UNITREE

Web: www.unitree.com
Tel: +86 176 2178 1139
Email: sales_global@unitree.com

Follow us@Unitree Robotics

Please visit Unitree Robotics Website for more related terms and policies,
and comply with local laws and regulations.

UNITREE

Fire Rescue Solution

Through Fire, Driven by Duty









Scenario Challenges & Traditional Limitations

Scenario Challenges

Scenarios such as underground spaces and large commercial complexes feature complex structures, where fire scenes combine risks of high temperature, heavy smoke, and toxic gases.

Traditional Limitations

In complex fire grounds, personnel entering high-risk areas face safety threats; traditional tracked robots also have limited mobility on stairs, rubble, and similar terrain.

Industry Demands



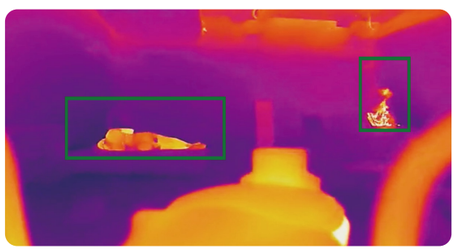
Human-Robot Collaboration

Advance robots from standalone operation to human-robot and multi-robot collaboration, forming a rescue model that links front line operations with rear command.



Capability Extension

Upgrade from single-function reconnaissance and fire-fighting equipment to multi-task, multi-scenario integrated operation platforms, enhancing complex fire ground response capability.



Reduce / Replace Personnel

Deploy robots to replace personnel in entering high-risk areas such as extreme heat, heavy smoke, toxic environments, and collapse zones, reducing front line rescue risks.

Modular Architecture

Hardware platform

Embodied robotics platform


B2


A2


As2


G1

Payload


Dual-optic Gimbal


Gas Sensor


All-in-one Module


Water Cannon


Payload Carrier


3D Scanner

Algorithms & Decision Making

AI Recognition

Autonomous Navigation

Data fusion

Coordinated command

5G private network, WIFI

Ad-hoc network, satellite communication

Command & dispatch

Command-center large screen

Real-time video feedback
3D digital twin
Digital intelligent analysis

Mobile terminal

Tablet remote-control terminal
PC
Mobile
Server

Business functions

Data collection
Remote monitoring
Intelligent early warning
Emergency response

Core Advantages

Professional & Reliable

Leveraging a mature robotics product system and accumulated software/hardware expertise to provide reliable equipment for firefighting scenarios, meeting the need for sustained operations in complex environments.

Systemic Coordination

Integrating the robot body, mission payloads, algorithmic decision-making, communications, and command dispatch into a coordinated system linking frontline operations with rear command.

Rapid Deployment

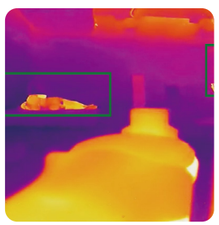
Adopting standardized, modular design to support rapid configuration and flexible combination of mission modules, reducing on-site deployment and commissioning costs.

Ecosystem expansion

Relying on an open platform and development capability to support continuous integration of new payloads, algorithms, and applications, expanding robotic operational capability.

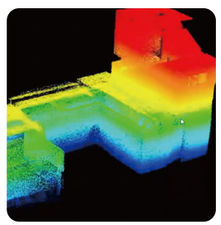
Functions

Covers the entire operational chain of "reconnaissance — modeling — firefighting — support — patrol"



Reconnaissance & Sensing

Equipped with a dual-optic gimbal to intelligently identify trapped personnel and fire sources.



3D Modeling

Equipped with a 3D scanner for real-time 3D modeling.



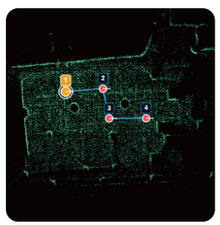
Firefighting Operations

40 L/s water cannon with a range of nearly 60 m, assisting firefighters in suppressing the fire.



Material Carriage

Approx. 25 kg payload, autonomous following; precise delivery of breathing apparatus / hoses.



Autonomous Navigation

Fusion positioning algorithm based on LiDAR and RTK, suitable for large campuses, venues, and similar scenarios.

Rescue Process Simulation

01

Dispatch & Formation

Robots arrive at the scene with rescue vehicles and quickly select mission payloads based on the fire situation and terrain.

02

Advance Reconnaissance

Robots enter high-risk areas to collect video, gas, and structural information.

03

Situation Assessment

The rear command end fuses robot thermal-imaging and environmental data to accurately build the fireground situation, determining rescue routes and response points.

04

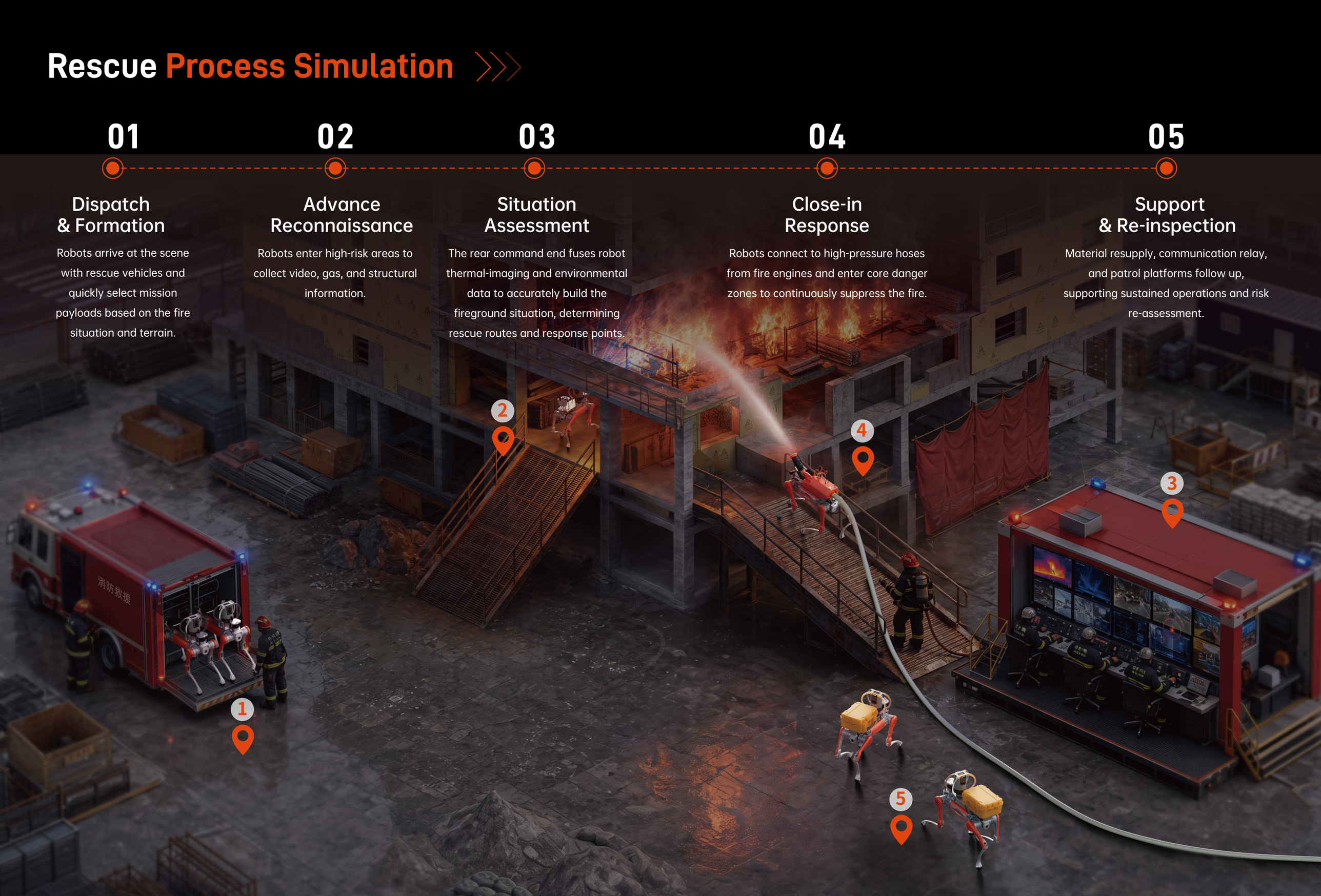
Close-in Response

Robots connect to high-pressure hoses from fire engines and enter core danger zones to continuously suppress the fire.

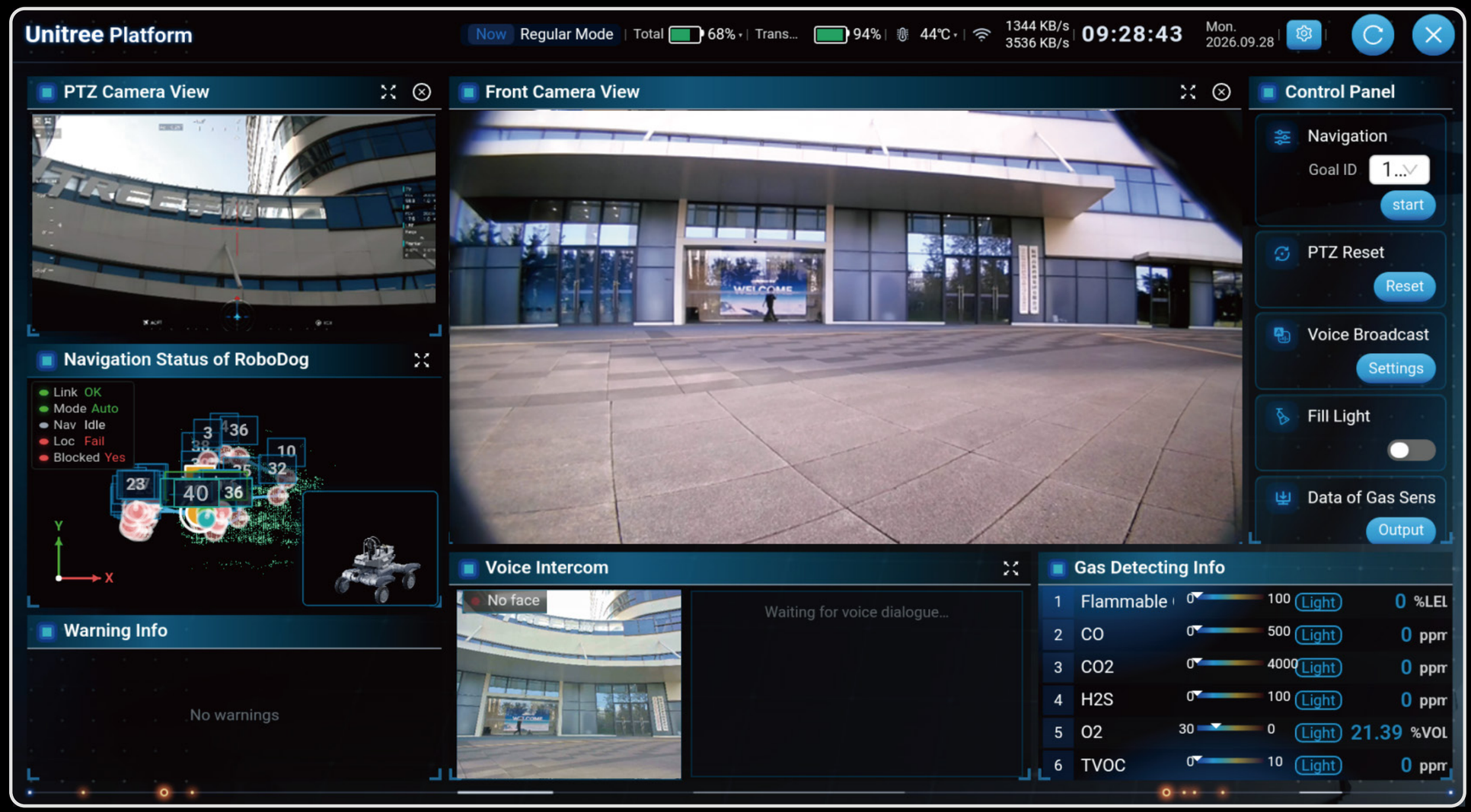
05

Support & Re-inspection

Material resupply, communication relay, and patrol platforms follow up, supporting sustained operations and risk re-assessment.



Unitree Quadruped Robot Visualization Platform



Multi-view Video Monitoring

Low-latency feedback of gimbal and binocular images, supporting 360° rotation and zoom.

Autonomous Navigation & Planning

SLAM mapping and multi-point patrol with real-time trajectory display and dynamic obstacle avoidance.

Two-way Voice Intercom

Real-time communication between command center and site, supporting text-to-speech broadcasting.

Gas Monitoring

Monitors combustible gases, CO, CO_2, H_2S, etc., with automatic alerts when exceeded.

Intelligent Device Control

Remote control of gimbal, four-in-one modules, etc., with real-time status feedback.

Full-dimensional Status Monitoring

Monitors battery, network, and temperature with anomaly alerts and traceable data.

Product Portfolio

B2 Series	B2-W Series	A2 Series	A2-W Series	As2 Series	As2-W Series
					
					
					
					
					

Certain robot models are only sold to countries and regions that accept certain conditions.

More product solutions continuously being updated...

B2/B2-W

Heavy-duty Quadruped — Breaking Limits

Designed for high-intensity operations and extreme environments, supporting long endurance, strong obstacle crossing, and multi-payload expansion.

Water Cannon Solution



3 Adjustable Spray Flow Rates: 20 L/s, 30 L/s, 40 L/s

Straight-stream / Fog Pattern Switching

Automatic Hose Release

Self-spray Cooling

Reconnaissance Solution



Visible-light and Infrared Reconnaissance

Detection of Combustible, Toxic, and Other Gases

Ad-hoc Network / 5G Communication

High-temperature-resistant Solution





Official test report issued by Chinese authorities

High-temperature Protection / Can Approach Fire Source

Visible-light and Infrared Reconnaissance

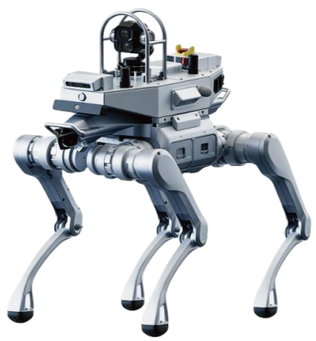
Ad-hoc Network

A2/A2-W

Medium Build — Powerful Performance

Features dual batteries, front/rear dual sensing, and strong load capacity, suitable for complex indoor/outdoor emergency rescue scenarios.

Reconnaissance Solution





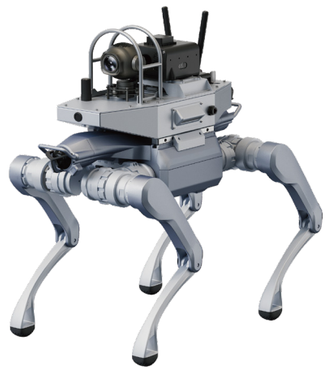
Dual Battery Bays / Hot-swappable Batteries

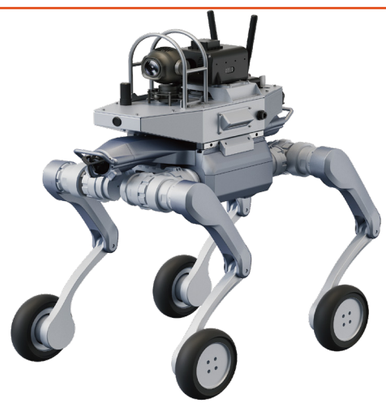
Dual-optic Gimbal / AI Recognition

Equipped with Large Model / Voice Command Input

Autonomous Following

Patrol Solution





Dual Battery Bays / Hot-swappable Batteries

Visible-light HD Vari-focus Gimbal / AI Recognition

Four-in-one Module, supports voice broadcast, alerts, etc.

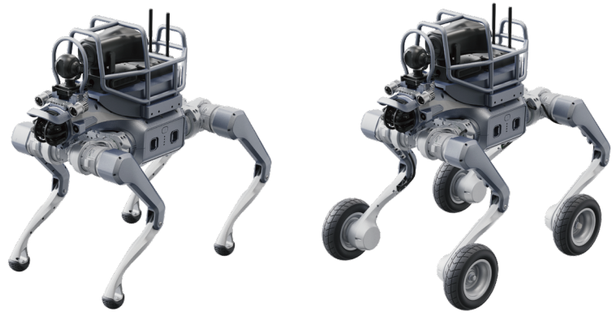
Autonomous Following

As2/As2-W

Compact Body — Industry-grade Performance

Agile and maneuverable with precise sensing, suitable for inspection, reconnaissance, and emergency support tasks.

Three-in-one + Gimbal Solution



High-intensity Lighting / Voice Broadcast

Optional single / dual-optic gimbal

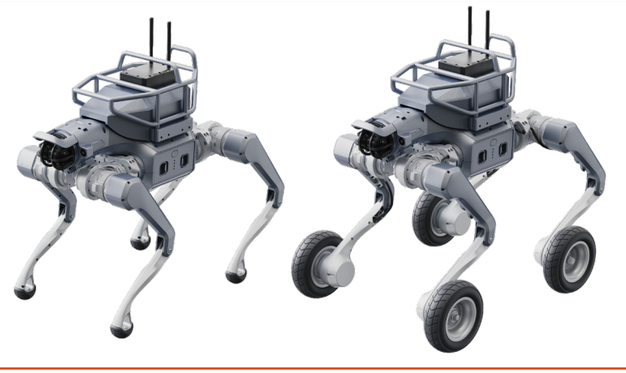
Three-in-one Solution



High-intensity Lighting

Supports voice broadcast and red/blue warning

Gas Detection Solution



Expandable Modules

Detection of Combustible, Toxic, and Other Gases

G1

G1-XF Humanoid Robot

Human-robot interaction and personnel guidance: can stand guard inside the fire-control room or move out to patrol and evacuate throughout the building.



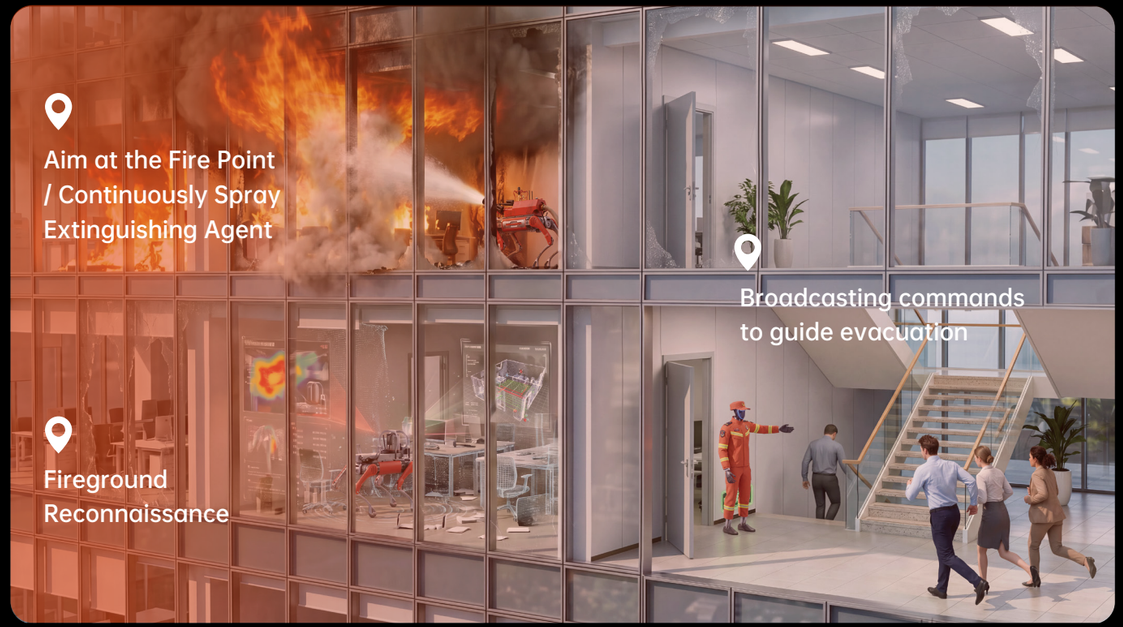
Application Scenarios



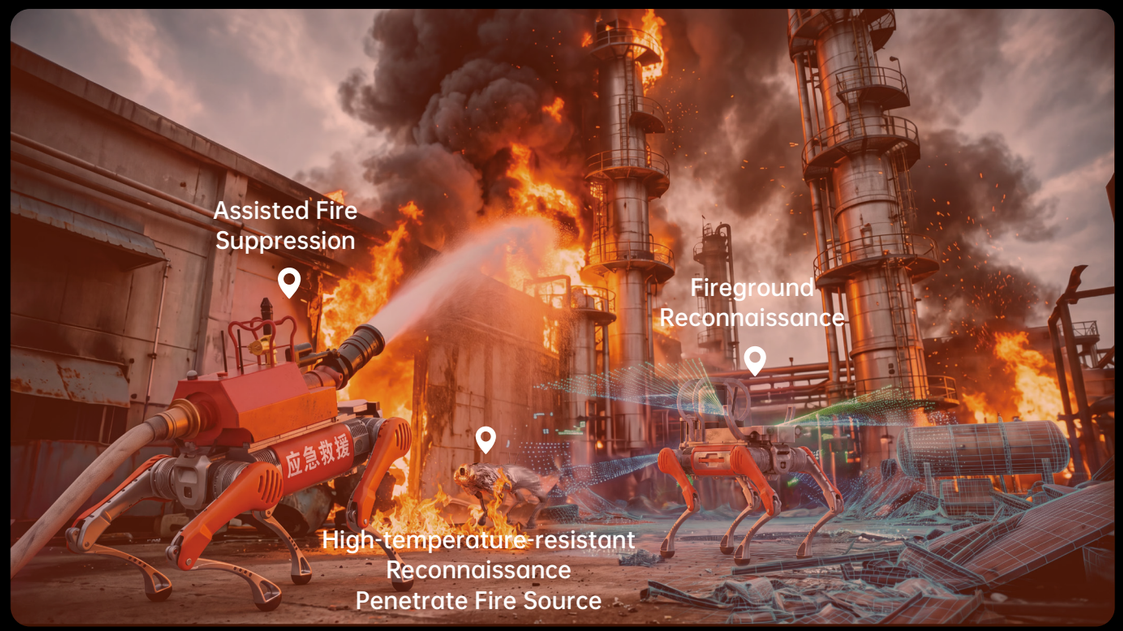












Case Studies

01

Emergency Mission 2025
High-rise Building Fire Fighting Drill

Project Solution

Deployed one B2 quadruped reconnaissance robot, equipped with a panoramic camera, dual-optic gimbal, gas sensor, and ad-hoc communication module, to penetrate the building interior for fire ground reconnaissance and information collection, operating in coordination with a reconnaissance drone swarm, locating trapped personnel via infrared thermal imaging, and using AI real-time data analysis to assist decision-making.

Project Results

This drill achieved a key breakthrough in "rapid situational awareness" for ultra-high-rise complex fire grounds, effectively improving situational assessment and personnel search-and-rescue efficiency for high-rise building fires, providing critical data support for command decisions.



*Featured in Xinhua News Agency reports.

Case Studies

02

Emergency Mission 2025
"Three Cuts" Rescue Operation

Project Solution

Deployed one B2 quadruped robot, equipped with a panoramic camera, dual-optic gimbal, ad-hoc access system, gas sensor, and industrial-grade screen remote controller, to penetrate signal-less areas such as dense forests and tunnels under "three cuts" (power outage, road blockage, communication cutoff) scenarios, providing communication support and enabling on-site reconnaissance and communication relay.

Project Results

This drill addressed the communication gap of quadruped robots in harsh conditions such as moderate rain and winds above force 8, greatly improving reconnaissance and communication support at extreme disaster sites, and providing stable, reliable equipment support for multi-hazard comprehensive emergency rescue.





*Featured on CCTV News.

Dubai DCD Firefighting Field Operation

Project Solution

The B2 quadruped robot equipped with a firefighting kit integrates a fire water cannon, quick-release hose connector, ad-hoc communication module (CE certified), and industrial-grade screen remote controller, meeting overseas export compliance requirements.

Project Results

This field application effectively resolved the operational bottlenecks of traditional equipment under high temperature, heavy smoke, and complex terrain, greatly improving the safety and efficiency of high-risk fire response, and providing brand-new intelligent equipment support for fire safety in the Middle East.





Deployment at Singapore Changi Airport

Project Solution

Delivered a B2 quadruped robots equipped with a firefighting kit integrates a fire water cannon, quick-release hose connector, ad-hoc communication module (CE certified), and industrial-grade screen remote controller, meeting overseas export compliance requirements.

Project Results

This deployment marks an important step by the fire department of Changi Airport, Singapore. A special field test of firefighters and intelligent fire-fighting equipment in Civil Aircraft Rescue Drills.



Honors & Certificates

· Pioneered the low-cost, high-performance quadruped robot technical approach (2013)

· World's first company to publicly retail high-performance quadruped robots (2016)

· Leading global cumulative sales

· Global pioneer in quadruped robot industry deployment (since 2017)

· A global benchmark company with leading quadruped robot industry-chain integration capability

· Outstanding contributions and influence in the global top robotics academia

· World's first quadruped robot company to obtain IP68 protection-rating certification (2021)



