

AUTONOMY FEATURES

- **Navigation:** Semi-autonomous with obstacle avoidance; manual override available for precise control

APPLICATIONS

- **Aircraft Inspection:** Ideal for external inspection of aircraft, focusing on composite structures, especially the belly part.
- **Versatility:** Applicable for inspections in confined spaces, under vehicles, and other hard-to-reach areas.

ADDITIONAL FEATURES

- **Human detection:** using thermal camera and Co2 sensor
- **Modular Design:** Allows for easy attachment and replacement of sensors and tools.
- **Safety Features:** Emergency stop button, obstacle detection, and automatic return to home.



Compliance:

Meets relevant aviation and safety standards for inspection equipment.

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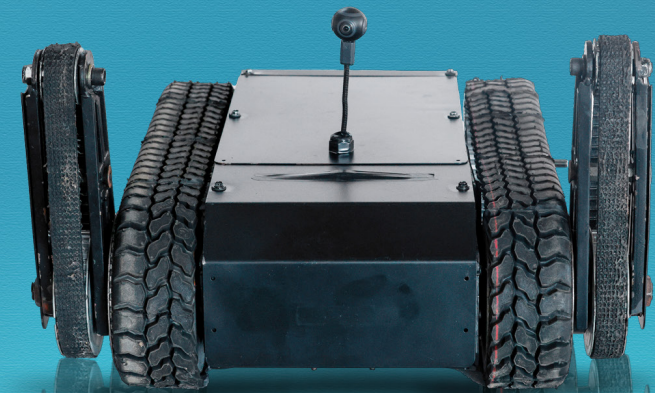


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WAREHOUSE AND INSPECTION ROBOT

Revolutionizing
Inspections with
Precision and Safety



SCHOOL OF
ENGINEERING
AMRITAPURI



HuT Labs
Humanitarian Technology Labs

Empowering Safe and Efficient Inspections.

GENERAL SPECIFICATIONS

- **Robot Type:** Tele-operated mobile robot for search and inspection
- **Dimensions:** 80 cm (L) x 50 cm (W) x 40 cm (H)
- **Weight:** Approximately 35 kg
- **Power Supply:** Rechargeable lithium-ion battery
- **Battery Life:** Up to 6 hours of continuous operation
- **Charging Time:** 2-3 hours
- **Control Interface:** Remote control with real-time video feed and sensor data display



MOBILITY FEATURES

- **Multi-Terrain Capability:** Track belt system for enhanced traction on various surfaces (e.g., stairs, slopes, oily and rocky terrains).
- **Flipper Mechanism:** Equipped with flippers for maneuvering over obstacles like stairs, providing stability and flexibility.

SENSORS AND INSPECTION CAPABILITIES

- **Visual Inspection:** Dual high-resolution cameras with PTZ for detailed imaging.
- **Thermal Imaging:** Infrared camera for detecting overheating and anomalies.
- **Ultrasonic Sensors:** Detects cracks and material delamination.
Corrosion Detection: Integrated sensors identify surface corrosion.
- **Environmental Sensors:** Measures temperature, humidity, pressure and CO2.

DATA LOGGING AND REPORTING

- **Storage:** Onboard data storage for inspection records.
- **Wireless Transmission:** Real-time data transfer to ground station for immediate analysis.

OPERATIONAL PARAMETERS

- **Speed:** Adjustable up to 1.5 m/s.
- **Climbing Angle:** Capable of climbing up to 45°.
- **Operating Temperature Range:** -10°C to 50°C.
- **Ingress Protection:** IP67 rated for dust and water resistance.

COMMUNICATION AND CONTROL

- **Range:** Up to 60 meters (line of sight).
- **Control Method:** Wireless remote with optional tethered mode.
- **Video Transmission:** Low-latency feed to the operator's control unit.

