

# Team Information

Picture of vehicle:

Name of vehicle:           ORG GV

Picture of team leader:

Name of team leader:       Juha Röning

Team Name:                 Oulu Robotics Group

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Team Description:

The Oulu Robotics Group Team (ORG) is Oulu University's entry into the ELROB2007. The team is composed of faculty and students from of Electrical and Information Engineering, under the leadership of Juha Röning (Professor) and Antti Tikanmäki (Researcher). Our vehicle is called the "ORG Ground Vechile". The ORG GV is based on a modified RC-car HPI Racing E-Zilla with improved body parts and stronger motors. The modifications have been designed in order to operate in varying conditions and weathers.

The vehicle is actuated via a wireless LAN connection. The vehicle contains several sensors to measure movements and surrounding environment. This includes, laser scanner, two cameras, inclinometer and GPS. All sensors take a part on estimation of current state of the robot in the environment. Several autonomous features have been included on-board computer to ease the operation. This includes collision avoidance, route execution, obstacle analysis and data fusion. Our vehicle is semi-autonomous and human operator's role is to give guidelines to vehicle as it travels on the environment.

The system contains also flying unit for pre-observation of Ground units environment. The unit is self made quad rotor copter with on-board computer for semi-autonomous flying. This includes hovering, automatic landing,

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estimation of pose in 3D, measuring the ground, and delivering raw sensor data to ground station.

The development of the system began in Summer 2006. At the current time, vehicle contains mechanical unit, some machine vision and basic movement capabilities.

Sponsors:

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Selection of scenario:

1. Non-urban, 2. Urban, 3. Combined operation of UGV and UAV and 4. Autonomous reconnaissance

Proof of citizenship:

A copy of team leader passport will do (will not be published)!