INNOVATIONS IN NEXT GENERATION CB THREAT CHARACTERIZATION AND ASSESSMENT FOR DECISION SUPPORT

Development Of An Agnostic Ugv Adapter For The Remote Characterisation & Disposal Of Cb Threats In Sealed Cbrn Devices

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Investigating and disposing of sealed ChemBio (CB) devices such as munitions, IEDs, storage drums, etc, requires a specialist approach where often standard EOD tools and equipment would not be suitable and may in fact increase the risk of an agent release and its associated contamination. These scenarios place a high physical and psychological burden on an EOD operator due to the nature of the threat and the increased oversight these operations often attract. Unmanned Ground Vehicles (UGVs) are a trusted and well-proven means of reducing these burdens when dealing with conventional EOD targets and thus Valent Applications Ltd wondered if suitably adapted, they could also be used in CB scenarios to achieve the same effect.

The concept was for an adapter that, when required, could be fitted to a standard EOD UGV. This would allow it to remotely conduct a sealed access into a target to obtain a physical sample of the contents and offer an ingress for disposal operations. Valent has worked in this field with DoD and other organisations for over twenty years and although their systems and methodology is well proven it requires the manual placement of equipment on the target.

Such an adapter has many potential advantages over the development and deployment of specialist CB UGVs;

Effect on the Warfighter: Using this system the EOD operator would have a much reduced physical and psychological burden placed upon them compared to manual approaches.

Operational Effectiveness: A small number of specialist CB UGVs would only be able to cover limited geographical areas and 'Murphy's Law' almost certainly means they would be in the wrong place at the wrong time. Standard EOD UGVs are deployed worldwide. Any adapater could be made almost agnostic, able to fit across a wide number of UGV platforms.

Training Burden: Specialist equipment often suffers from a lack of training time meaning a degradation in operational readiness. Operators regularly train with standard UGVs and CB scenarios could be incorporated into this ensuring readiness remains at a high level. Furthermore, by using a standard UGV operators are working with a very familiar piece of equipment and thus are more effective.

Cost: Specialist UGVs often require extensive, costly development for a target set that constitutes a small percentage of the overall EOD threat. Developing an 'agnostic' adapter offers a CB capability for a fraction of the cost and time required for a bespoke CB UGV platform. The development cost of a single CB UGV could fund multiple adapters. In addition, the decontamination or replacement cost of a CB UGV if it gets contaminated, would be extensive compared to that of an 'add-on' adapter.

Valent & DoD therefore conducted initial research into the feasibility of the concept. This focused on 3 areas;

Was the adapter technically feasible?
Could it be agnostic across platforms?
Rough costs & timescales for prototype development?

Preliminary results have shown that this approach is indeed feasible, being lightweight and simple to use. The adapter can be incorporated into most standard in-service EOD UGV platforms. Costings for developing a prototype adapter are a fraction of a specialist UGV system

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