



Engine Inspection Robot

EIR



High consistency



High-res imaging



Improves safety



Reduces
inspection time

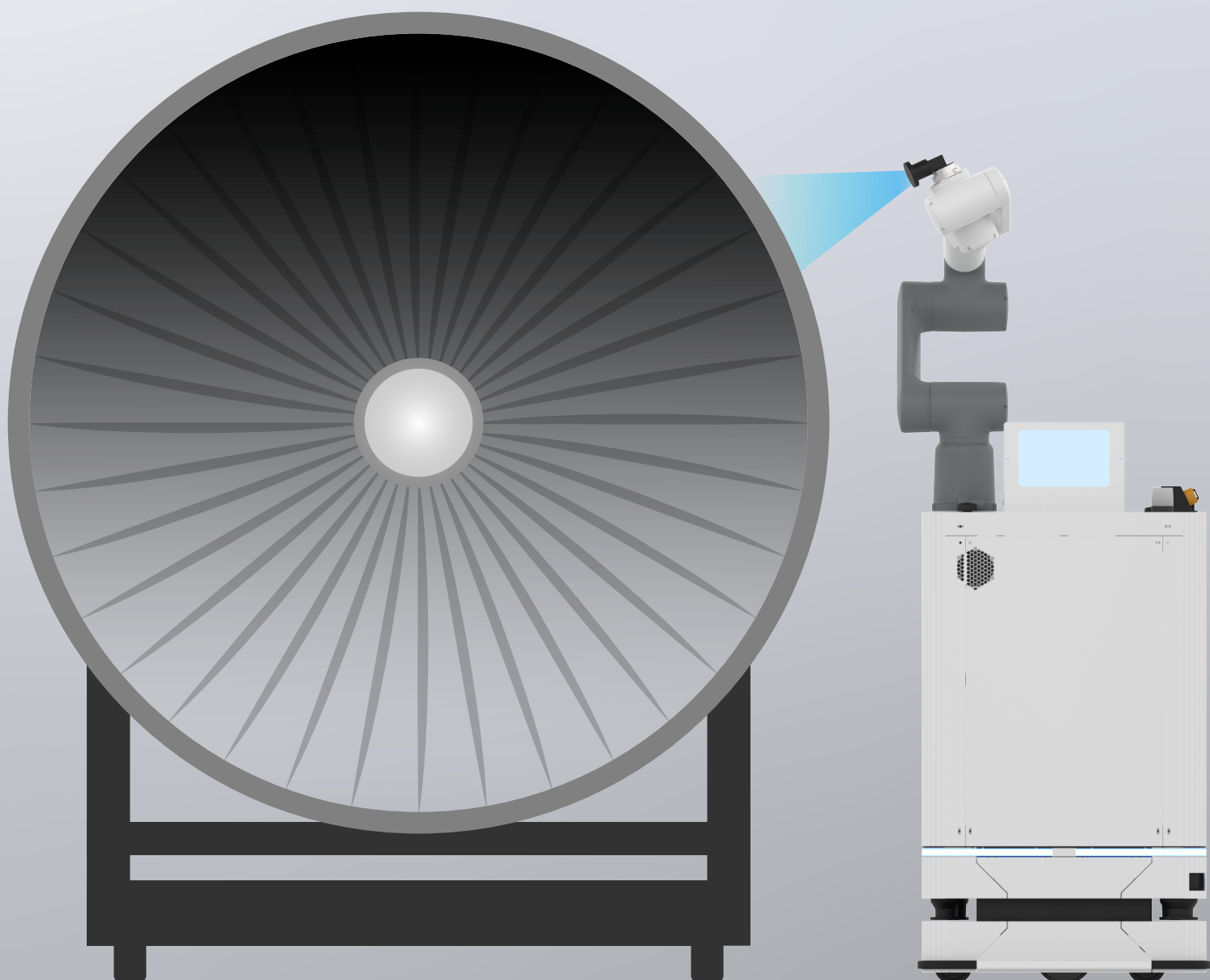
The Engine Inspection Robot (EIR) is designed to **navigate autonomously and automatically take pre-programmed standardised images of the engine** to assist in the auditing. The captured photos are then stored and uploaded into the central repository for further analysis when the robot is docked. The mobile robot base, used for navigation, is an AMR capable of obstacle detection and avoidance. The robot arm, which hosts the camera **offers a toolbox of safety functions and motion supervision to prevent the risk of injury or damage** by bringing the robot to an immediate stop if it senses any contact with its surroundings.

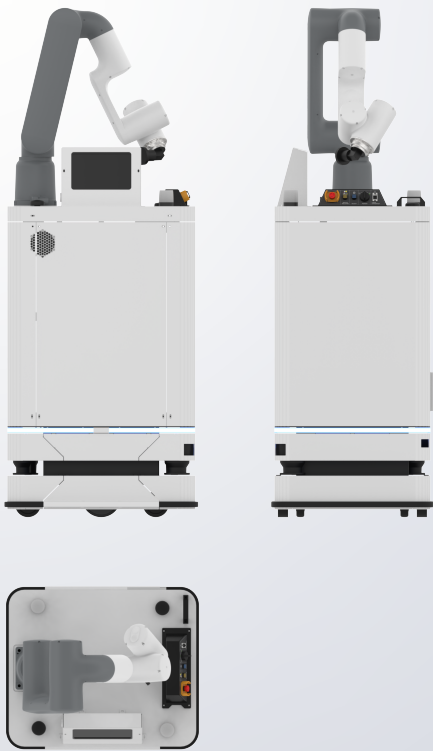
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Optimising Maintenance Reliability

The user interface system enables operators to compare images between pre/post maintenance and repairs efficiently, which increases the comprehensiveness of an engine inspection. The robot's capability to rapidly and precisely capture images at consistent angles and distances facilitates seamless comparisons as well. Conducting this visual audit is vital for preservation of aircraft engine integrity and safety, as well as prevention of potential legal issues stemming from maintenance errors.





Engine Height Range

Inspect engines as low as 50 cm and as high as 300 cm, covering various engine types and sizes.

Automation for Efficiency

The robot automates the process of capturing engine images, leading to substantial manpower savings and ensuring consistent image quality.

Faster Turnaround Time

Reduces the turnaround time significantly with its ability to capture approximately 320 images per engine, under various different exposures settings.

Autonomous Mobility

The robot allows for unmanned movement, navigating autonomously indoors, detecting and avoiding obstacles, and docking at a charging station when needed.

Visual Inspection

The robot captures visual details of the engine's positioning using a high-quality color camera with a GigE interface, transmitting uncompressed, real-time images.

Precise Image Capture

Each image is captured at predefined AMR locations and robot arm positions set points in 2D space, utilising the engine's position as a reference plane.

Data Management

Captured images are stored locally and also uploaded to a central repository, allowing for further analysis when the robot is docked.

Specifications

Physical characteristics

Dimensions(robot arm stowed):	745 (L) x 630 (W) x 1780 (H) mm
Weight	234.5 kg
Ground clearance	20 mm
Traversable gap	35 mm
Safe slope angle	≤ 3°
IP rating	IP30

Operational characteristics

AMR operation speed (Bi-directional)	Slow: 0.4 m/s Medium: 0.7 m/s Fast: 1.2 m/s
Battery running time	5 hours
Battery charging time	3 hours
Robot arm handling capacity	5 kg
Robot arm reach	0.95 m
Camera specifications	8 mm focal length 4024 x 3036 pixels Color
Camera interface	Gigabit Ethernet, compatible with Fast Ethernet
WLAN	2.4 GHz, 5 GHz, 802.11 a/b ac wireless