Team Information

Picture of vehicle:	concept picture
Name of vehicle:	RTS-MoRob-4x4

Picture of team leader:	
Name of team leader:	Prof. Dr.-Ing. Bernardo Wagner
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Team Description:

The Institute for Systems Engineering (ISE) deals with the modelling, simulation, analysis and realisation of hardware and software architectures of complex and technical systems.

The Real Time Systems Group (RTS) is part of the Institute for Systems Engineering. Head of the RTS is Prof. Dr.-Ing. Bernardo Wagner. The RTS focuses its work on the fields of distributed automation systems and mobile service robots. Such systems have to interact with real surroundings in a correct, reliable and secure way and furthermore with deterministic time response, that is in real time.

Team Information

For C-ELROB 2007 the RTS has extended the modular robotic toolkit (MoRob-Kit) by an all terrain platform RTS-MoRob-4x4. The compact footprint of 110cm x 75cm allows operation in urban and indoor environments. Due to its four-wheel drive it is possible to pass moderate non-urban terrain. The maximum speed of the vehicle is 2.6m/s (~9km/h). The platform is equipped with a large number of sensors for tele-operation, semi-autonomous operation and fully autonomous operation including a 3D Laser range scanner, multiple cameras, GPS and inertial sensors.

The navigation algorithms that are implemented on our robots are based on sensor data fusion of laser, inertial and GPS data. Our focus lies on the incorporation of 3D sensor data into robot tasks like localization and autonomous obstacle avoidance. The localization system that we are going to use in the urban scenario of C-ELROB 2007 is based on a digital site plan that contains all buildings in the environment. All other static and dynamic obstacles are integrated into the map in real-time. In non-urban environments the localization is based on GPS/INS fusion.

Based on the available sensor- and navigation-system the RTS is going to present new concepts for tele-operation with 3D visual feedback and fully autonomous operation. In this context the RTS-MoRob-Kit is utilized as a demonstrator for robotic technology that can be adopted to any steer-by-wire platform.

Sponsors: no sponsors

Selection of scenario: urban _X_   non-urban _X_   UAV&UGV __
                                 exhibition __   Autonomous reconnaissance task _X_

Proof of citizenship: A copy of team leader passport will do (will not be published)!