

Team Information

Picture of the Vehicle:



Name of vehicle:

Mustang MK IA

Picture of team leader:



Name of team leader:

Prof. Dr.-Ing. Dietrich Paulus

Team Name:

KOUGAR

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Team Description:

Team KOUGAR from the Active Vision Group (AGAS) of the University of Koblenz-Landau participates for the first time at the ELROB 2011. The team is lead by Prof. Dr.-Ing. Dietrich Paulus and is staffed by research associates and advanced students. The AGAS performs research in the field of autonomous outdoor robotics on behalf of the Bundeswehr

Team Information

Technical Center for Engineer and General Field Equipment in Koblenz (WTD 51).

Therefore the WTD 51 provides the AGAS an 500 kg off-road robot, the Mustang MK IA. An autonomous Navigation allows the robot to drive several kilometres without any human intervention. The navigation is splitted into two parts. The high-level part realises a global navigation analogous to a navigation system for cars. Long-term decisions about the route will be made on this level according to GPS. In the low-level part of the navigation the robot ensures an secure driving in the field of view of the 3D laser scanner (Velodyne HDL-64E S2) and the mounted cameras. Therefore the terrain is analysed according to his navigability and static and dynamic obstacles are detected.

Especially in outdoor environments the navigability of the terrain has to be analysed precisely. To enhance the results of the terrain analysis and the detection of static and dynamic obstacles the camera images and the measurements of the 3D laser scanners are fused to a combined coordinate system.

To present the results of the several scenarios we create 3D maps of the environment. Therefore the robot pose is estimated by GPS and an 6 DOF inertial measurement unit and the 3D laser measurements are registered. Special landmarks of the scenarios can be stored as semantics in the 3D map. Furthermore the created 3D map can be used for global navigation.

Sponsors: Bundeswehr Technical Center for Engineer and General Field Equipment (WTD 51)

Selection of scenario:

1. Transport – Autonomous Navigation
2. Transport – Mule
3. Reconnaissance and surveillance – Approach

Proof of citizenship: