ELROB 2018

24 - 28 September 2018
Mons, Belgium

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REAL TASKS, IN A REAL WORLD SCENARIO

Reconnoitring of building structures

Reconnaissance of structures and buildings and the surrounding environment is an important prerequisite for urban and semi-urban combat operations. At the same time, this is one of the most dangerous tasks soldiers face during a mission. Therefore, having robots for autonomous reconnoitring of buildings definitely means a great relief for the troops.

Environment:

Some urban structures, stairs, low or no light, closed doors, sand, water, stones, rubble and debris. Between the structures expect asphalt, lawn, grass, gravel, stones or other obstacles.

Situation:

Reconnoitre exterior and interior of the structures. Maximum distance will be approx. 200 m.

There will be static and dynamic obstacles present. Dead ends, sharp turns, blockings, stairs and narrow passages can occur. Expect also serious “negative” obstacles. You will have to deal with frequent transitions from indoor to outdoor and vice versa.

Objective:

Used highest possible autonomy!

Build a 3D map of the structures and their environment.

Search for Objects of Potential Interest (OPI) inside the structures, i.e. particular markers with special characteristics as defined in the rules.

Whenever an OPI is found, acquire imagery and mark its position inside the map representation. Report all gathered data to the control station, online or offline after having returned to the starting point. Plot the robot’s path and detected OPI positions into the generated map.

Search and detect a number of simulated radiation sources. The radiation will be simulated by hidden standard WiFi/WLAN access points using 2.4 or 5 GHz and specially assigned SSIDs. Continuously measure the “radiation” (i.e. WLAN signal strength), display the measurements to the operator and build a 2D/3D radiation map from the measurements. Additionally, if you identified a “radiation source” (i.e. WLAN access point), acquire imagery of the source and mark its position inside the map.

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If possible, transmit and display position, imagery and simulated RN measurements online to the control station.

Remarks:

- You can borrow the necessary WiFi/WLAN USB stick (including ROS driver software) to detect the simulated radiation sources. In case of interest, just contact us!
- 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 with reaching the time limit and must include the transmission of the acquired data.

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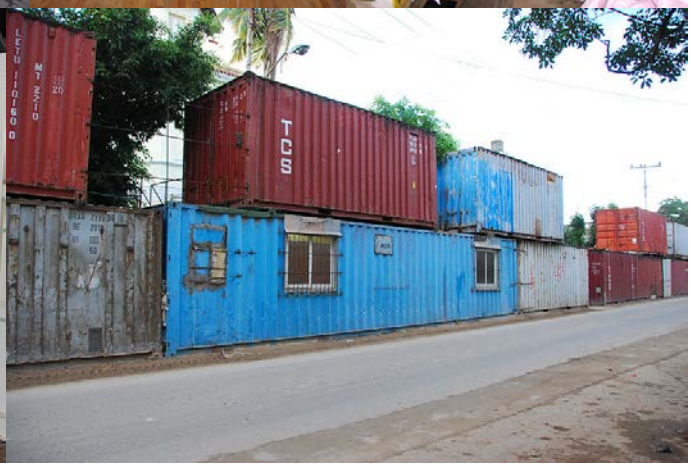

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