Application Scenarios & Value

Intelligent Inspection

Autonomous inspections across campuses and laboratories, enabling real-time environmental and safety data collection to improve efficiency and support smart security practices.

Intelligent Guided Tours

A smart, interactive guide that navigates autonomously and engages visitors through voice interaction, showcasing innovation while introducing students to human–machine interaction and path planning.

Teaching & Research

A cross-disciplinary platform supporting hands-on learning in programming, algorithms, and motion control—scalable from K–12 education to higher education and research institutions.

Product Specifications

Model	Explorer	Explorer Vision	Explorer Sentinel
Product Type	Bio-Inspired Quadruped Robot		
Battery & Endurance			
Battery Capacity	4000 mAh	8000 mAh	
Operating Time	Approx. 1.5 hrs	Approx. 2.5 hrs	
Battery Configuration	Standard	Extended	
Mobility & Performance			
Max Speed (Legged Mode)	1.8 m/s		
Max Speed (Wheeled Mode)	3.0 m/s		
Climbing Ability	30°–35° slopes		
Obstacle Clearance	Up to 16 cm		
Effective Payload	3–7 kg		
AI & Intelligent Capabilities			
Autonomous Following	Yes		
Intelligent Obstacle Avoidance	Yes		
SLAM Navigation	-	-	Yes
AI Voice Interaction	Yes	Dual-language AI voice interaction	
AI Computing Module	-	40 TOPS (Orin Nano)	40 TOPS (Orin Nano)
Sensor System			
RGB Cameras	Front & rear 1080P (1920×1080 @30fps) photo & video supported		
Depth Camera	Equipped with dual built-in depth cameras (front and rear)	Includes the standard dual cameras plus an integrated Intel® RealSense™ D435i depth camera	Includes the standard dual cameras plus an integrated Intel® RealSense™ D435i depth camera
LiDAR	-	-	Yes
Remote Control & Connectivity			
App Control	Wi-Fi / 4G		
OTA Updates	Supported		
Biomimetic Motion			
Motion Actions	Waving, Jumping, Leaping		
Development & Research Support			
Secondary Development	Supported		
Simulation Environment	Isaac Gym		
SDK Support	C++ / Python SDK, open low-level & high-level control APIs		
Motion & Navigation Examples	Provided		
Camera SDK	-	Yes	Yes
LiDAR SDK	-	-	Yes
Obstacle Avoidance			
Bidirectional Obstacle Avoidance	Supported (Auto-braking response)		
Physical Specifications			
Weight	15.5 kg / 18.5 kg		
Package List			
Standard Packing List	Explorer Bionic Quadruped Robot ×1 Default Leg Modules ×4 Bluetooth Remote Controller ×1 Charging Dock ×1 Standard Battery Pack ×1 Basic SDK	Explorer Vision Bionic Quadruped Robot ×1 Default Leg Modules ×4 Bluetooth Remote Controller ×1 Charging Dock ×1 High-Capacity Battery Pack ×1 Intel® RealSense™ D435i ×1 Enhanced Camera SDK	Explorer Sentinel Bionic Quadruped Robot ×1 Default Leg Modules ×4 Bluetooth Remote Controller ×1 Charging Dock ×1 High-Capacity Battery Pack ×1 Intel® RealSense™ D435i ×1 Enhanced Camera + LiDAR SDK
Optional Accessories	High-Capacity Battery Pack ×1		
	Explorer-Wheel Quick Swap Pack ×4		
	Quick Mount Bridge ×1		
	Charging Butler ×1		

*Specifications are for reference only and subject to updates.

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Education Partnerships:
We support customized curriculum design and long-term collaboration programs for educational institutions.

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DOBOT Explorer

Quadruped Robot for Education

Key Features

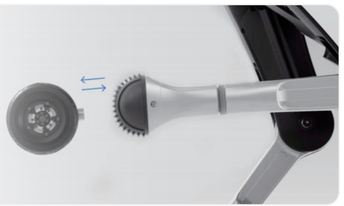
Designed for **K12 education, undergraduate programs, vocational training, and research institutions**, this platform integrates **perception, mobility, and an open development ecosystem** into a single solution. It supports a wide range of use cases, including **classroom instruction, experimental research, and competition-based training**, enabling learners to explore embodied intelligence through hands-on practice.

Inverted Knee Joint Architecture

Enhances stair climbing, navigation in confined spaces, and performance across complex terrain, while significantly reducing energy consumption. Well suited for research applications and advanced algorithm validation.

All-Terrain Agile Mobility

Supports fast switching between legged and wheel-legged modes, enabling flexible adaptation to diverse environments and task requirements.



Dual Built-in Cameras (Front & Rear)

Enhances forward and rear environmental perception, supporting more complete inspection and autonomous navigation research.

Multiple Mounting & Expansion Interfaces

Featuring a modular camera mount, the platform supports multiple sensors, computing units, and other research payloads, meeting diverse experimental and development needs.

Embodied Intelligence Teaching & Practice Platform

01 Integrated Teaching & Research Platform

Designed for learners across K12, undergraduate, vocational, and research institutions, this platform supports a full-spectrum educational pathway. The same hardware can be progressively unlocked to match the depth of instruction—from understandable and hands-on operations to development and research capabilities.

02 Layered Interface System (From Teaching to Research)

High-Level Interfaces
(Undergraduate & Vocational Teaching)

- Switch between motion modes: standing, walking, turning, climbing, and more
- Control speed and gait parameters
- Execute preset or custom motions
  → Ideal for courses in robot systems integration, control strategies, and engineering practice.

Low-Level Interfaces
(Research / Advanced Development)

- **Access to raw IMU data**, including **orientation, angular velocity, and linear acceleration**
- **Access to joint state data**, including **joint position, velocity, and torque**
- **MIT-style joint control with hybrid torque, position, and velocity control**
  → Suitable for research in **motion control, reinforcement learning, and dynamics modeling**

Perception Interfaces
(Advanced & Research)

- Unified access to visual, depth, and radar sensor data
- Basic mapping and navigation use cases (under development)
  → Enables **sensor fusion, autonomous navigation, and inspection algorithm teaching**

03 Education & Research-Friendly Features

Highly Open

Supports **ROS, Python, and C++**, enabling easy secondary development and curriculum customization.

Competition-Ready

Compatible with **campus inspection challenges, algorithm contests, and project-based competitions.**

Open Ecosystem

Comes with **example code, experimental projects, and community documentation**, facilitating reproducibility in teaching and iterative research.

Safe & Controllable

Equipped with **collision protection mechanisms**, making it suitable for long-term use in educational settings.

Segmented Curriculum Support

K–12 Level

- Understand the basic **robot structure and motion types**
- Learn fundamental **sensor concepts** (vision, distance, orientation)
- Practice **graphical programming and task logic**
- Complete simple **line-following, obstacle avoidance, and path navigation tasks**

Undergraduate Level

- Fundamentals of **robot kinematics and gait control**
- Acquisition and utilization of **multi-sensor data**
- Basics of **ROS, node communication, and system integration**
- **Visual perception** and basic navigation workflows
- **Project-based learning**: campus inspection or functional expansion development

Research Level

- **Low-level control and dynamics modeling**
- **Reinforcement learning / imitation learning applications in quadruped robots**
- **Sensor fusion and autonomous navigation algorithm validation**
- **Locomotion studies in confined spaces and complex terrain**

Vocational Training Level

- **Robot system deployment and calibration**
- **Control parameter configuration and operational maintenance**
- **Inspection task setup and exception handling**
- **Engineering applications and standardized workflow training**