M – ELROB 2012

7th European Land-Robot Trial
24-28. September, Thun, Switzerland
www.elrob.org

REAL TASKS, IN A REAL WORLD SCENARIO

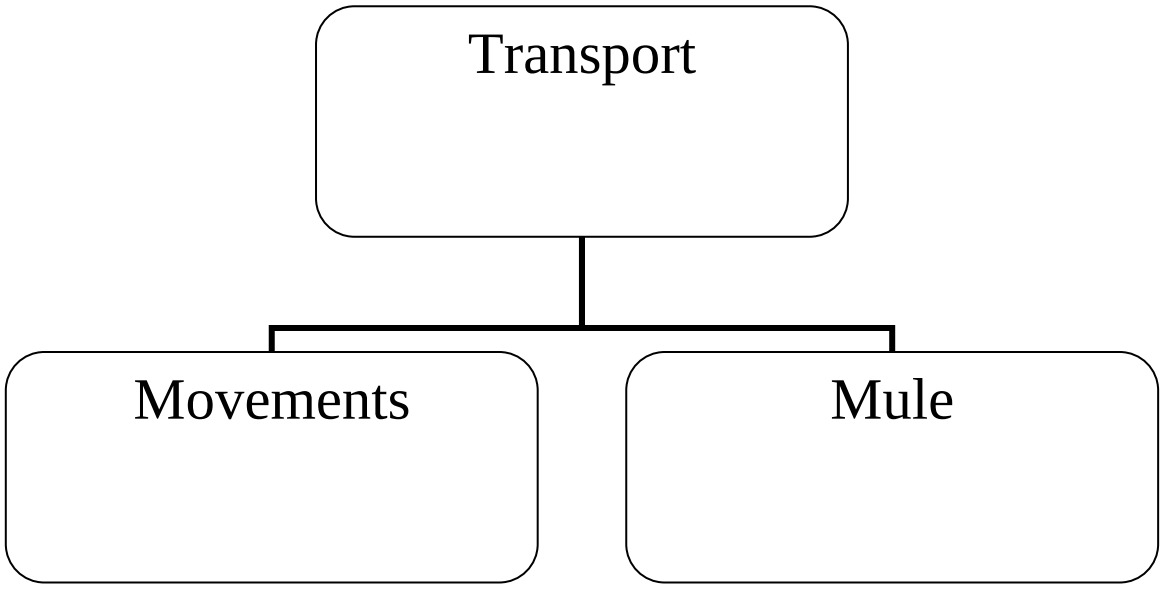
Military transport tasks can be roughly divided into two broad areas, those for dismounted soldiers and those for vehicles, e.g. trucks as a part of convoys.

Movements of personnel, material, humanitarian aid etc. are routine tasks on missions. In hostile environment these movements are dangerous, because convoys always attract attacks like roadside IEDs etc.

Dismounted troops have to carry ever more and heavy kit when on a mission. This tends to distract them from their actual tasks and tires soldiers out. MULE is a particularly apt description for such carrying tasks.

Due to this the ELROB 2012 transport trial is subdivided into independent tasks/trials.

To give more participants the chance to take part in ELROB 2012 you can choose to take part in either one or both parts of the trial.



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

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Transport - Movements

Environment:

Non-urban, wooded, hilly terrain with roads and paths (e.g.: asphalt, loose chippings, concrete, dirt roads).

Situation:

There is a delivery for a camp within approx. 3 km.

A group of at least two vehicles has to be moved to this camp.

There will be dynamic objects and static obstacles on the route.

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

Traffic presence at the transport route is to be expected.

Objective:

Move at least two vehicles of min. 50kg each to the target location as fast as possible and with highest autonomy possible.

Execution/Implementation:

One vehicle must be completely unmanned!

There will be three (3) levels of difficulty. The first two (2) routes are standard and shall be driven by all scenario participants. You can drive level two only if you have successfully mastered level one. The third level is optional and can be inspected beforehand.

Traverse given waypoints (UTM coordinates) on the way to the destination.

The approach should be done with maximum autonomy.

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

Timing:

Duration approx. 60 min.

Constraints:

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Only the operator is allowed to control the vehicles.

There is only one control station allowed, either vehicle mounted or stationary outside the vehicles.

The troop will receive a section of a digital map with UTM co-ordinates that have to be traversed in the given order; see example in the rules.

The scenario ends with reaching

1. the target location and transmission of the acquired data or
2. time limit and transmission of the acquired data

what ever occurs first.

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Transport - Mule

Environment:

Non-urban, wooded, hilly terrain with roads and paths (e.g.: asphalt, loose chippings, concrete, dirt roads).

Situation:

There are two camps (P1 and P2) with a distance of approx. 1km in between.

A vehicle should serve as a “mule” between the two camps carrying as much payload as possible.

There will be dynamic objects and static obstacles on the route.

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

Traffic presence at the transport route is to be expected.

Objective:

Shuttle with the highest achievable autonomy as often as possible between two points P1 and P2 carrying as much payload as possible.

Execution/Implementation:

The vehicle must be completely unmanned!

Only one vehicle can be used.

The MULE (Multiple Utility for Logistic Equipment) system is delivered to a starting point (P1).

From this starting point (P1) a person will then lead the MULE vehicle to a turning point (P2).

From there the vehicle has to shuttle with highest autonomy possible between both points (P1, P2) carrying equipment.

If the robot cannot follow a person for teach-in, the turning point (P2) will be given by coordinates directly.

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Follow a person with maximum autonomy from loading to turning point (P2).

At the turning point (P2), the person walking in front (teach-in) should give the command to turn/shuttle or alternatively give the UTM coordinate before the trial (no teach-in possible).

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

Timing:

Duration aprrox. 60 min.

Constraints:

There is only one control station allowed, either stationary or carried by operator (for teach-in).

The troop will receive a section of a digital map with UTM grid and measures; see example in the rules.

The scenario ends with reaching time limit and transmission of the acquired data.

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