

# ELROB 2018

24 - 28 September 2018  
Mons, Belgium

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REAL TASKS, IN A REAL WORLD SCENARIO

## **Search and retrieval of human casualties in semi-urban environments**

The rescue of wounded persons is an important yet often difficult task in civil catastrophes as well as in military scenarios. During military operations the retrieval of casualties usually takes place in hostile environments, thus leading to severe dangers for the involved soldiers. The use of robotic vehicles, first, to find injured persons and, second, to autonomously pick them up and transport them back to safe areas would obviously be a great improvement.

### Environment:

Structured semi-urban terrain, small buildings or containers; asphalt, lawn, grassland, sand, water, stones; small roads and paths, ditches and trenches; fences and other obstacles.

### Situation:

There are wounded persons lying at two unknown positions (P1 and P2) in distances of up to 100 m, maybe inside some building-like structure. A vehicle has to search and locate the first body, and then transport it to the goal area. Afterwards, the same should be done for the second body. All this should be conducted with highest possible autonomy.

There will be highly dynamic and static obstacles on the route. Dead ends, sharp turns, blockings and narrow passages might occur. Fences, barriers or any kind of blockades and “negative” obstacles, e.g. trenches, can be expected.

### Objective:

Locate and return two dummy soldiers lying at distances of up to 100m. Expect an artificial object of 170cm length and a weight between 10kg and 100kg, depending on the transport capability of the robot (team’s choice). Additionally, the dummy will have a pull strap or loop for easier transportation. Be prepared to search inside the building structures as well.

Find the first imitated body (at the unknown position P1) and move it to the goal area in any way, e.g. by dragging it at the special strap, by pushing it, or by completely lifting it. Place the dummy as near to the goal point as possible. Afterwards, repeat the same procedure with the second dummy (at the unknown position P2).

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

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*Note: We only have one dummy of each weight! Thus, at any time there is only one dummy body in the field. After returning it from P1 there will be a short break in which we move the dummy to P2.*

Acquire imagery and exact GPS positions of both bodies. Report gathered data to the control station, online or offline after having returned to the starting point. If possible, also transmit live position and video imagery throughout the mission.

## *Remarks:*

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

## Timing:

Duration approx. 40 min. The scenario ends when both imitated bodies have been successfully transported to the goal area, or with reaching the time limit, whatever occurs first, and must include the transmission of the acquired data.

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