

Eurathlon 2013

23-27. September 2013,
Berchtesgaden, Germany

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

Team E-mail: joe.wuensche@unibw.de



Logo:

Website: <http://www.unibw.de/tas>

Location: Munich

Institution/Company: University of the Bundeswehr Munich

Eurathlon 2013

23-27. September 2013,

Berchtesgaden, Germany

Team Information

Address: LRT8 TAS,
85577 Neubiberg
Telephone: +49-(0)89-6004-3588
Fax: +49-(0)89-6004-3074

Team Description: Team MuCAR develops and operates MuCAR-3, and is headed by Prof. Dr.-Ing. H.-J. Wuensche, chair for “Autonomous Systems Technology” and head of the identically named institute.

Our vehicle is named “MuCAR-3”, the third generation of our Munich Cognitive, Autonomous Robot Cars. The first two vehicle generations drove on German Autobahns under the leadership of Prof. Dickmanns as far back as 1987; both vehicles have retired to museums.

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 degree 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.

Our robust and fast 4D-approach to perception has been augmented by an innovative fusion of vision and lidar data and excels in offroad environments featuring poor GPS conditions.

Team MuCAR participated at the ELROB 2007, 2008, 2009, 2010, 2012 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: Autonomous navigation using GPS, GLONASS and GALILEO

Proof of citizenship: Copy of team leader German ID card is enclosed