



Australian Government
Department of Agriculture,
Fisheries and Forestry

BIOSECURITY INNOVATION

*AI and containers....and
much more*

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Research and Innovation

Biosecurity Operations and Compliance Group



About us

Biosecurity Risk Research

- Through our partnership with the Centre of Excellence for Biosecurity Risk Analysis (CEBRA) at the University of Melbourne, we undertake a range of targeted research projects that help inform regulatory activities such as risk analysis.

Innovation Pilots

- Originate from the business area and are low cost, low risk and can feature a partnership with an external organisation.
- They focus on technologies and changes available now

Innovation Projects

- Focus on technologies or changes that need development to be fit for purpose for the department's needs.
- These are longer term (12 months or longer), higher cost, medium to high risk and the technologies or changes are usually developed by a third party, external to the department.

Spot and AI

Features

-  14 kg (30 lbs) Payload Limit
-  90-Minute Run time
-  Object Avoidance
-  Stair & Complex Terrain Navigation
-  Manual & Autonomous Operation
-  IP54 Rated
-  Flexible API and Python SDK
-  Premium Service and Support

Spot is an agile robot that can navigate terrain and allow for automation of routine inspection tasks and data capture.



The beginning

Spot was tested on container inspections in Darwin, Northern Territory, to detect biosecurity risk material (BRM).

Also, at the Ranger Uranium mine the robot surveyed flora/fauna and was also fitted with a gamma sensor and conducted radionuclide counts at the mine rehabilitation site.



Autonomous container inspection

We have been developing Spot's ability to identify biosecurity risk material during an autonomous container inspection, with hopes to reduce the potential exposure of our workers to hazardous environments.

This work involved:

- programming Spot to do an automatic container inspection of the inside and outside walls
- development of a user-friendly interface
- field trials



Hades

Hades is a small remote-control vehicle that houses a camera which can be used to scan the inside of a container or under a vehicle.



Tree survey for exotic pest control

Using drones and AI to detect host plants to help with the exotic fruit fly response and surveillance.





Strengthening Australia's ability to detect exotic mites at the border and empower beekeepers to harness technology to help manage Varroa mite.

Advanced Technology for Surveillance and Monitoring of European Honeybee Mites



Ethyl Formate for Khapra beetle

Collaboration with Murdoch University to explore the efficacy of Ethyl formate for the treatment of Khapra beetle in India.



Light Traps

Conducted a project with Murdoch University to test the efficacy of light traps inside shipping containers to capture flying exotic pests.





Fumigation detection

Currently trialling two new devices (MIST and FIND) to check for the presence of fumigant gases or chemicals.





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Contact us

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