Eurathlon 2013

23.-27. September 2013,
Berchtesgaden, Germany

www.eurathlon2013.eu

REAL TASKS, IN A REAL WORLD SCENARIO

Autonomous Navigation

Movements of personnel, material, humanitarian aid etc. in risky and hazardous environments are dangerous missions. Thus, the goal of the autonomous navigation trial is to autonomously follow a roughly predefined path in an outdoor, non-urban and off-road terrain.

Environment:

Non-urban, wooded, hilly terrain with roads and paths ranging from small streets (covered, e.g., with asphalt, loose chippings or concrete) to simple dirt roads in the forest.

!!! The document is subject to change and refinement!!!

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Situation:

There is a delivery for a camp within approx. 7-10 km.

A vehicle has to be moved to this camp.

Dead ends, sharp turns, road blockings and narrow passages can occur.

There will be dynamic objects and static obstacles on the route. Traffic presence at the transport route can be expected.

Objective:

Move a vehicle of min. 50kg to the target location as fast as possible and with highest autonomy possible.

The team will receive a section of a digital map and UTM coordinates that have to be traversed in the given order; see example in the rules.

The vehicle cannot just drive straight lines between the waypoints but has to identify and navigate along the roads and paths.

Plot driven path into digital map (see rules).

Execution/Implementation:

The vehicle must be completely unmanned!

Acquire own position (not known or given).

Traverse waypoints (UTM coordinates) in the given order on the way to the destination with maximum autonomy.

There will be three (3) goal positions referring to three increasing levels of difficulty.

Level 1: Drive to goal 1 and back to start. (approx. 8 min. for human driver)

Level 2: Drive to goal 1 and from there to goal 2, from goal 2 back to start. (approx. 15 min. for human driver)

Level 3: Drive to goal 1, then goal 2 and finally to goal 3, in that particular order. There is no return to start. (approx. 20 min. for human driver)

If possible, transmit live position and imagery to the control station.

Timing:

Duration approx. 45-60 min.

The scenario ends with reaching the target location or the time limit, whatever occurs first, and must include the transmission of the acquired data.

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