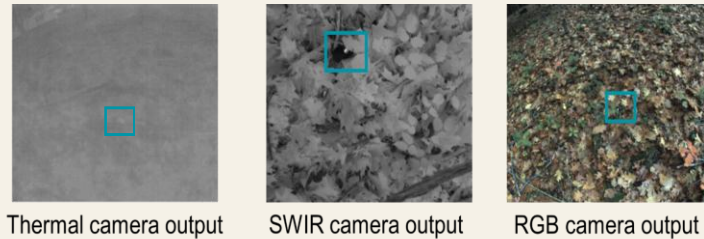


Context

The recent rise in the use of explosive ordnance (EO), such as improvised explosive devices (IEDs) and landmines in conflicts, has been a major cause of casualties among EU/NATO troops, accounting for about 50% of soldier deaths.

The **BELGIAN** project aims to address this significant military challenge by developing a UGV with assisted capabilities for handling EOs.



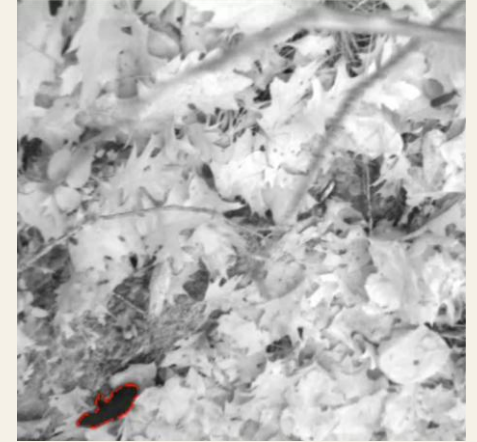
Thermal camera output

SWIR camera output

RGB camera output

Objective

- Perception & environmental understanding for object manipulation;
- Object reconstruction in unknown and unstructured environments;
- Semi-autonomous operation, enabling seamless switchover to robotic deminers.

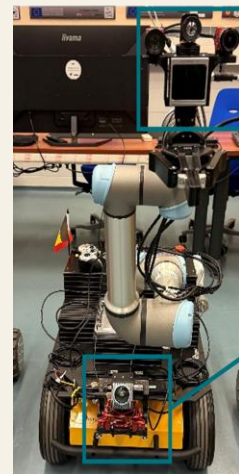


Example of a PFM-1 detection on a SWIR camera frame

DFR DAP/23-08: BELGIAN Mobile manipulation for demining, EOD & IED operations

Methodology

- Conducting test campaigns to refine the experimental UGV, continuously updating its design and functions based on field data;
- Additionally, we will adjust and release datasets to the public to enhance transparency and foster innovation;
- The methodology also involves direct campaigns with soldiers to ensure the UGV meets real-world operational needs and to integrate soldier feedback into further development.



The UGV experimental setup

Robotic arm suite



Platform suite



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Promotor (MECA)



Charles Hamesse
Co-promotor (MWMW)



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