

**Next-generation
embodied intelligent
inspection robot solution**



HeronBot

Heronbot Co., Ltd.

| Deeply engage with scenarios, empower industries, and deliver customer success

CATALOGUE



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Programme value

Value Restructuring Resulting
from Robot Inspections



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Full-stack Intelligent Inspection
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01

Programme Value

Value Restructuring Resulting from Robot Inspections



Labor cost optimization

Tradition: You need to team up with 3 to 5 people.

Intelligence: Only 1-2 people are needed for background monitoring, freeing up manpower



Increased inspection frequency

Tradition: Administer 1-2 times daily at fixed intervals

Intelligence: Available 24/7, with an increased frequency.



Improved task efficiency

Tradition: Inspection tasks take three hours, limiting efficiency.

Intelligence: Inspection takes 1 hour per session



Response speed improved

Tradition: Response time ≥ 30 minutes

Intelligence: Second-level alerts, proactive alerts, and remote handling



Data Specification Management

Tradition: Manual reporting is error-prone and difficult to trace.

Intelligence: Digital ledger, auto-generated, with full-process traceability



Objective and accurate results

Tradition: Subjective inference by personnel resulted in a missed detection and misjudgment rate exceeding 15%.

Intelligence: AI recognition accuracy over 99%, precise and error-free



Fast closed-loop decision-making

Tradition: Problem, delayed abnormal handling

Intelligence: Data-driven, transparent management, and enhanced disposal efficiency



Job Safety Assurance

Tradition: Personnel operations carry high risks and present significant challenges.

Intelligence: Substitute manual labor with zero-risk operations



Core Tool Innovation

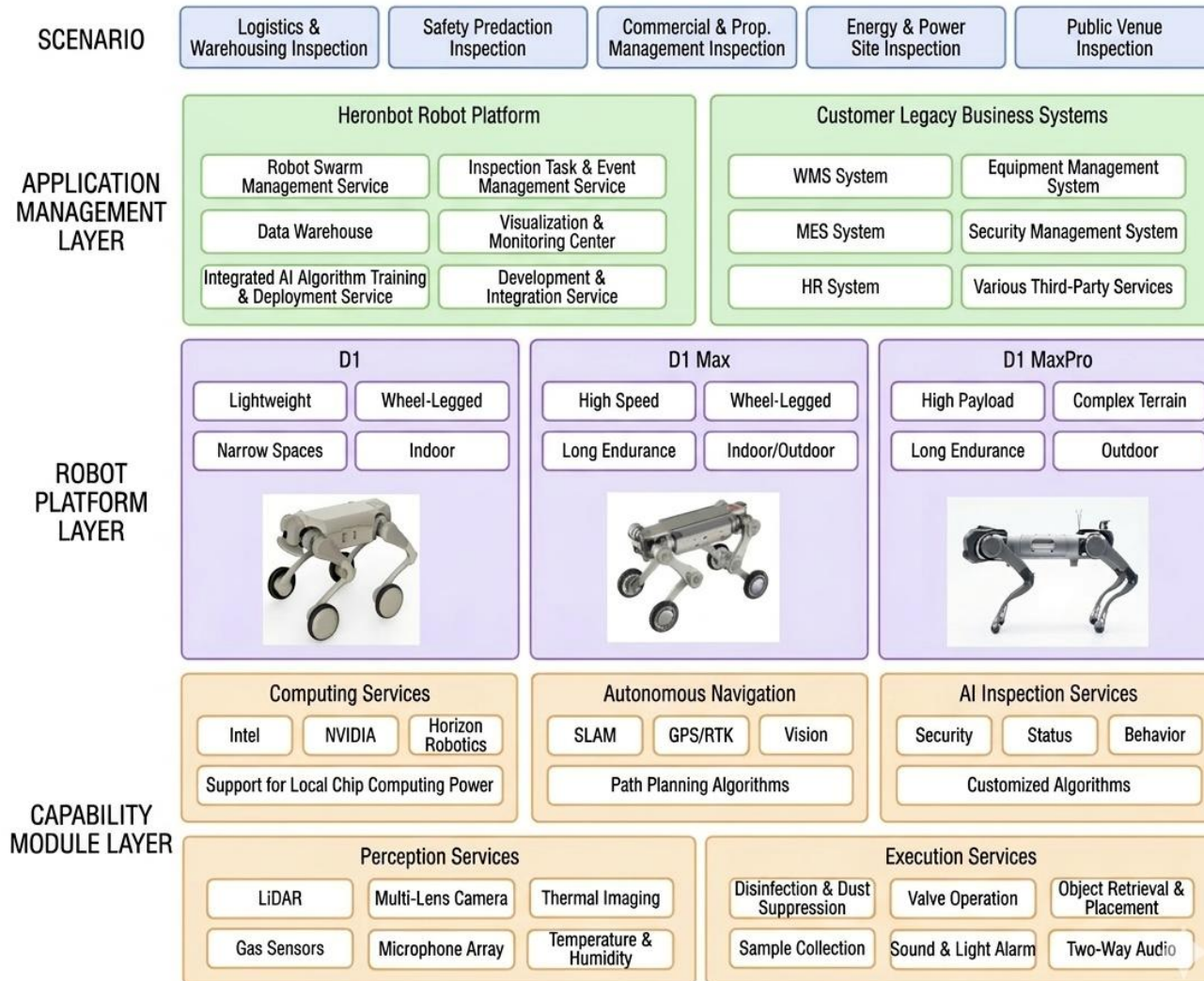
Tradition: Traditional intelligent monitoring and fire protection systems can no longer meet the requirements of current scenarios.

Intelligence: Legged robot + multi-sensors + AI brain



Solution

Full-stack Intelligent Inspection Technology Architecture



Three-tier decoupling for flexible adaptation



Mobile platform with strong athletic performance



Ability modules, customizable on demand



Autonomous navigation, full-scenario coverage

Upper layer: Application Management Service

The intelligent management platform operates in parallel with existing customer business systems, enabling seamless integration with various systems including ERP and security solutions.



Middle layer: Robot platform

The three robots are strategically positioned in a gradient configuration for light, medium, and heavy loads, featuring all terrain capability, extended endurance, and high flexibility to comprehensively meet diverse operational requirements in complex scenarios.



Lower Level: Capability Modules

Build a dynamic capability ecosystem integrating computation, perception, and execution, featuring over 100 modular components that can be freely combined like building blocks to efficiently meet diverse scenario requirements.

Inspection of the quadruped robot body



D1 MaxPro (Large Dog) -High-Load Flagship

D1 Max (Medium Dog) -Standard Edition

D1 ultra (puppy) -lightweight version

Comparison dimension	D1 MaxPro	D1 Max	D1 ultra
Total weight of the machine	64kg	40kg	15kg
maximum load	50kg	30kg	10kg
no-load endurance	5.5h	5h	1.5h
top speed	3m/s	8m/s	3.5m/s
operating temperature	-20~55° C	-20~55° C	0~40° C



High Load, Long Battery Life

High load capacity, long-lasting battery life, suitable for extended operations



Adapt to various complex terrains

Stable all terrain passage, unafraid of rugged terrain, steps, and obstacles





Agile and nimble movements

The gait is agile and fluid, with excellent obstacle-crossing and obstacle-avoidance capabilities.

Modular Robot Extension Component: Brain + Actuator

Computer power

 **Edge Computing Solution**
Supports domestic computing modules including Rockchip RK3588, NVIDIA Jetson, and Ascend/Haiguang/Cambrian, with customizable configurations to flexibly meet diverse performance requirements.


 **AI Intelligent Recognition**
Equipped with over 100 AI algorithms and multi-sensor fusion, it features continuous expansion and learning optimization, achieving a false-negative rate below 1% (compared to 15%+ for manual methods) and an object detection accuracy exceeding 99%.


Multimode Communication Protocol

Supports Ethernet, CAN bus, 5G/4G full-network connectivity, WiFi 6, as well as LoRa and NB-IoT low-power networking.

Sensing capability





 **Multidimensional Environmental Perception**
Integrates various types of sensors including LiDAR, multi-view cameras, thermal imaging, and gas sensors.

 **Equipment status monitoring**
Real-time monitoring of equipment temperature, vibration, and abnormal sounds for early warning.

Executive capacity



 **Accurate operation execution**
Equipped with high-precision robotic arms and flexible grippers, it performs complex operational tasks.

 **Emergency Response Interaction**
Integrated spray, fire extinguishing, and cleaning modules with support for audio-visual alarms and intercom functionality.

Autonomous navigation

centimeter-level positioning accuracy indoors and outdoors

Multi-source Perception and Localization Unit



LiDAR

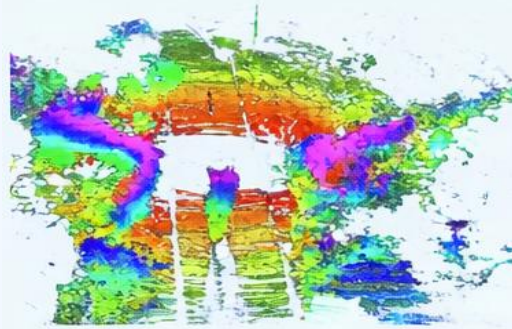


Depth camera



Edge computing board

Environmental Perception and Mapping



Real-time 3D map generation

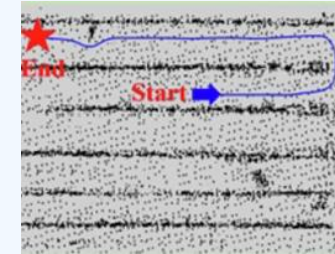
■ Real-time and accurate environmental reconstruction

- Integrating multi-source information such as LiDAR, visual data, and RTK-GNSS to construct high-precision 3D environmental maps in real time

■ Detect driving roads and obstacles

- Based on collaborative perception of LiDAR and visual information, it achieves accurate recognition and real-time updating of complex terrain elements such as drivable roads, obstacles, and surface depressions.

Efficient Path Planning and Tracking Control



path planning



tracking control

■ Efficient and Safe Path Planning

- Dynamically perceive environmental changes to plan safe, smooth, and feasible driving routes for efficient target location attainment.

■ Precise and stable tracking control

- Accurately tracks planned routes with intelligent obstacle avoidance capabilities to ensure stable and reliable navigation performance.

AI intelligent algorithm



Number of Algorithms

100+ items
(continuously expanding)



Recognition accuracy rate

99%+



Miss rate

< 1%



Response speed

Automatic alert in
<1 minute



Security detection (30+ algorithms)

Abnormal fire protection facilities, blocked passages, smoke detection, etc.



Device detection (25+ algorithms)

Device status, temperature abnormalities, instrument readings, etc.



Environmental monitoring (20+ algorithms)

Gas leakage, liquid leakage, temperature and humidity



Logistics and Warehousing (15+ Algorithms)

Goods condition, stacking specifications, forklift operations, etc.



Behavioral category (15+ algorithm)

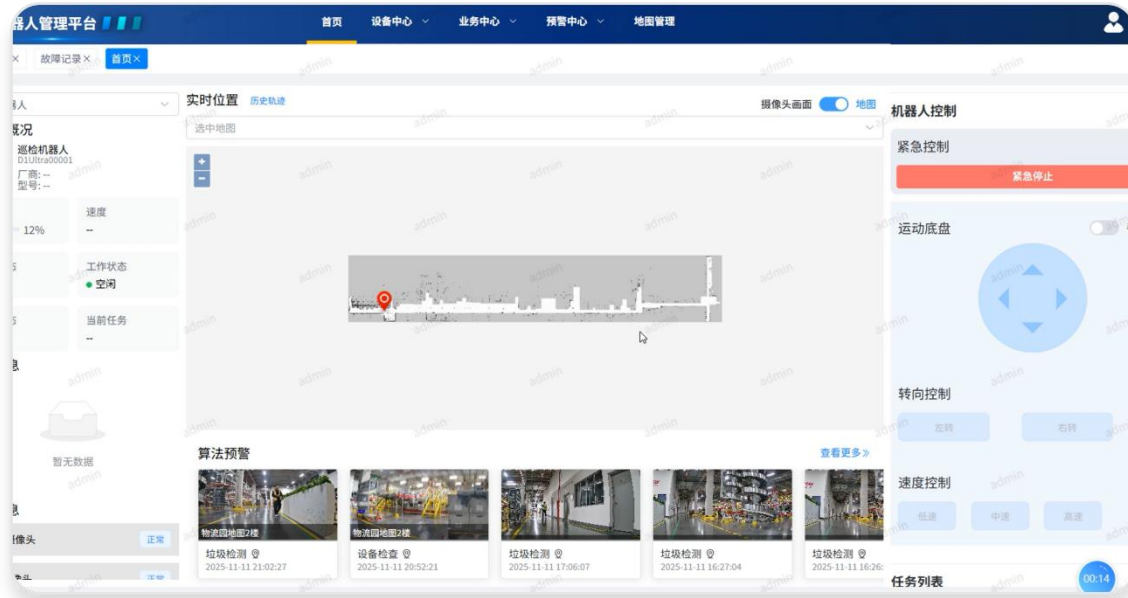
Occupational safety equipment, violations, personnel density, etc.



Facility hygiene (10+ algorithms)

Floor cleanliness, facility damage, pest detection, etc.

Robot Management Platform



Open API capabilities

- Supports multiple standard interfaces including RESTful API, WebSocket, and MQTT
- Seamlessly integrates with existing business systems including ERP, equipment management, security, and fire protection systems



Machine cluster management

Achieve centralized visual management of multi-robot status, data, and alerts with unified scheduling.



Inspection Task Management

Supports template-based configuration of tasks, records full lifecycle data, and enables automated inspections.



High-precision map management

Supports fast map creation, dynamic updates, and terrain layering annotations to adapt to complex environmental changes.



Visual Monitoring Center

Integrates real-time video streaming with device status monitoring, providing clear and intuitive abnormal alarm alerts.



AI Algorithm Training Management

Supports integrated training, deployment, optimization, and version management of algorithms, enabling continuous iteration and upgrades.



Typical case

Anta Jinjiang Logistics Integrated Park

Client Profile: Industry-leading smart logistics park

- The storage area covers 360,000 square meters, with an annual shipment volume exceeding 430 million units.
- The global footwear and apparel industry leads in scale, with extremely high demands for logistics efficiency.

Core points: Low efficiency and high cost of manual inspection

- Low inspection frequency (only once per week), high rate of missed detection and misjudgment (>15%)
- A single inspection requires 5 personnel and takes 3 hours, resulting in persistently high labor costs.

Solution: Intelligent Inspection System for Quadruped Robots

- Deployment of quadruped inspection robots with customized fire protection, passage, and smoke detection algorithms
- Perform four scheduled intelligent inspections daily to ensure round-the-clock security for the park.



Scene Demonstration of Anta Intelligent Inspection Robot

Value Analysis of Typical Cases

Comparison dimension	Traditional manual labor	Robot inspection
personnel allocation	Teamwork for 3-5 people	1-2 people on standby in the background
Inspection frequency	12 times in the sky	Available 24/7, with an increased frequency.
Recognition accuracy	About 85%	99%+ accurate recognition
working performance	3-hour per time	1 hour per time (70% efficiency improvement)
data management	Paper records are prone to loss	Digital ledger with traceability
Emergency response	30 minutes	<1 minute Ultra-fast alert
insurance	Working at high altitude or in hazardous environments carries risks	Zero personnel risk, equipment durability
work capacity, performance capacity	Visual inspection only	Inspection + auxiliary handling, multifunctional integration

Core values



Reduced labor input

80%



Increased inspection frequency

13 times



Improved task efficiency

70%



Annual cost savings

Hundreds of thousands+



payback period

4-7 months



04

Application scenarios

Five major application scenarios with comprehensive coverage



safety in production

Equipment operation status, environmental safety, and on-site compliance inspection



Commercial building property

Fire protection facilities, blocked passages, nighttime inspections



Energy Station

Line abnormalities, temperature and humidity, intrusion detection



Logistics and Warehousing

Cargo tilting, aisle obstruction, hygiene compliance inspection



Public venues

High population density, corridor occupation, and unauthorized access to areas



More scene customization options

Supports flexible scaling to meet personalized needs




Scenario 1: Work Safety






Typical customer

Industrial Enterprises

Core inspection content

-  **Equipment operational status monitoring**
Monitor operation/stop status, temperature abnormalities, vibration/sound abnormalities, and instrument readings
-  **Environmental safety testing**
Detect leakage of toxic and harmful gases, excessive temperature and humidity, smoke/flame, and liquid leakage
-  **Personnel safety monitoring**
Identification of unauthorized personnel entering hazardous areas, wearing of personal protective equipment (PPE), and detection of fallen individuals

Key Value Points

-  Replace manual high-risk operations to achieve zero risk
-  Early device failure warning to minimize downtime losses
-  Safety incidents are identified promptly to prevent escalation of losses

Scenario 2: Commercial Building Property Management






Typical customer

shopping mall




Office building

Hotel complex

Core inspection content

-  **Fire protection facility inspection**
Integrity of fire hydrant/fire extinguisher, blockage of fire escape route, condition of fire door, fire indication light
-  **facility condition monitoring**
Elevator operating status, abnormal lighting facilities, damaged public facilities, door and window conditions
-  **Security inspection**
Suspect identification, abnormal behavior detection, and area intrusion detection

Value Highlights

-  Wheel-type silent operation (50dB), ensuring no disturbance to tenants' work or rest
-  Supports nighttime routine inspections to achieve 24/7 coverage without blind spots
-  Enhancing Property Management Quality to Improve Tenant Satisfaction and Sense of Security

Scenario 3: Energy Station






Typical customer

State Grid
Substation




Wind Farm/Photovoltaic
Power Station

Oil/Gas Field
Station

Core inspection content

-  **Device status monitoring**
Transformer/switchgear status, abnormal equipment temperature (thermal imaging), insulator damage
-  **Environmental parameter detection**
Excessive temperature and humidity, SF6 gas leakage, abnormal noise, smoke/flame monitoring
-  **Security inspection**
Personnel intrusion detection, perimeter intrusion detection, vehicle illegal parking recognition

Value Highlights

-  IP67 Ingress Protection Rating, suitable for harsh environments, resistant to rain, snow, and sand dust
-  Operates within a wide temperature range of -20° C to 55° C, resistant to extreme cold and heat, ensuring stable performance around the clock.
-  Substitute manual high-risk operations to ensure personnel safety and enhance inspection efficiency

Scenario 4: Logistics Warehouse






Typical customer




Large-scale logistics park

Industrial storage area

Core inspection content

-  **cargo condition monitoring**
Inspect for cargo tilting, collapse, packaging damage, and compliance with cargo stacking regulations
-  **Channel security detection**
Detection of fire exit blockage, excessive cargo height, and forklift operation standards
-  **Environmental hygiene testing**
Detect ground cleanliness, garbage accumulation, and potential pest hazards

Value highlights

-  24/7 uninterrupted inspection with no blind spots
-  Significant reduction in labor costs
-  Recognition accuracy rate: 99%

Scenario 5: Public Venues






Typical customer

stadium, sports
venue, sports field




Convention and
Exhibition Center

Museum/Library

Core inspection items

-  **Population Density and Order**
Statistical analysis of population density, passage occupancy, and crowd congestion monitoring
-  **facility condition monitoring**
Integrity of fire protection facilities, emergency exits, lighting and audio equipment
-  **Environmental hygiene testing**
Floor cleanliness, garbage accumulation, and identification of water stains and dirt

Value Highlights

-  High-frequency inspections during large-scale events to ensure order and safety
-  Automated post-closing inspections significantly reduce nighttime labor costs
-  Data-driven operational management to comprehensively enhance venue service quality



05

Service Support and Assistance

End-to-end service assurance system



early-stage planning and design

Consultation request → Solution design → Prototype testing



standardized production delivery

Batch production → Quality inspection → On-time delivery



On-site engineering deployment

Installation and debugging → Staff training → Trial operation



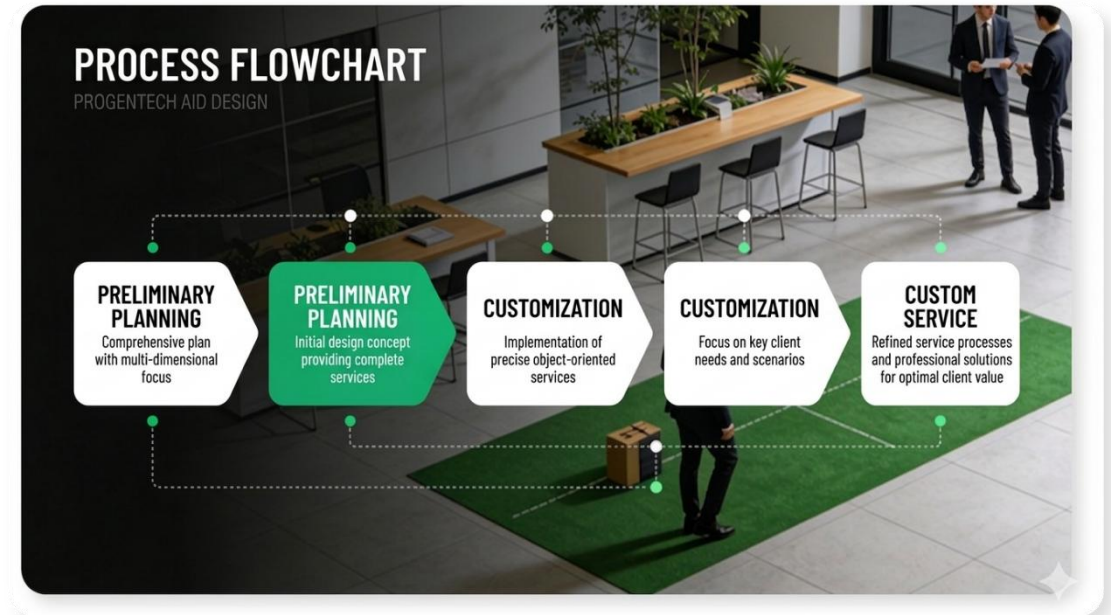
After-sales maintenance

24/7 support → Rapid fault response → Software and hardware upgrades



Customized value-added services

Feature customization → Data analysis → Process optimization



Our Service Commitment



24/7 rapid response



Arrive within 2 hours of fault occurrence



Lifetime technical support



Free software upgrade



About Us



Brand concept



By deepening scenario integration, empowering industries, and delivering exceptional customer outcomes, we are committed to becoming the industry-leading embodiment of intelligent robotics.

Core positioning



Driven by scenario requirements, we advance software and hardware R&D to develop industry-leading, specialized embodied intelligence algorithms and robotic architectures.

Technical Capability



By focusing on computer vision, deep learning, and robot control, we establish robust technical barriers.

Why Choose Us



We provide end-to-end one-stop services covering project design to after-sales maintenance, ensuring efficient delivery.

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