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Incorporating autonomous systems with machine learning could provide a capability to sense, identify Explosive Ordnance (EO), and reduce cognitive load for EOD technicians thus increasing tempo in support of manoeuvre.

Countering Improvised Explosive Devices (IED) and Explosive Ordnance (EO) in support of manoeuvre is a labour intensive, risky task. This task involves time on target for IED and EO Disposal Technicians (EOD Techs) who are a highly trained, critical capability for the Australian Defence Force.

Conflict can result in UXO contamination which must be remediated. Current UXO remediation is labour intensive, and current in-Service mechanical or robotic aids are dumb robots requiring human control for all of their functions.



Various spectral sensing capabilities could be Unmanned Aircraft Systems mounted to provide a picture of a contaminated battlefield. Existing capabilities such as <u>CSIRO's</u> LIDAR 3D-mapping capability could provide a surface level picture, and further capabilities such as ground penetrating radar could provide a more in-depth view.

Adding existing Autonomous/AI capabilities to the replacements for the current EOD robots would enable an EOD operator to have better mental space for task management and analysis while the robot does simple tasks like moving into position in vicinity of target EO, all while reducing time on target. In future, these systems could be trusted to carry out blow in place and render safe procedures without human intervention.

Australia and its allies have a responsibility to remediate battlefields. An autonomous robot, which can apply the same machine learning algorithms, could either collect UXO that is safe to be moved, or place appropriate charges to dispose of UXO in place, within clearly marked UXO fields.