- Autonomous Warehouse Automation
- Autonomous Mobile Robots
- Autonomous Vehicle Mobility
- Humanoid Industrial Automation

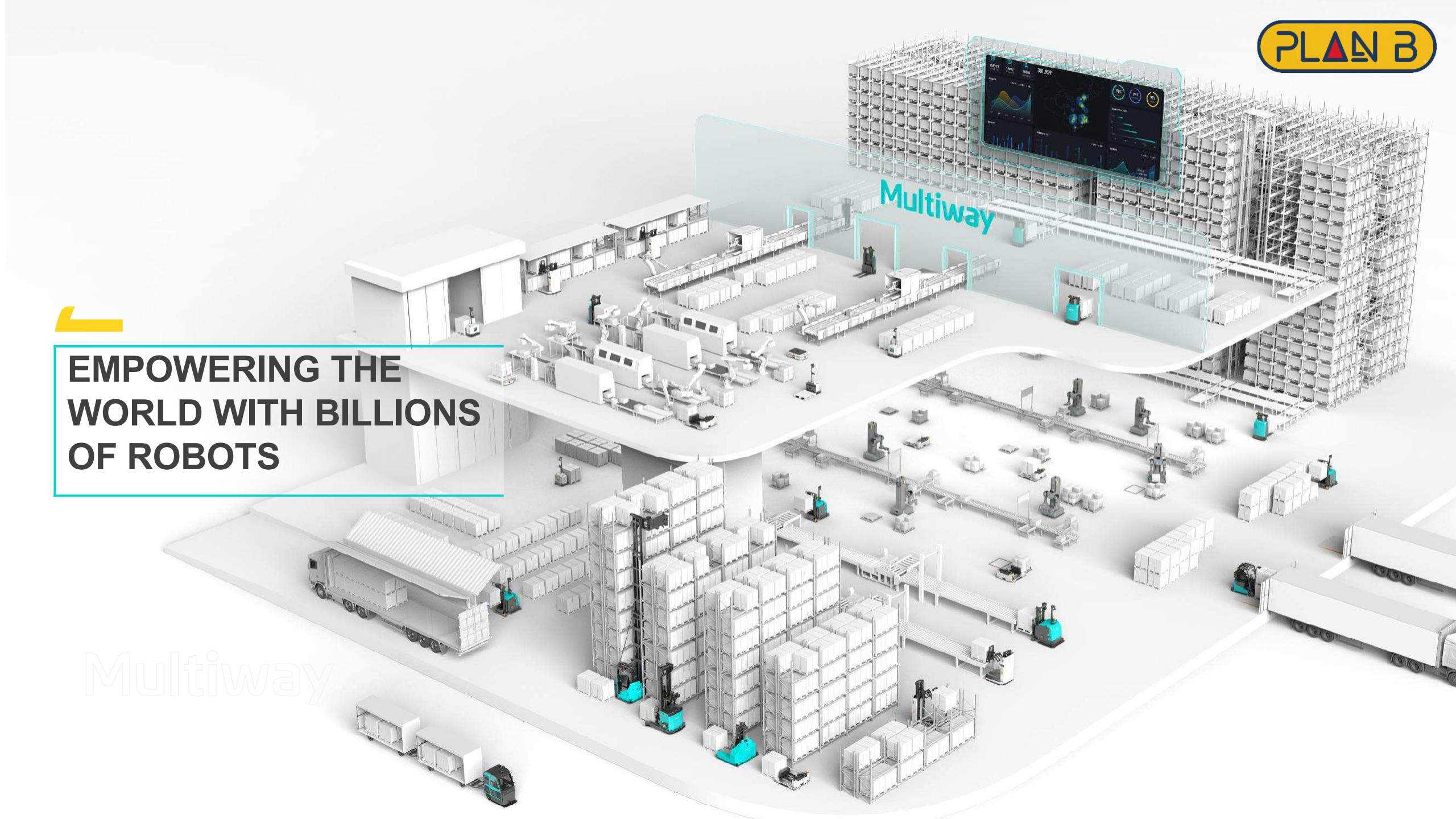
PLAN B



PLAN B ENGINEERING SOLUTIONS

AI-POWERED INDUSTRIAL SAFETY
SMART MATERIAL HANDLING
AUTONOMOUS ROBOTIC SOLUTIONS

Works :#31A/22, North Phase, 4th Cross Street, SIDCO Industrial Estate,
Ambattur, Chennai - 600 098, Tamil Nadu, India. www.planbengineering.solutions


Multiway
EMPOWERING THE WORLD WITH BILLIONS OF ROBOTS
Multiway

About Multiway

20+
Industry Applied

40+
Countries & Regions

450+
Patents & Copyrights

1000+
Project Cases



Service Philosophy

We believe that strong R&D and constant innovative capabilities are fundamentals of sustainable growth of the company, furthermore, are the sources of long-term service and insistent empowerment of our customers.

Industry Pioneer and Innovator

Comprehensive Product Portfolio · Driven by Continuous Innovation

- Among the First Companies in the Industry to Develop Fully Autonomous Forklifts
- Comprehensive Hardware Product Portfolio

Proprietary High-Performance Core Systems

- In-House Algorithms and Key Components
- Integrated Intelligent Software Ecosystem

Cross-Industry and Cross-Regional Delivery Capability

- Extensive Experience in Complex Logistics Scenarios
- Global Reach, Local Responsiveness



Intelligent Transformation from Multiway



The above are some of our partners, in no particular order

Global Network

Headquarters



Factory



USA Office



German Office



Japanese Office

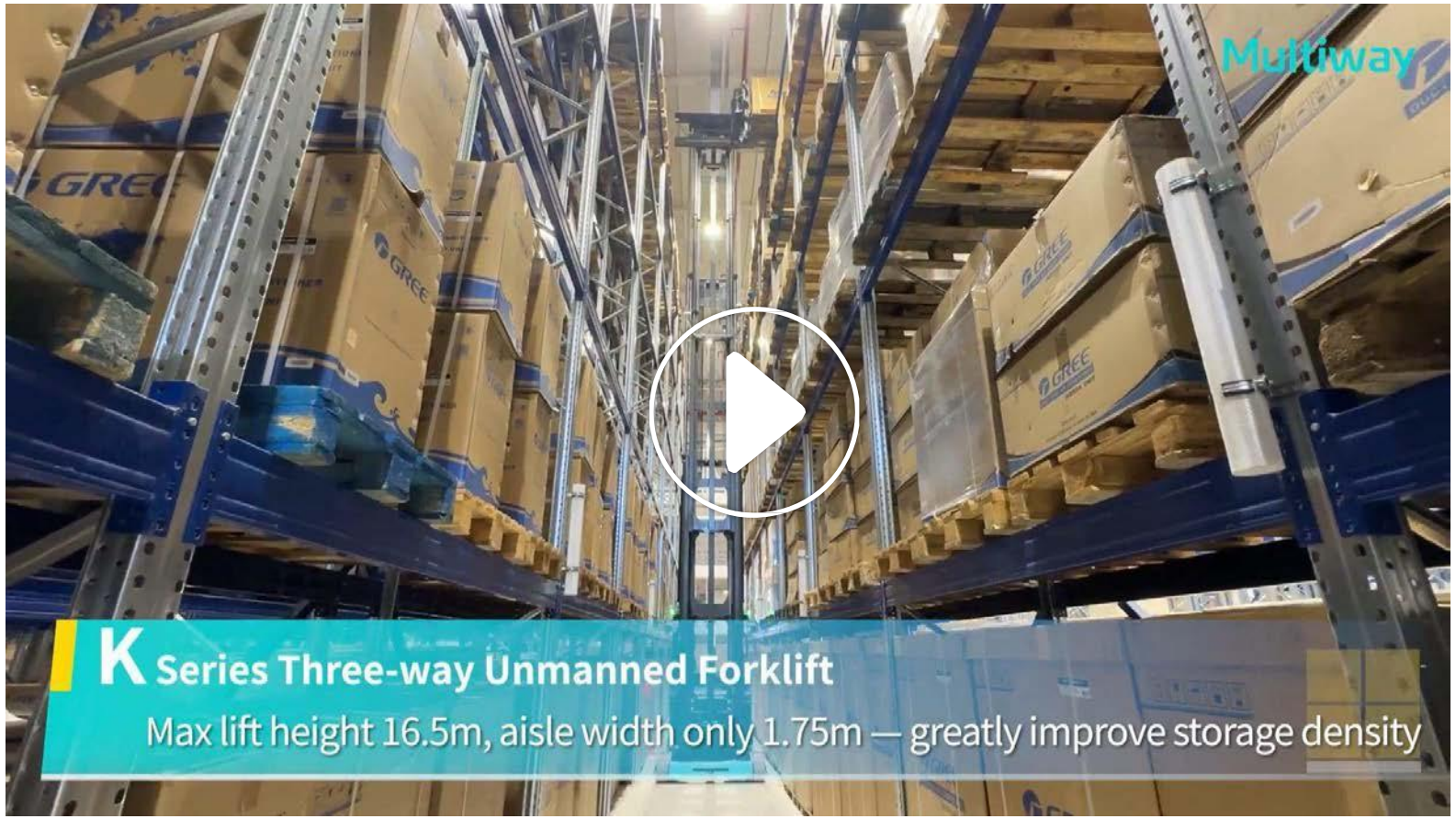


South Korea Office



About Multiway Robotics

Watch Video



More than 1000

benchmark projects successfully implemented

Among these customers, more than 40% are well-known companies, including Fortune 500 companies, China's top 500 companies, and industry leaders.

Full-Scenario Intelligent Intralogistics Solutions

Autonomous Forklifts + Four-way Shuttle + AMR + AGV Tugger + WMS Warehouse Management System + RCS Robot Control System + WCS Warehouse Control System + Cloud System + Vision System + Inbound and Outbound Workstation + Intelligent Terminals and Peripheral Devices + ...



Complete Software Ecosystem for Digitalization and Intelligent O&M (Operations & Maintenance)

Management Level

Warehouse Management System
- Information Management
- Material Management
- ……

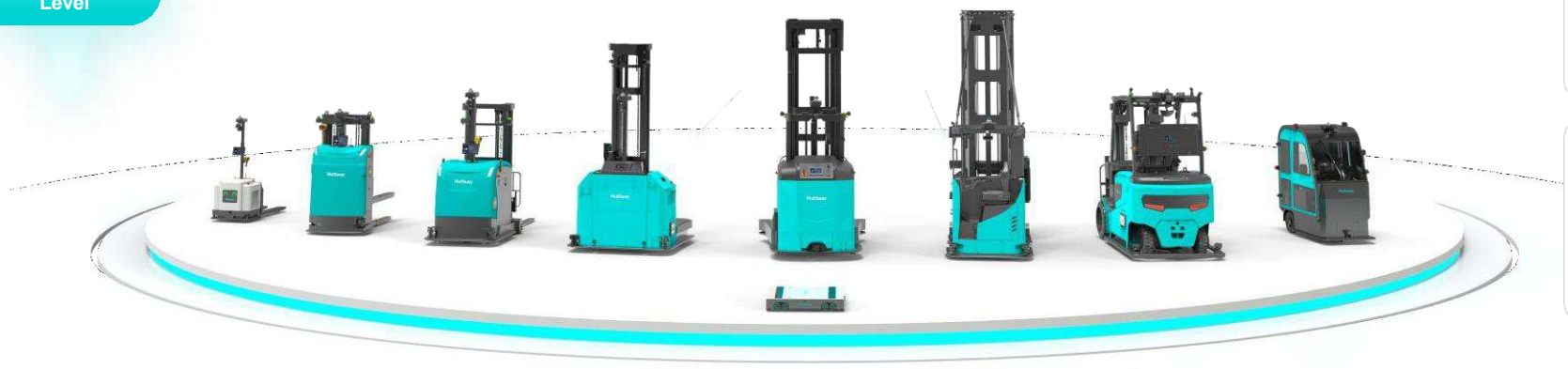
Warehouse Control System
- Conveyors Docking
- Auto Gate Docking
- ……

Simulation
- Model Data Input
- Automatic Layout Analysis
- ……

Robot Control System
- Map Environment Construction
- Intelligent Task Arrangment
- ……

Digital Twin System
- Warehouse Scenario Simulation
- Warehouse Status
- ……

Execution Level



Self-developed WMS/WCS

- Covering the entire production process including logistics management, warehouse management, quality inspection, etc.
- Closed-loop of on-site logistics, information flow and decision flow
- Flexible connection with customers' existing systems and equipment to provide incremental value (providing standard interfaces)

Vision Systems


Pallet Position Detection


Automatic (un)loading High-bay


Location Condition Detection


Visual Inventory


Dimensions Measurement


Cage Stacking


High-bay Storage


Vehicle-Human collaboration


Environment Safety Testing


Operation Safety Inspection

Module-independent on-board System


LiDAR


Navigation System


Safety System


Control System


Vision System


Core Sensor

All Categories Product Matrix

Staying innovative, Multiway has developed all categories of intralogistics products, including unmanned forklifts, AMRs and tow tractors.

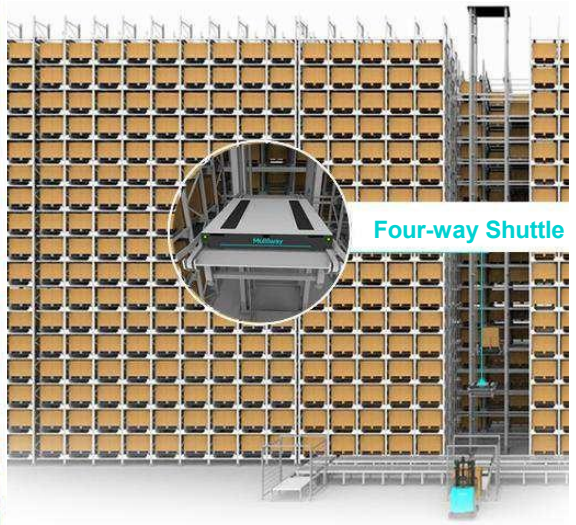


Unmanned handling | Production line | Cross floor handling | High-bay storage | Park logistics | Intensive Access

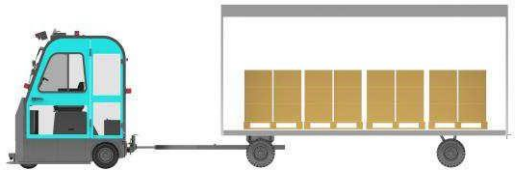
Autonomous Handling & Storage Solutions

AMR forklifts are used in scenarios such as transportation outside the warehouse and docking between ASRS warehouses to ensure the smooth movement of materials & information between different processes, and achieve the intelligent flow of the entire factory intralogistics.





Aisle Width	1900mm	2300mm	2300-2500mm	3150-3800mm	4100-4250mm	2300-2800mm	3150-3340mm	1750mm
Pallet Type:	**Omnidirectional Pallet Truck**	**Pallet Truck**	**Pallet Stacker**	**Counterbalanced Forklift**	**Counterbalanced Forklift**	**Sideloader**	**Reach Truck R**	**VNA Truck**
	OT10	X20/X20S	MW-SL14/16/20	MW-SE15/20/30	MW-E30/35/40	MW-O15/20/30 40/50/80	MW-R16S/R20S R16/20/25	MW-K16
open	⊓⊓	⊓⊓	⊓⊓	⊓⊓	⊓⊓	⊓⊓	⊓⊓	⊓⊓
closed	▭▭	▭▭		▭▭	▭▭	▭▭	▭▭	▭▭



AGV Tow Tractor

OT10 Omnidirectional Autonomous Pallet Truck

360° Omnidirectional Movement for Efficient Operation in 1,900 mm Narrow Aisles.

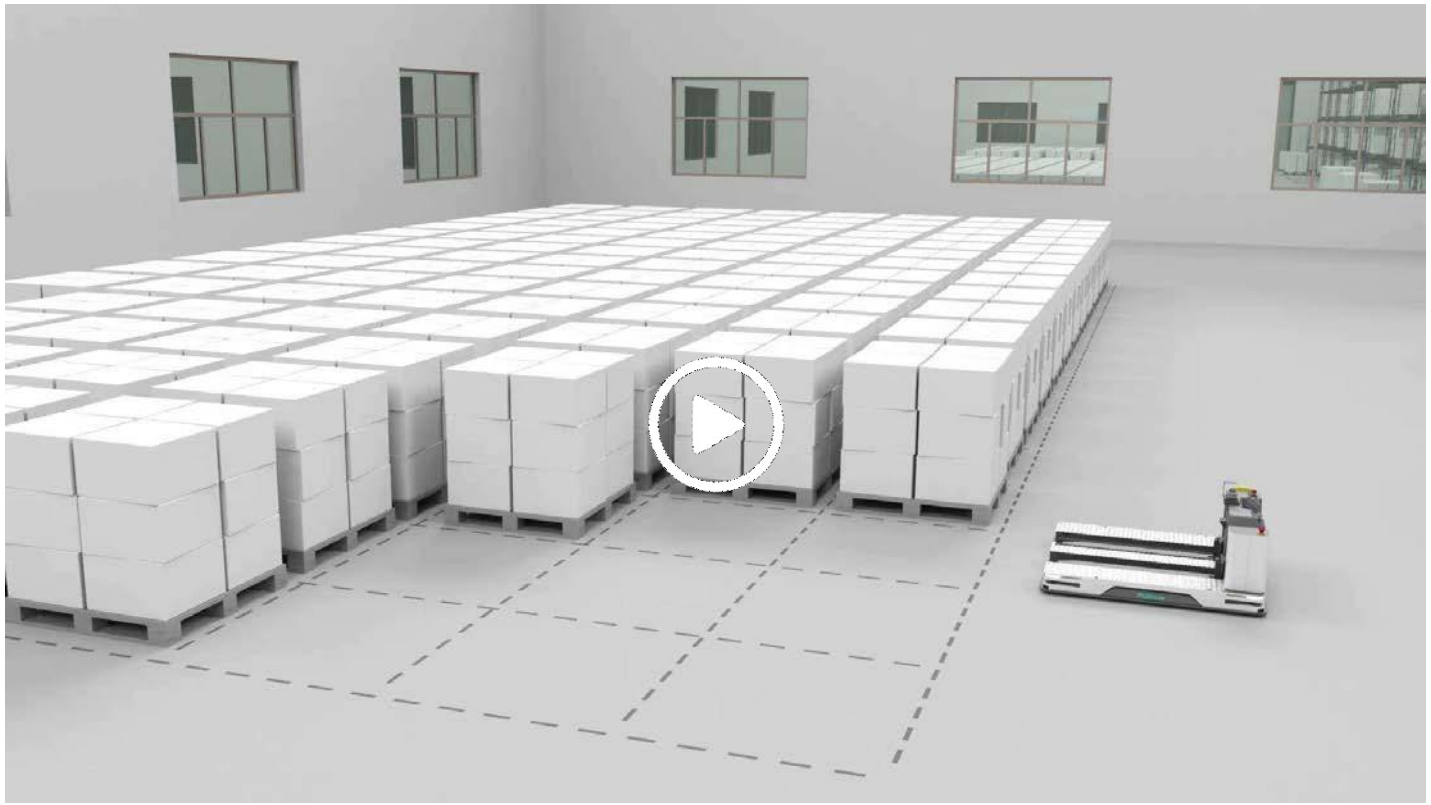
3D SLAM Navigation, Compatible with Standard Pallets and Custom Load Carriers.

OT10

NEW

PRODUCT LAUNCH





WeFront X20S

A pioneer pallet truck that can be fully compatible with pallets of different specifications including 4-way pallets, 2-way pallets, and POD pallets in the industry

X20S





Multiway α2

Industry first patent exclusive

One Time, 2 Pallets

Faster Speed, Higher Effiency





O Series Omni-directional Side-loading Autonomous Forklift

Load capacity up to **8 tons**

360° rotation, right-angle turning, and precise handling in narrow aisles

Standardized end-vision system for visual cargo alignment and placement space detection

Effortless Handling of Heavy and Long Loads





K Series Three-way Unmanned Forklift

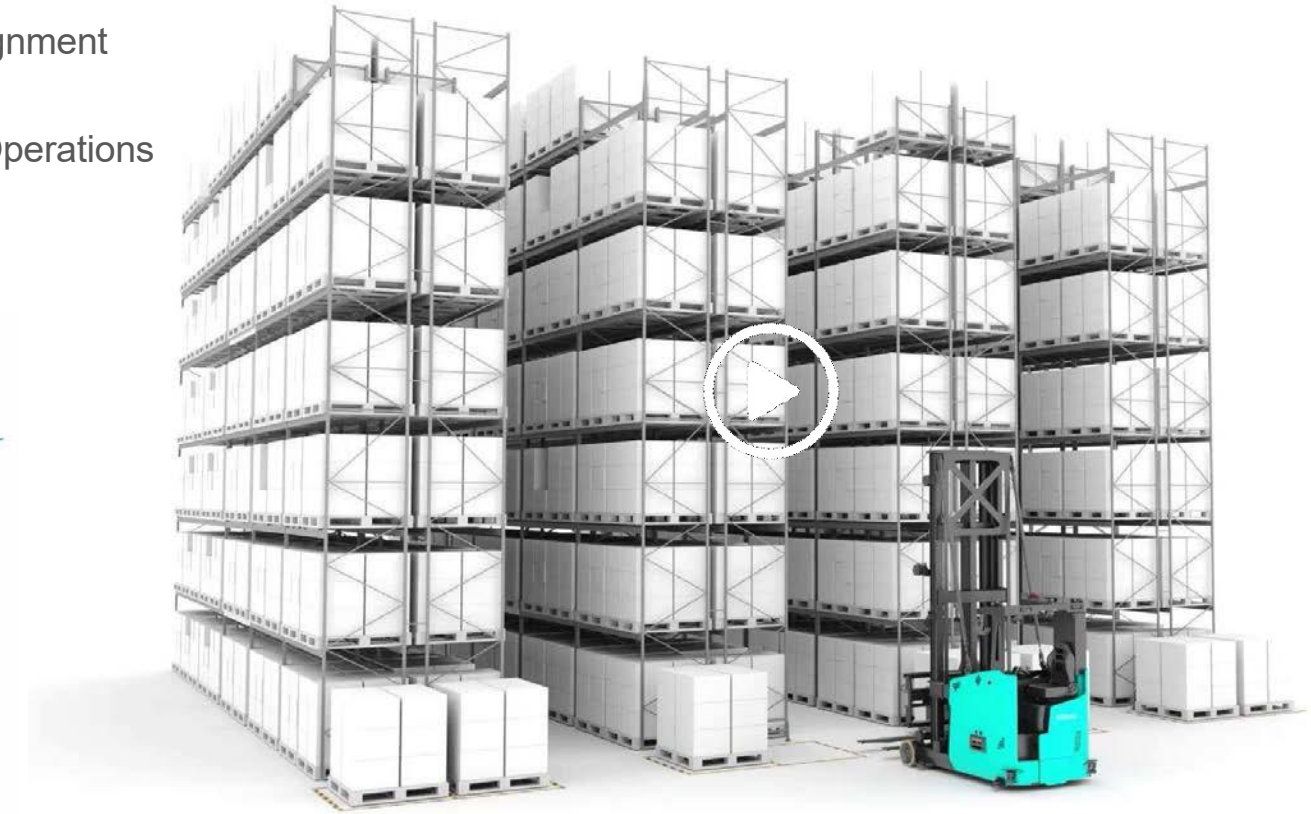
Lifting height up to **16.5 m**

Minimum aisle width: **1.75 m**

Standardized end-vision system for visual cargo alignment and placement space detection

Setting the Standard for Narrow-Aisle & High-Bay Operations





R Series Reach Truck Unmanned Forklift

Maximum lift height up to 10m

Standardized end-vision system for visual cargo alignment and placement space detection





Q Series Tail Compartment Loading Unmanned Forklift

Compatible with wing vans, flatbed trucks, and tail compartment loading; tail ramp support up to 8.5° incline

Zero-gap placement for maximum loading efficiency





Differential Drive AMR

3D SLAM Navigation, No Infrastructure Modification Required

Supports Lifting and Conveyor Transfer for Flexible Adaptation to Diverse Logistics Scenarios

1000kg

Applications

Production Line Delivery

Workstation Transfer

Warehouse Handling

Automated Loading & Unloading



Conveyor AMR

Automated Conveyor Docking

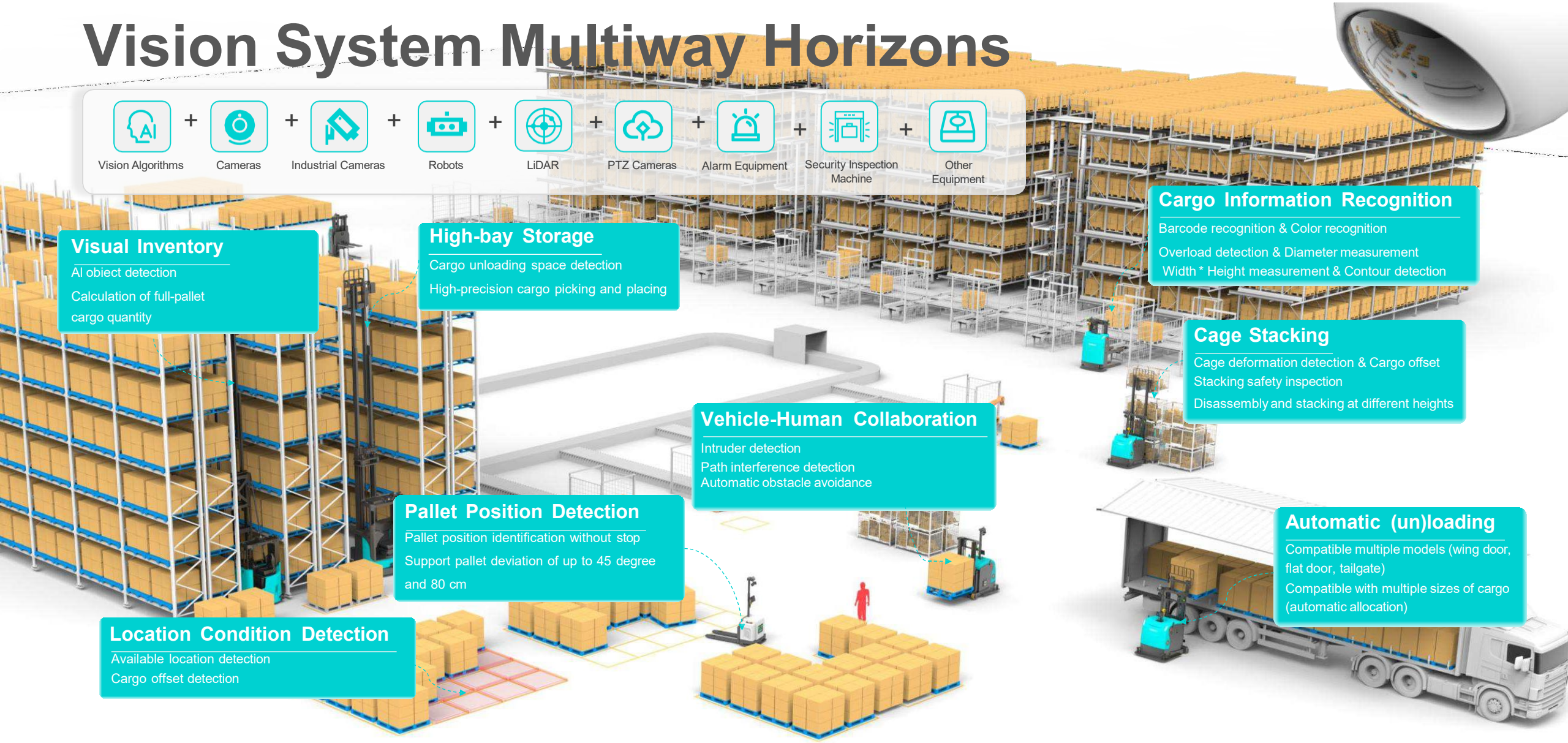


Lifting AMR

Automated Lift-and-Transport Handling

Vision System Multiway Horizons

Vision Algorithms + Cameras + Industrial Cameras + Robots + LiDAR + PTZ Cameras + Alarm Equipment + Security Inspection Machine + Other Equipment



Visual Inventory

AI obiect detection

Calculation of full-pallet cargo quantity

High-bay Storage

Cargo unloading space detection

High-precision cargo picking and placing

Cargo Information Recognition

Barcode recognition & Color recognition

Overload detection & Diameter measurement

Width * Height measurement & Contour detection

Cage Stacking

Cage deformation detection & Cargo offset

Stacking safety inspection

Disassembly and stacking at different heights

Vehicle-Human Collaboration

Intruder detection

Path interference detection

Automatic obstacle avoidance

Pallet Position Detection

Pallet position identification without stop

Support pallet deviation of up to 45 degree and 80 cm

Automatic (un)loading

Compatible multiple models (wing door, flat door, tailgate)

Compatible with multiple sizes of cargo (automatic allocation)

Location Condition Detection

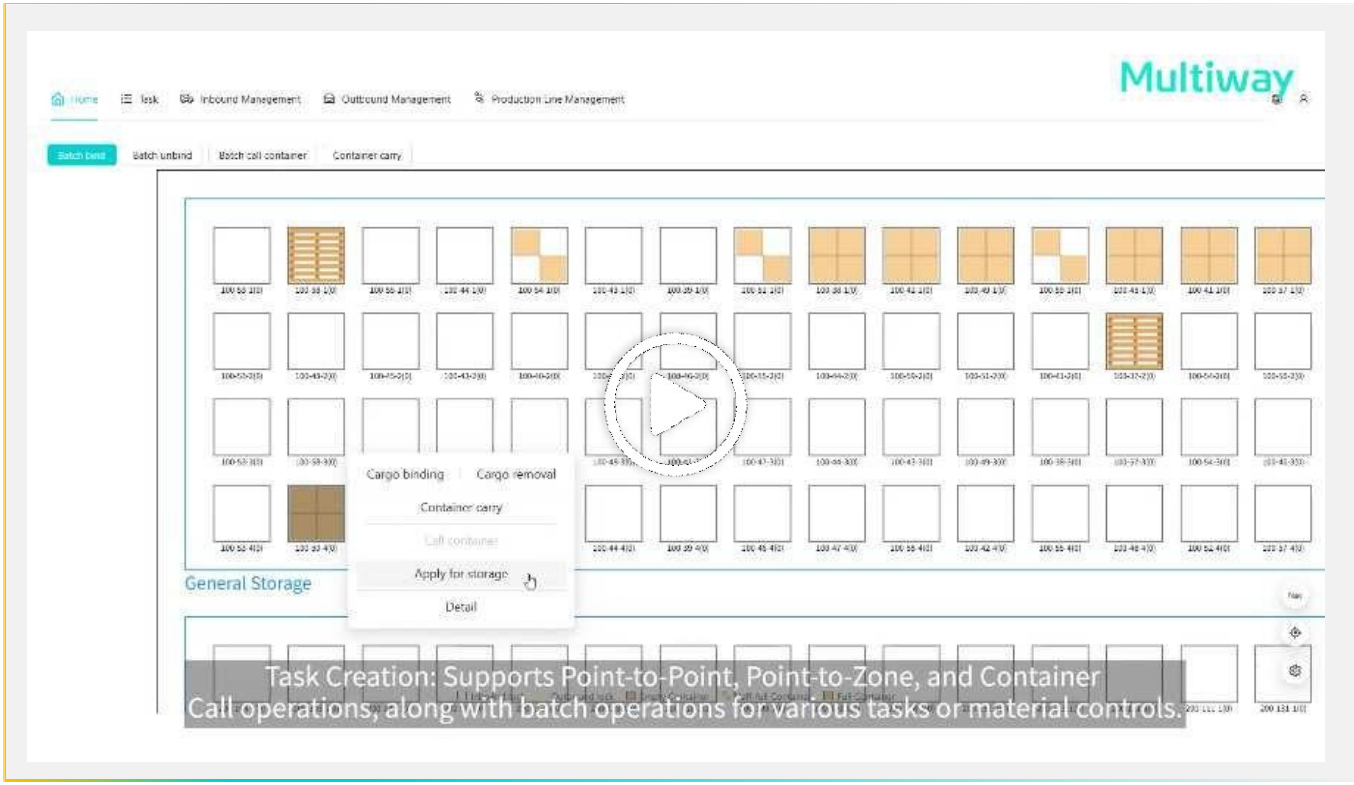
Available location detection

Cargo offset detection

Multiway Warehouse Management System MW WMS

Multiway Warehouse Management System enables inventory data management, task management, location management, intelligent report management, and monitoring health status of warehouse equipment. It creates a transparent and convenient warehouse management system, breaking the "black box" status of inventory assets, and provides real-time visibility into inventory and cost occupancy information.

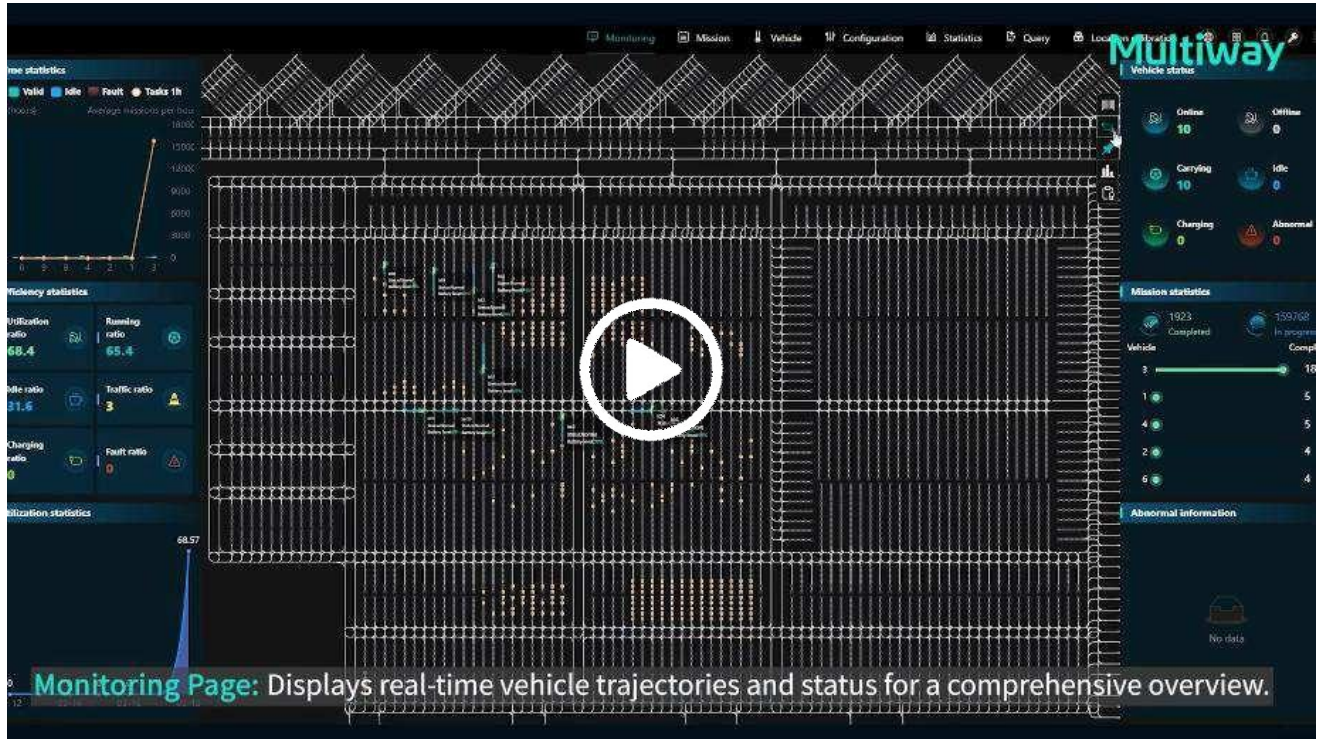
Information Management	Material Management	Vehicle Management
3D DigitalTwin	Statistics	Entry
Quality Control	Inventory Management	Inventory Counting
Delivery	Standard Interfaces	



Multiway Robot Control System - MW RCS

Multiway Robot Control System can simultaneously support the collaborative operation of hundreds of vehicles of different models in the same area. It can quickly plan the optimal routes and achieve the overall optimal navigation route planning, thereby completing tasks in the shortest possible time and ensuring the highest operational efficiency.

- Map Environment Construction
- Intelligent Task Arrangment
- Optimal Path Planning
- Equipment Monitoring and Management
- Oncoming Lane Mitigation
- Auto Charge Management
- Intelligent Traffic Control Scheduling
- Vehicle Dispatch Nearby

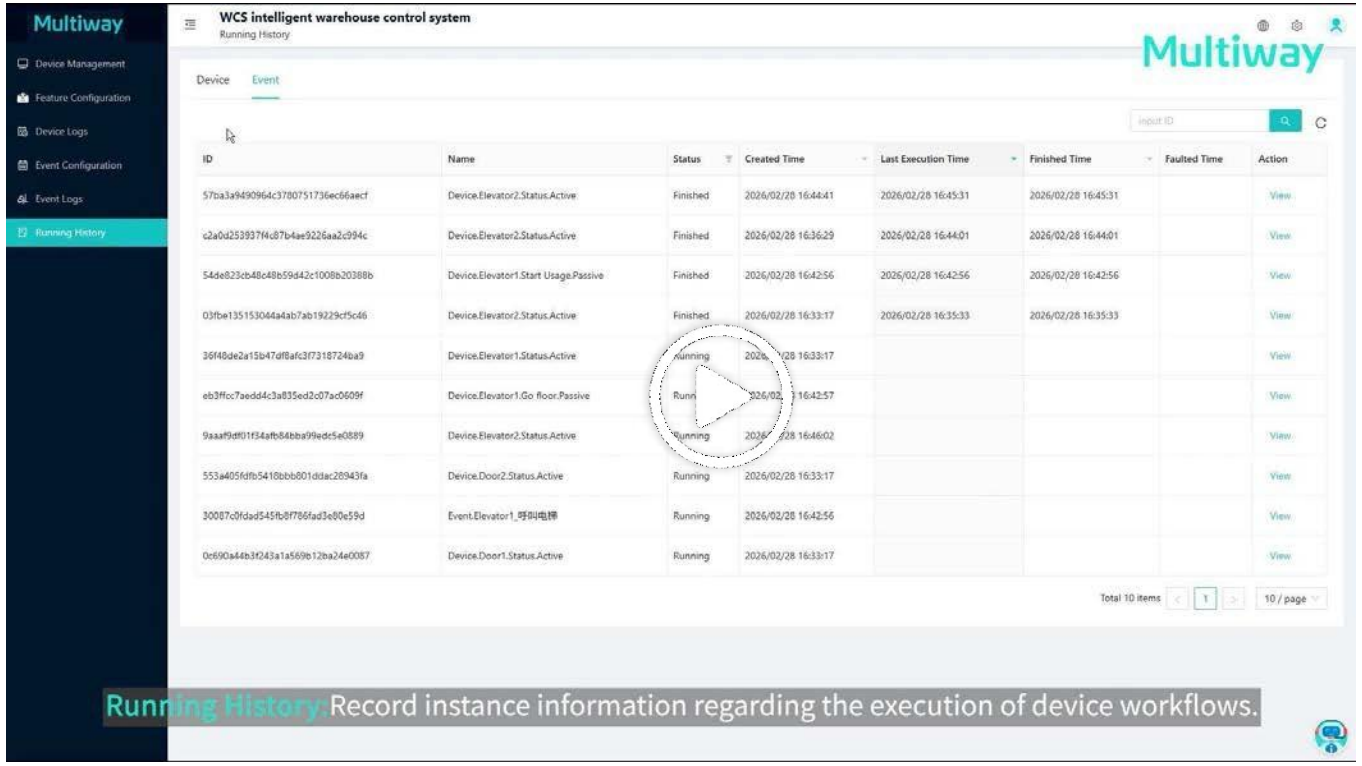


Multiway Warehouse Control System - MW WCS

Multiway Warehouse Control System integrates the management of robots with elevators, automatic doors, conveyors, rollers, robotic arms, and other devices.

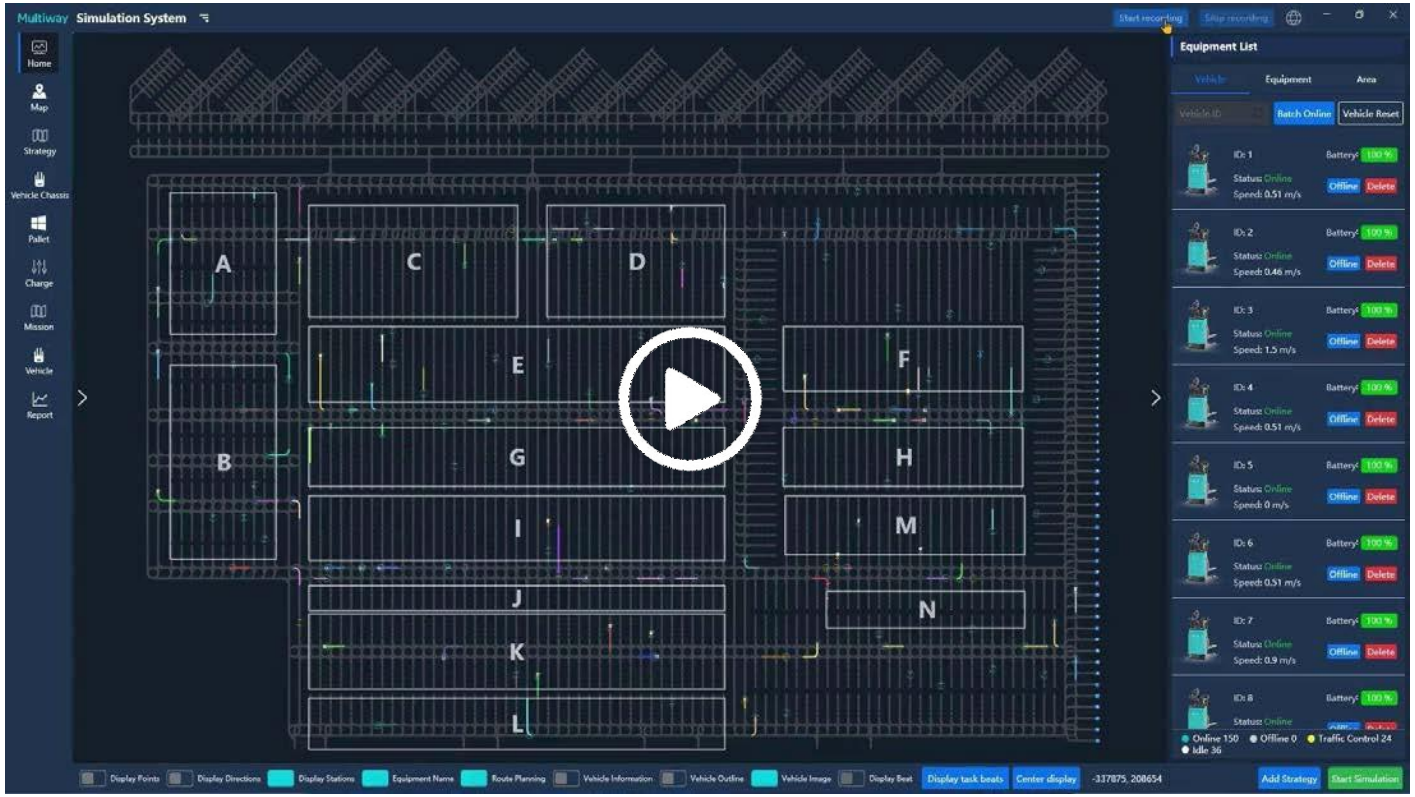
It connects the system's functional control panels and data centers to enable unified management of all devices and information flows in the entire field.

- Conveyors Docking
- Delivery Line Docking
- Auto Gate Docking
- Elevator Docking
- Robot Arm Docking
- Other Equipment
- Equipment Maintainence



Multiway Simulation

The simulation system combines simulation modeling with robots. It supports traffic simulation of hundreds of vehicles under different scenarios, conducts simulation experiments on robot kinematics, dynamics, and trajectory planning algorithms, which enhances the theoretical analysis and design capabilities of robots, including concept design, product selection, offline programming, collision detection, and more, not only shortens production delivery time, but avoids unnecessary rework.



Model Data Input	Automatic Layout Analysis	Collision Possibility Detection	Automatic Path Generation	Remote On-line Commissioning	Machine Action Simulation

Robot Safety Protection

Acoustic + Vision +Physical + Environmental 360° Protection.

Point Cloud Obstacle Avoidance

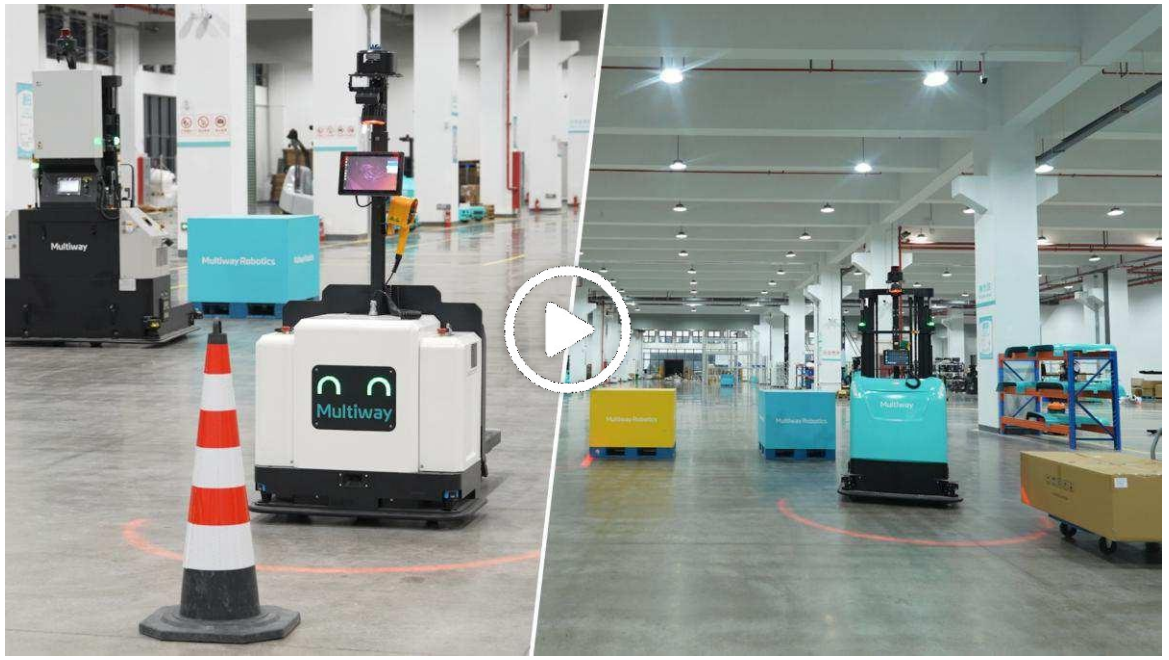
The forward simulation algorithm can measure the distance to obstacles, autonomously plan the moving speed, ensure the vehicle accelerates and decelerates smoothly without sudden changes in speed.



Note: SE15 is shown as an example. The quantity of LiDARs and safety devices may vary by model. Please refer to the actual product specifications.

Autonomous Obstacle Avoidance

Leveraging AI algorithms and multi-sensor fusion, the product achieves intelligent obstacle avoidance across scenarios involving single, continuous, and dynamic obstacles, ensuring an optimal balance between efficiency and safety.



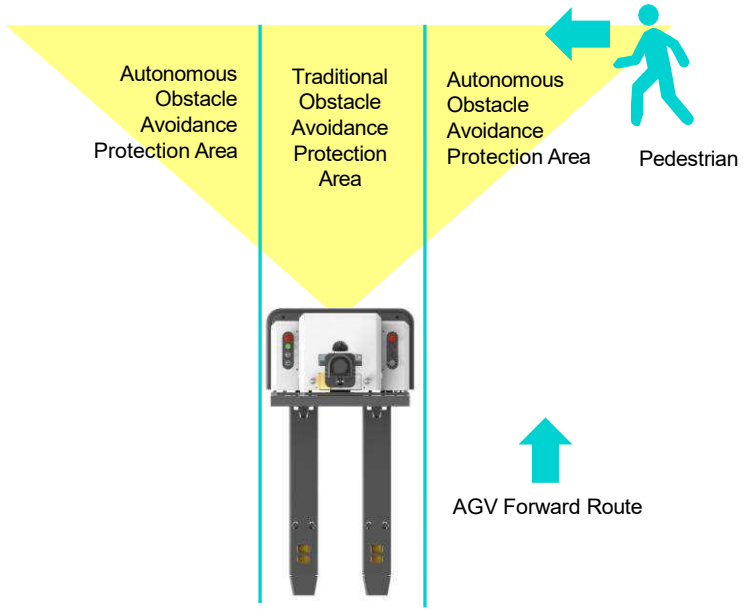
Note: Performance subject to verification in actual operating scenarios.

Robot Safety Protection

Vehicle Safety Precautions

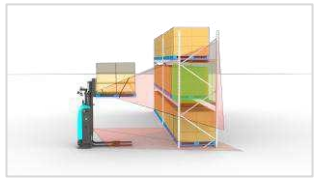
The vehicle-mounted 3D LiDAR can achieve:

1. Identify obstacle types, such as pedestrians, cargo, manual forklifts, AMR forklifts etc.
2. Predict the trajectory of dynamic obstacles in real time to provide decision data for the obstacle avoidance system
3. Intelligent safety decision-making, dynamically decide the safest obstacle avoidance action based on the type of obstacle and trajectory prediction information.

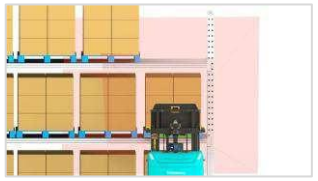


Autonomous Forklift Safety Precautions

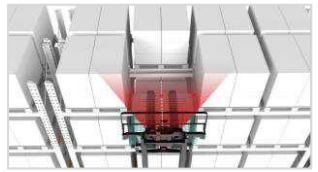
Placement Safety



Placement Location Detection



Placement Space Detection

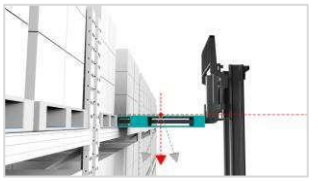


Mast Tilt Detection

Pickup Safety



Pickup Correction



Mast Tilt Detection

Awards, Certifications, and Media Coverage

CE Certification

UL Certification (USA)

KC Certification (Korea)

Main "Little Giant"

National High-Tech Enterprise

ISO 9001 Certified

Enterprise Intellectual Property Management System Certification

Occupational Health and Safety Management System Certification

Environmental Management System Certification

ISO 27001 Certified

German Reddot Product Design Award

French Design Award

Selected as the Most Noteworthy AGV Company in the World

The 11th LT China Logistics Innovation Product Award

Internationally recognized media coverage

Apnews

Businessinsider

Barchart

Digitaljournal

Marketwatch

finanznachrichten.de

Nationalpost

Streetinsider

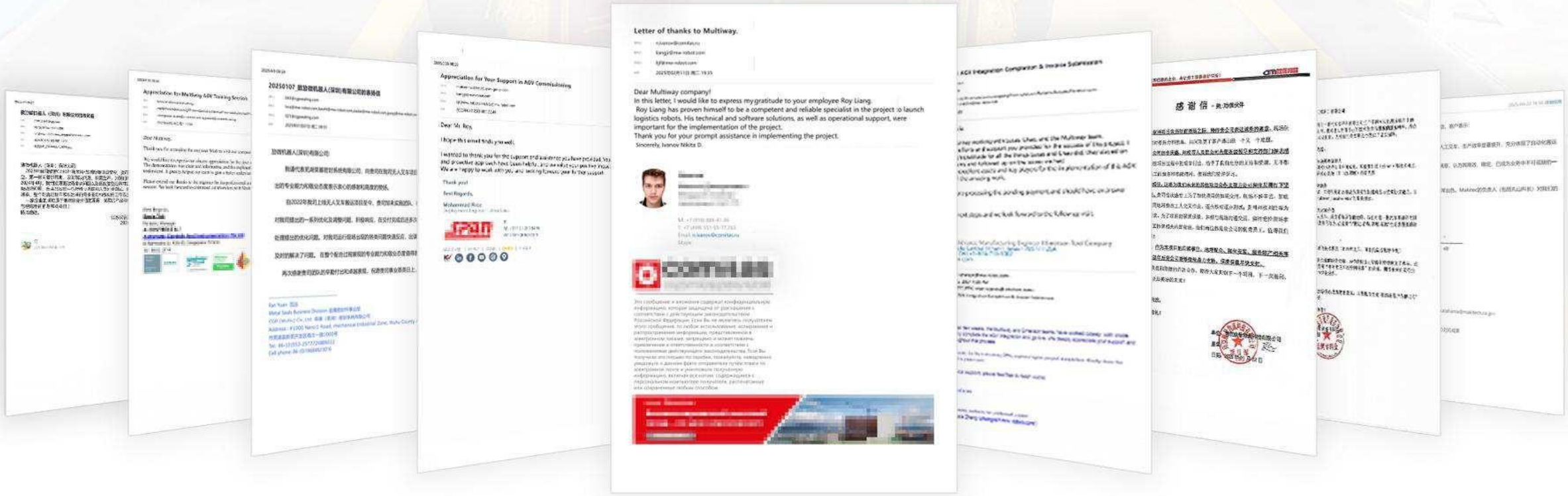
Yahoo

Theglobeandmail

Financialpost

CEO

100% project success rate and highly praised by clients worldwide



Cases Studies



Flat-surface Material Handling



Elevator Transfer Between Floors



Conveyor Line Docking



AS/RS Docking



Production Line Docking



High-level Storage at Line-side Warehouse



Long Material Handling



Cage Stacking



High-level Double-deep Picking



High-bay storage



Heavy handling



Unmanned handling



High-level Storage in Narrow Aisles



Four-way shuttle



Park logistics

Food

Auto

New Energy

Pharmacy

Machining

Construction Material

Printing and Packaging

Home

Chemical

Clothing

Customer Service

On-site Implementation

Resident Engineer
One-on-One Delivery

Quick Response

Worldwide Coverage
Nearby Response Support

24x7 Customer Service

24H Service Hotline

Process System Support

Weekly Based Delivery
Standardized Delivery Process

Remote Upgrade

Iterating Platform
Remote Upgrade

Professional Training

Classroom and Hands-on Training
Program Management Impovement

Vehicle QR Code Feedback

Real-Time Field Feedback Driving
Continuous Optimization

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