



Hall 25, Boot C-22

ZfT – Center for Telematics

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Robotik und Telematik
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The team from Würzburg achieved 1st place with the MERLIN rover in the „urban scenario“ competition at ELROB 2007.

The Current European Champion of Outdoor Rovers at the Hannover Fair !

The rover **MERLIN** (**M**obile **E**xperimental **R**obot for **L**ocomotion and **I**ntelligent **N**avigation) handled the challenges of the European Land Robotics Trial ELROB 2007 most efficiently and brought the trophy of this European wide competition to Würzburg. For the special exhibit on „Mobile Robots & Autonomous Systems“ of the Hannover Fair, MERLIN will demonstrate in the outdoors range its cross-country capabilities to the broad public. Due to his advanced sensor suit MERLIN characterizes

its environment properly and its on-board data handling system controls appropriate autonomous reactions. The vehicle is only half a meter long and has a weight of 15 kg, but achieves a velocity of 50 km/h. The drive assistance system supports human tele-operators. Typical situations like obstacle avoidance, following a wall or return to the start location can be handled autonomously by the vehicle.

MERLIN is accompanied by his robotic colleagues from Würzburg:

Mars Rover MIDD: the Mars-rover „Mobile Instrument Deployment Device (MIDD)“ has been developed for the European Space Agency ESA within an international consortium. The team now located in Würzburg had responsibility for successful development of sensor system, autonomous control strategies and tele-operations concepts. In particular, the delays caused by the huge distances are special challenges for remote control.

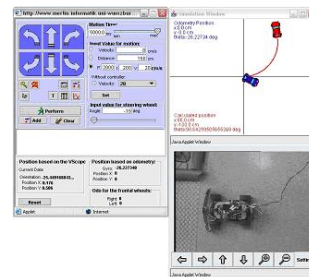


The Mars-Rover MIDD from Würzburg and Rocky 7 of NASA during joint training for Mars.



INRO – Intelligent Wheelchair: Wheelchairs and scooter vehicles have been equipped by obstacle warning systems transferred from space technology and by advanced navigation systems in order to support mobility of elder people and disabled persons. This way excursions can be performed at high safety concerns, and appropriate paths for this vehicle towards the target location can be planned. In case of unnoticed obstacles in the way, the vehicle provides a warning and avoids potential dangerous situations.

Further application areas of these intelligent sensor and control techniques are industrial transport vehicles, rovers to support fire fighters in search and rescue activities and in tele-education to perform experiments with rover hardware via internet offered to international students.



The research emphasis of ZfT - Center for Telematics e.V.

The ZfT addresses advanced methods for tele-operations of equipments in the area of applied research. For this purpose telematics integrates interdisciplinary methods from *telecommunication*, *automation* technology and *informatics*, to provide services at remote locations. Application emphasis is on telemaintenance and tele-startup of industrial plants, but applications cover a broad variety including so diverse areas such as security monitoring, support in search and rescue operations, tele-medicine, tele-education and traffic control. Through telematics approaches experts can be concentrated at tele-support centers in order to provide worldwide assistance for an efficient solution of problems with equipments. ZfT complements these research activities by continuous education offers in the area of telematics.

The research emphasis of the institute „Robotics and Telematics“ at University Würzburg

The combination of advanced information processing methods with control engineering offers interesting research and application perspectives in robotics and telematics. Therefore the interdisciplinary research emphasis in the framework of computer science in on the combination of informatics, electronics, mechanics, sensors, and control engineering to design robots capable to adapt flexibly to the work environment.

With respect to applications, emphasis is on

- Mobile robots (industrial transport robots, cooperating robots, sensor data processing)
- Tele-robotics (remote operations, tele-maintenance, experiments in tele-education, augmented reality interfaces)
- Spacecraft systems (pico-satellites, Mars rovers, teleoperations of satellites, networks of ground control stations)
- Robots in medicine (robots for surgery, haptic user interfaces)

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