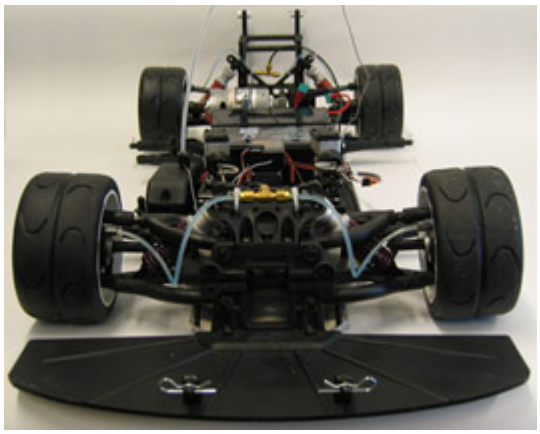
# Conception and Implementation of an Experimental Vehicle for Automotive Software

## Task

This diploma thesis aims at building up an experimental vehicle at the chair of computer science XI which is due to serve the demonstration/testing of development methods for software-intense systems in a vehicle within the framework of practical courses and research projects.

The basis for the experimental vehicle consists of a model car of the norm 1:5. The model disposes of an electric motor and disc brakes.



For its later use at the chair, the experimental vehicle shall be equipped with various, distributed and networked electronical control systems. It must be possible to carry out different driver-assistance-systems with various configurations. The experimental vehicle has to be conceived in a way that future enhancements with control elements, sensors or actuators are possible.

The aim of the diploma thesis merely is the development of the experimental vehicle in a minimal configuration. To keep the effort for the creation of the thesis to a certain extent, the minimal functionality to be developed, is limited to automatic braking. Being equipped with an ultrasonic-sensor, the experimental vehicle is supposed to follow the directions given by the human driver at a remote computer via joystick until a potentially dangerous obstacle is being detected. As soon as an obstacle is being classified as 'dangerous', the vehicle must perform an emergency brake.

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