

Team Information

Picture of vehicle:



Name of vehicle:

MuCAR-3



Picture of team leader:

Name of team leader:

Prof. Dr.-Ing. Hans-Joachim "Joe" Wuensche

Team Name:

MuCAR

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Team Information

Team Description: Team MuCAR develops and operates MuCAR-3, and is headed by Prof. Dr.-Ing. H.-J. Wuensche, professor for “Autonomous Systems Technology” and successor of Prof. Dr.-Ing. Ernst D. Dickmanns at the University of the Bundeswehr Munich (UBM).

Our vehicle is named “MuCAR-3”, as this is the third generation of our Munich Cognitive, Autonomous Robot Cars. The first generation vehicle was “VaMoRs”, which demonstrated fully autonomous driving on a not yet opened German Autobahn at its maximum speed of 96 km/h 20 years ago in 1987, covering a distance of 20 km. The second generation vehicle “VaMP” established further records in 1995, when it drove from Munich to Denmark and back for a distance of almost 1800 km, of which about 1660 km were fully autonomous at speeds up 180 km/h. Both vehicles have retired to museums. The new vehicle was chosen to be a good vehicle both for participating in traffic on public roads as well as for off-road driving.

MuCAR-3 is based on a stock VW Touareg with a V6 TDI engine, modified to allow computer control of steering, brake, throttle and automatic gearbox. Full body skid plates allow testing in rough terrain.

Apart from inertial sensors we continue to focus on vision as a main sensor for perception, as this sensor provides most of the information humans need for driving. In addition we use a high definition 360 deg. Laser Scanner mounted on the roof of the vehicle. It is advantageous in special applications such as off-road driving, until our vision systems can fully cope with those scenarios as well.

The main vision sensors are 3 forward looking cameras placed on a two-axis platform inside the vehicle. The arrangement resembles the human vision system, with a tele-camera as “fovea” and 2 slightly outward pointed wide angle cameras for peripheral vision. All cameras are mounted on a yaw axis platform to allow for active control of the horizontal viewing direction, while the view of the tele-camera with its narrow field of view is inertially stabilized.

MuCAR participated at the ELROB 2007, ELROB 2008 and the ELROB 2009 and – together with TU Karlsruhe and TU Munich through Team AnnieWAY – at the DARPA Urban Challenge 2007, where this team was one of only 11 teams which made it into the finals on 3 Nov. 2007.

Sponsors: None

Selection of scenario:

1. Reconnaissance and surveillance ____
2. Camp security ____
3. Transport X
4. Mule X
5. EOD ____

Copy of team leader German ID card is enclosed

Proof of citizenship: