ELROB 2026

15 – 19 June 2026
Thun, Switzerland

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REAL TASKS, IN A REAL WORLD SCENARIO

Transport – Mule

Transport tasks are an important element of military operations. Movements of personnel, material, humanitarian aid etc. are often necessary. Yet, in hostile environments this is a dangerous and demanding task. In addition, dismounted troops have to carry ever more and heavier equipment when on a mission. This tends to distract the soldiers from their actual tasks and tires them out. Robotic transport systems should be able to support in many of these situations.

Environment:

Non-urban, wooded, hilly terrain with open grassland and paths ranging from small footpaths to simple dirt roads; bushes and trees, grass, sand, water, stones; ditches and trenches; steep slopes.

Situation:

There are two camps (P1 and P2) with a distance of approx. 300m in between.

A vehicle shall serve as a “mule” between the two camps. The vehicle should learn the position of P2 and the route how to get there by following a human guide (teach-in).

There will be dynamic objects and static obstacles on the route. Dead ends, sharp turns, blockings and narrow passages might occur. Fences, barriers, trenches or any kind of blockades can be expected. Beware of negative obstacles! Dynamic changes of the route between P1 and P2 are likely! The environment may contain GNSS denied areas!

Objective:

From the starting point P1 the vehicle must autonomously follow a human guide to the turning point P2 (teach-in phase). This guide should be the team’s technical assistant (see the rules). If that is not possible, e.g. due to safety reasons, another team member can be the guide as well, but has to leave the trial area after the teach-in has finished. The route from P1 to P2 will be shown to the guides in advance.

At the turning point P2 the person walking in front should give the command to start autonomous shuttling. Afterwards, the vehicle shall shuttle as often as possible between the two points P1 and P2 with the highest achievable autonomy. At least the teach-in phase (P1 → P2), the way back (P2 → P1), and one further round trip (P1 → P2 → P1) have to be completed, the more the better.

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

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If a robot is not capable of following a human guide, the teach-in phase can be omitted. Instead, at the start the team will receive a section of a digital map and the UTM coordinate of P2. For the data formats see the examples in the rules. However, the organizers strongly encourage the teach-in method. Thus, using the coordinate instead will lead to a significant penalty!

Only one vehicle can be used. There is only one control station allowed, either stationary or carried by the team's technical assistant. However, in any case you may place an optional stationary control station – just for displaying live position data and video – at the starting point.

Return driven path as UTM coordinate list and plot it into the digital map (see rules for format description).

Remarks:

- Be prepared to deliver additional data in ROS bag format; exact specification and data types will follow.

Timing:

Duration approx. 30 min. The scenario ends with reaching the time limit and must include the transmission of the acquired data.

Please note:

It is the sole responsibility of the participating team to obtain all necessary permits to:

- Operate the used vehicles in Switzerland
- Operate the used communication equipment in Switzerland
- Operate the used drone/UAV system (in any case less than 250g per system) in Switzerland

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