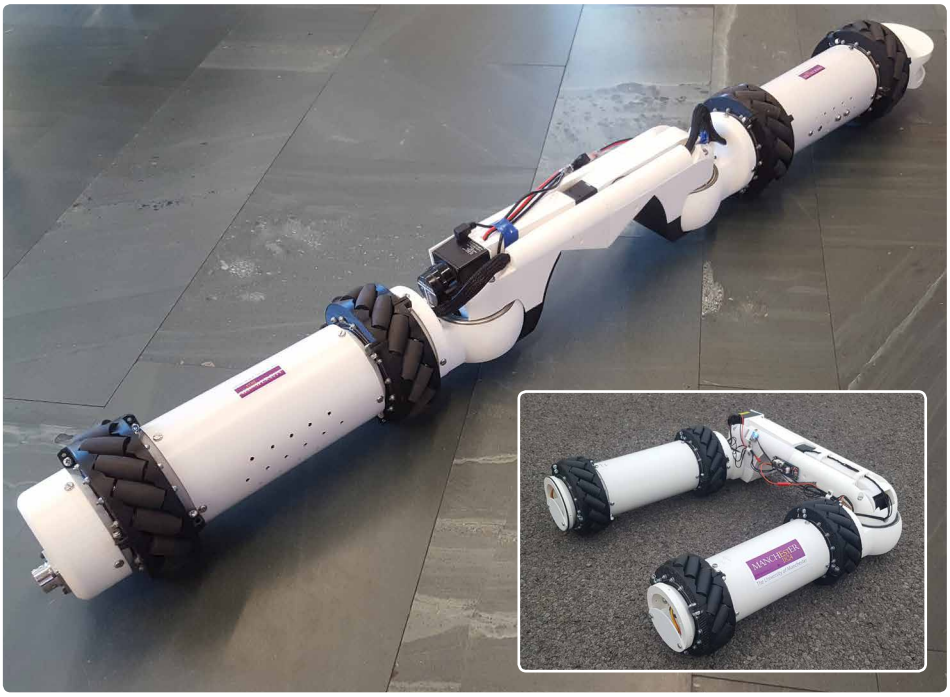
MIRRAX

Reconfigurable platform for exploration, inspection and characterisation.



TRL 1-2 basic research

TRL 2-3 research to feasibilty

TRL 3-5 technology development

TRL 5-6 technology demonstration

TRL 6-8 system/ subsystem development

TRL 8-9 system test, launch and operations

MIRRAX is a new generation of reconfigurable mobile robot platforms.

Developed in collaboration with Sellafield, it was designed to be small enough to fit through a 6-inch access port, reconfigure itself, and travel through complex, unknown environments. The MIRRAX can fold at two points to create a stable base to allow lidar and radiation mapping. Mounting additional sensors is also possible, depending on requirements.

The MIRRAX has as omni-directional wheel configuration, allowing it to manoeuvre on various surface types.

APPLICATIONS

The MIRRAX is a reconfigurable platform able to access difficult to reach areas.

It has been widely tested and deployed onto Sellafield site. RAIN researchers are further developing this platform based on feedback from earlier deployments.

This unique platform has a wide appeal to a range of end users. The flexible payload area can be adapted using a range of sensors based on task requirements.

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MIRRAX

TECHNICAL SPECIFICATION

Parameter	Value (units)
External dimensions	Ø 125mm x 510mm x 540mm in 'U' configuration Ø 125mm x 1340mm in snake configuration
Weight	10kg without arm and sensor payload
Payload weight	5kg
Payload size	To fit within cavity Ø 98mm x 300mm
Default payload	Rotating lidar for 3D reconstruction RITEC CZT gamma detector Articulated arm with sensors
Built in sensors	RGB camera
Communication interface	Wireless or tethered
On-board computing?	Single board computer with Intel processor capable of running Windows or Linux.
Operation mode	Tele-operated
Battery/run-time	Battery powered: 1 hour, indefinite if tethered.
Tether/tether management	Strain relieved tether, strengthened for vertical deployment.
Drive system	Omni-directional wheels
Velocity	0.15 ms^{-1}

COMMERCIAL OPPORTUNITIES

Offering

- Demonstration of the technology on site or inactive demo at a University of Manchester facility at short notice.
- Partnering opportunity to commercialise the technology.
- A CE-marked built to order commercial product.

Needs

- Demonstrations to potential end users and/or collaboration partners.
- Collaboration opportunity for CE marking support, deployments in relevant environments, or developing regulatory paperwork for commercial deployments on a nuclear site.
- Technology demonstrations in non-nuclear industries.

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