



PREDIRE

Autonomous Multi-Sensor Subterranean Reconnaissance & Tactical Mapping Platform

PREDIRE is a fielded, operationally proven autonomous robotic platform that navigates confined, GPS-denied subterranean spaces – conduits of 15–40 cm diameter over distances up to 1 km in a single deployment, without tether or continuous operator control. Developed over a decade for buried-network inspection, its high-definition multi-sensor imaging and onboard intelligence translate directly to defence requirements for subterranean reconnaissance and tactical mapping across both the underground domain and associated surface terrain.



Defence Application: Subterranean Reconnaissance & Tactical Mapping

- Deployable as a coordinated multi-robot swarm for simultaneous, multi-view mapping of complex networks.
- Multi-view reconstruction of confined spaces – internal geometry, junctions, obstructions and points of interest – as georeferenced products.
- Characterisation of underground networks: access points, connectivity, structural features and egress relevant to access planning.
- Conversion of captures into layered tactical map products combining subterranean structure with surface reference features.
- Onboard pre-assessment to flag and prioritise features of interest at the point of collection.

Operational Advantages

- Reduced personnel risk – autonomous survey of confined, hazardous spaces without committing dismounted personnel.
- Operation in denied environments where GPS, visibility and communications are degraded, open platform allowing integration of additional sensors.
- Extended single-session reach (up to 1 km); onboard processing limits reliance on continuous data links.
- Field-proven robustness, transferable to neglected or damaged subterranean infrastructure.

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