Multiway Horizons

**Empowering Smart Manufacturing
with AI-Enabled Flexible Robots**

www.mw-r.com

Multiway Horizons

We leverage machine vision and AI technologies to develop adaptable solutions that drive smart manufacturing and intelligent logistics. Through vehicle-road collaboration, vehicle-factory collaboration, and comprehensive monitoring of business dynamics, we enable visualized management and ensure a secure operational environment facilitated by an edge computing data processing platform. This guarantees the stable operation of the factory, cost reduction, and improved efficiency.


Three Key Functions

Empower Robots Enhance Solution Flexibility

Deep Integration of Business Scenarios

Shorten delivery cycles and increase profitability

Create a Safer and More Efficient Smart Factory Environment

Ensure Safe and Efficient Operations

Manageable operations and traceable information

Reduce Costs and Enhance Accelerate Smart Manufacturing and Empower Enterprise Operations and Management

Assist in Management Decision-Making

Agile design of information technology infrastructure

Function Module

Flexible Empowerment

Cage Stacking
- Cage deformation detection
- Stacking safety inspection
- Cargo offset detection
- Disassembly and stacking at different heights
- Single-side clearance of up to 10mm is supported
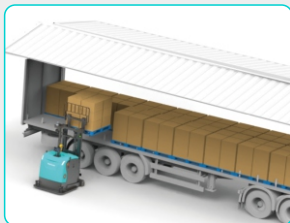
Automated Loading and Unloading for Vehicles
- Compatible with multiple vehicle types (wing body, flatbed, van)
- Location planning for different cargos (optimized space utilization)
- The maximum tilt angle of the tailgate dock leveler is 8°

High-Bay Storage
- High-precision cargo picking and placing
- Cargo unloading space detection

Pallet Posture Recognition
- Support pallet deviation of up to $\pm$ 45° and $\pm$ 80 cm
- Compatible with various types of pallets, cages, etc.
- Non-stop pallet pose identification by visual perception
- Non-standard carriers support online modeling by users for rapid deployment
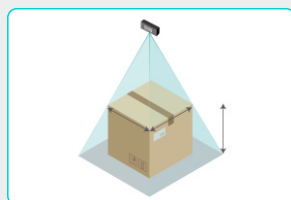- Support side placed, front picking;

Operation and Management

Visual Inventory
- Inspection of images for full-pallet cargo
- Calculation of full-pallet cargo quantity
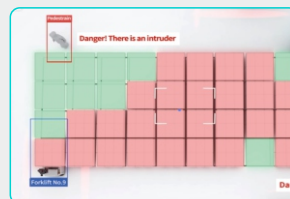
Storage Location Detection
- Available location detection
- Offset detection
- Detects presence or absence of any cargo at any slot: no training required

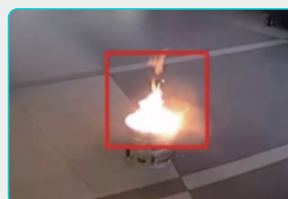### Cargo Information Recognition
- Barcode recognition
- Chinese character recognition
- Overload detection
- Diameter measurement
- Color recognition
- Quantity calculation
- Contour detection
- dth × Height measurement

Safety Monitoring

Vehicle-Road Collaboration
- Intruder detection
- Foreign object detection on tracks
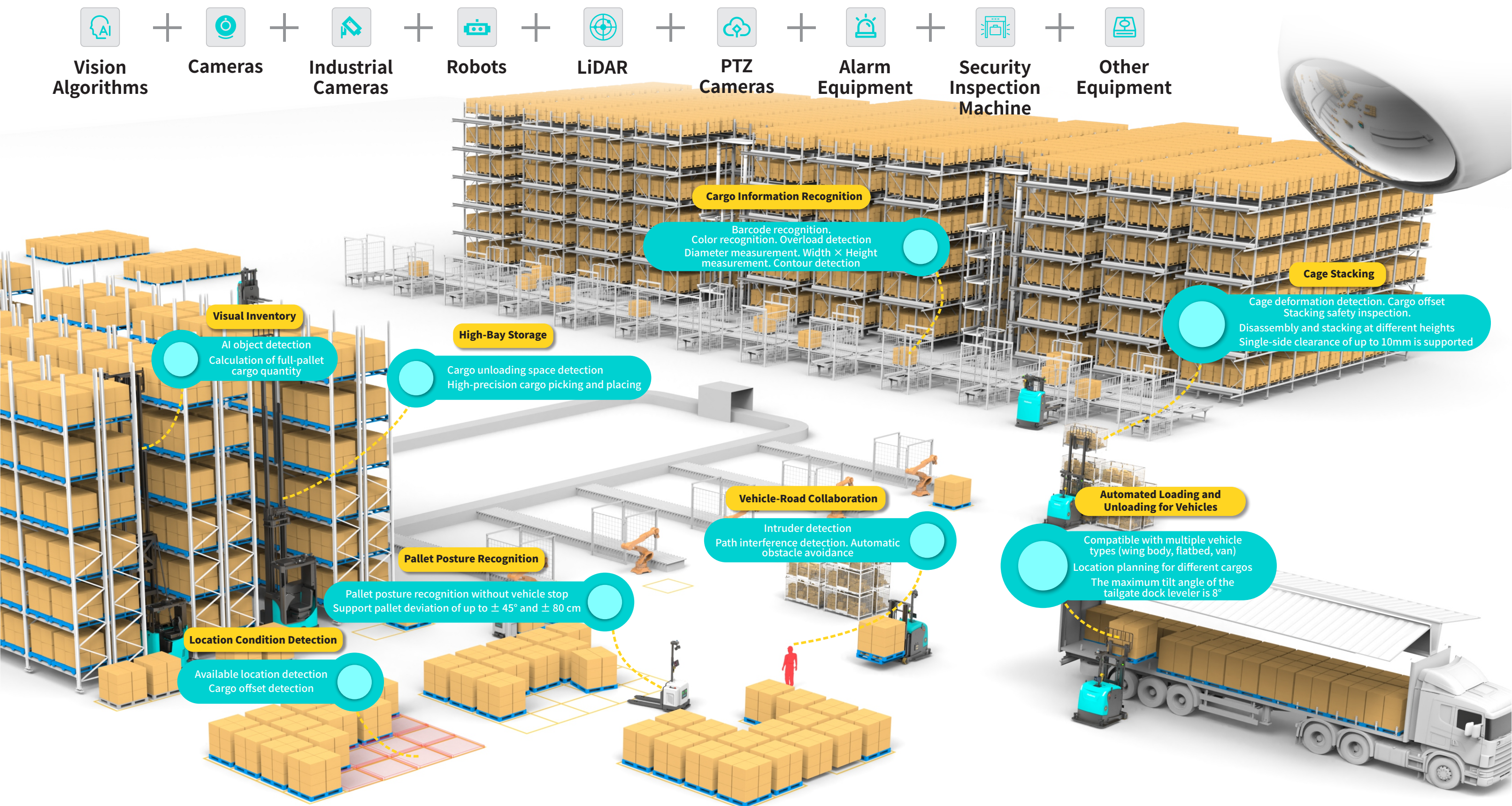- Path interference detection

Environmental Safety Detection
- Open flame and smoke detection
- Calculation of full-pallet cargo quantity
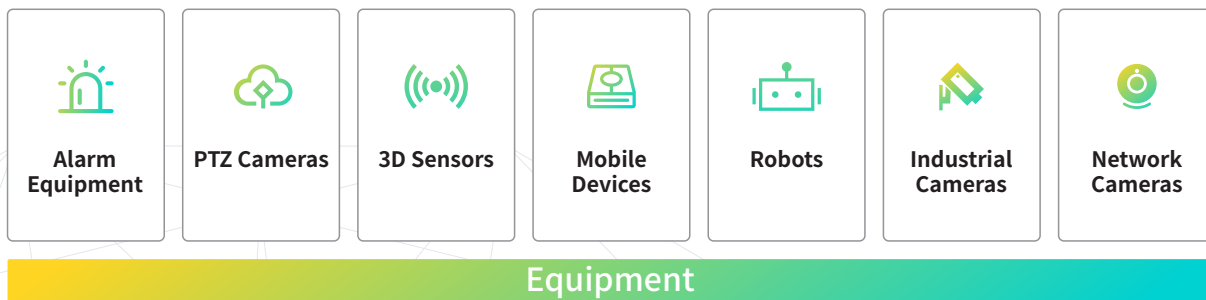
Worksite Safety Inspection
- Face recognition
- Off-duty detection
- Fall detection
- Uniform detection
- Helmet detection
- Glove detection
- Abnormal behavior detection
- Cargo overturning detection
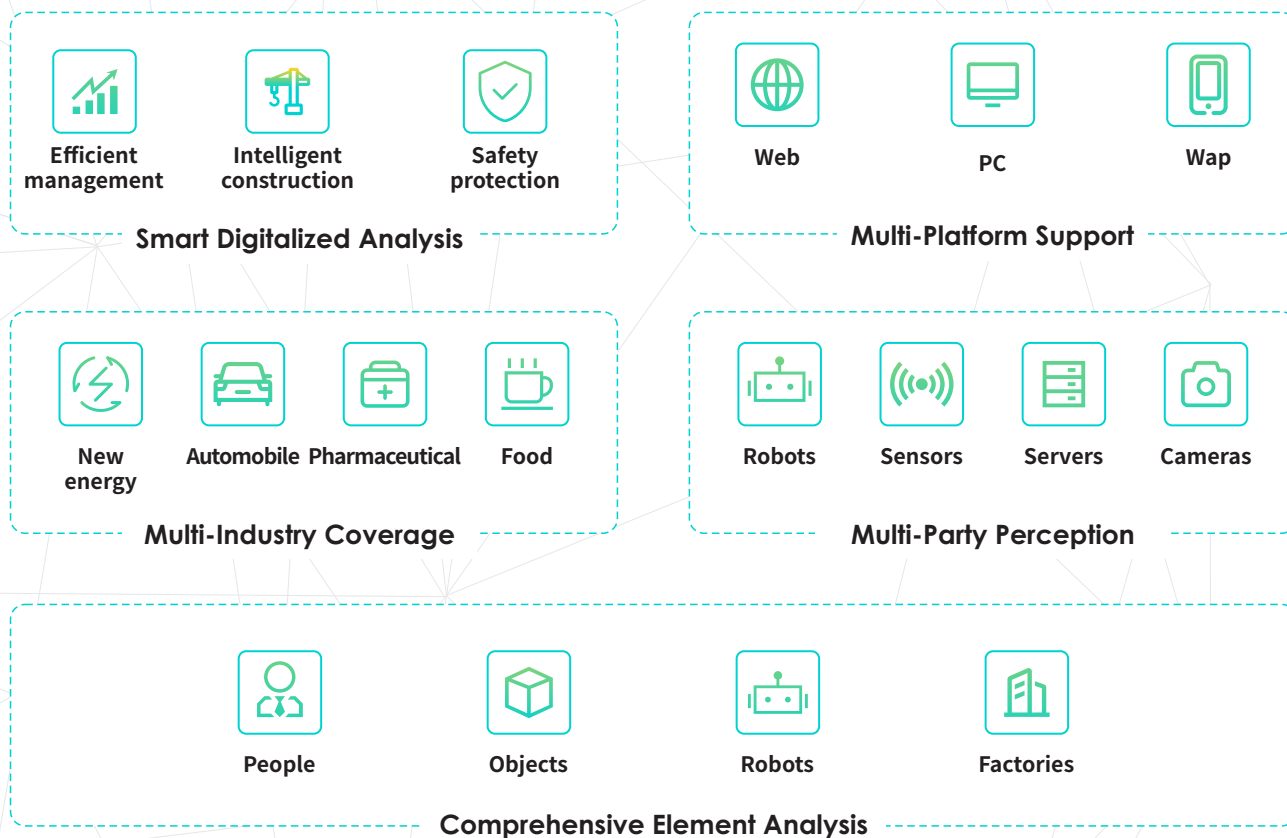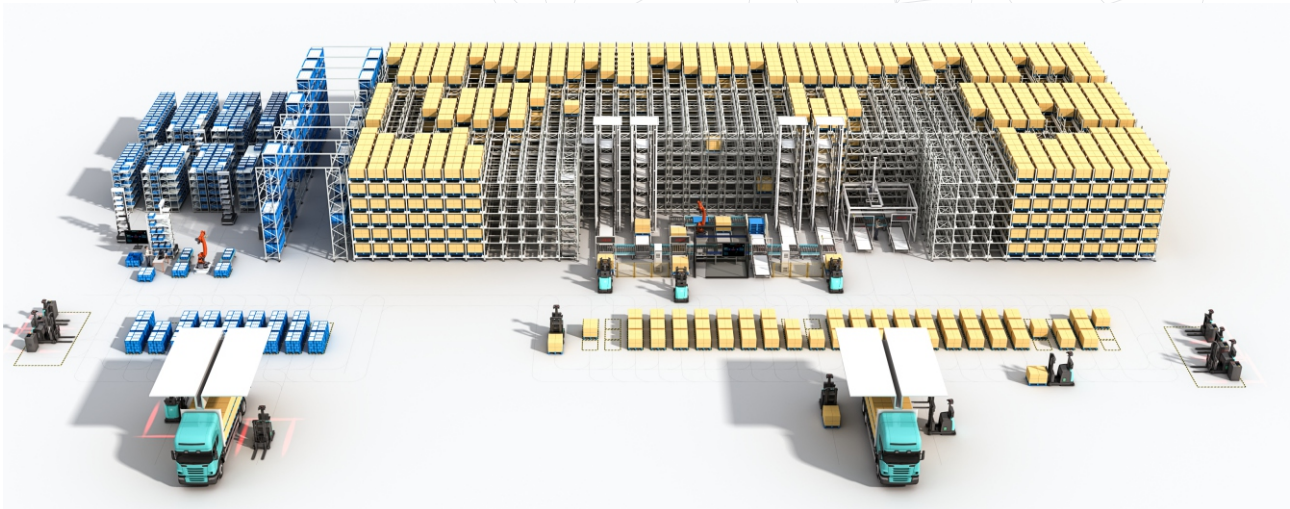
Flexible Vision Solution—Horizons System

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

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
Single-side clearance of up to 10mm is supported

Visual Inventory

AI object detection
Calculation of full-pallet cargo quantity

High-Bay Storage

Cargo unloading space detection
High-precision cargo picking and placing

Vehicle-Road Collaboration

Intruder detection
Path interference detection. Automatic obstacle avoidance

Automated Loading and Unloading for Vehicles

Compatible with multiple vehicle types (wing body, flatbed, van)
Location planning for different cargos
The maximum tilt angle of the tailgate dock leveler is 8°

Pallet Posture Recognition

Pallet posture recognition without vehicle stop
Support pallet deviation of up to ± 45° and ± 80 cm

Location Condition Detection

Available location detection
Cargo offset detection

Constituent Elements

Hardware Equipment

Alarm Equipment	PTZ Cameras	3D Sensors	Mobile Devices	Robots	Industrial Cameras	Network Cameras

Equipment

Analysis of Applications

Efficient management	Intelligent construction	Safety protection

Smart Digitalized Analysis

Web	PC	Wap

Multi-Platform Support

New energy	Automobile	Pharmaceutical	Food

Multi-Industry Coverage

Robots	Sensors	Servers	Cameras

Multi-Party Perception

People	Objects	Robots	Factories

Comprehensive Element Analysis

Smart Factory Application

People	Vehicles	Cargos	Fields

Cameras

Industrial Cameras

Robots

Mobile Devices

LiDAR

PTZ Cameras

Security Inspection Machine

Alarm Equipment

Edge Data Collection
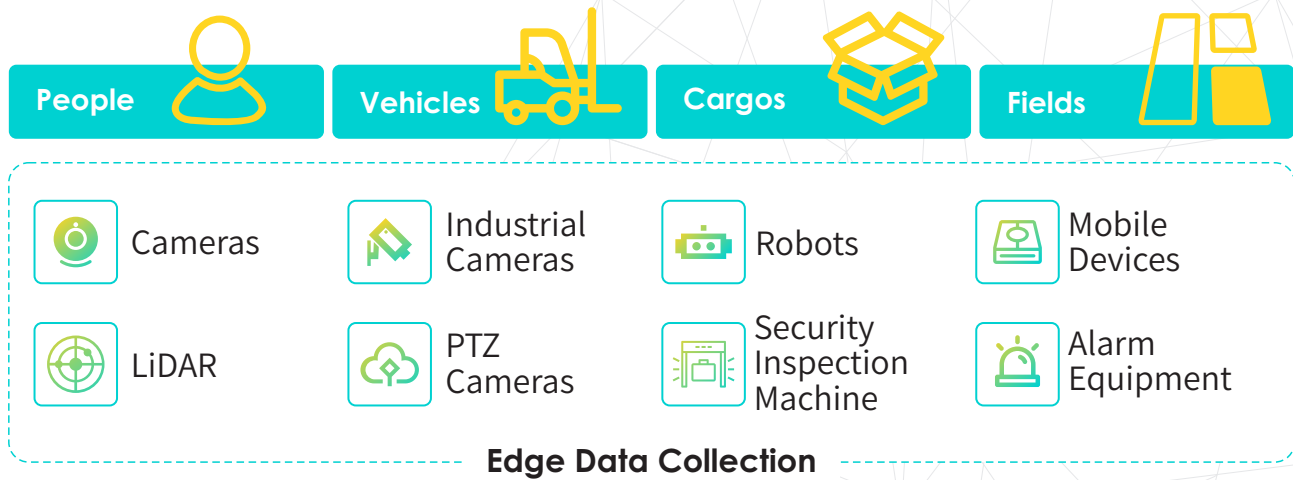
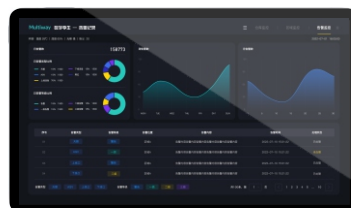**Real-time AI Computing with Cloud Data Integrated**

Providing a Traceable Cloud Platform

Data Visualization Platform

Intuitive and Intelligent Management Decision-Making

Flexible Configuration and Management of Edge Device Services in the Cloud

Make the Devices Manageable

Real-time Computing Platform

Visualized Analysis Platform

O&M Management Platform

Multiway Robotics

Multiway Robotics, a leading intelligent intralogistics solution provider, is dedicated to improve intralogistics efficiency, ensure work safety and reduce labor operational cost.

Global Presence: The headquarters is located in Shenzhen, China, with production facilities in Zhejiang Wuzhen. Multiway has also established subsidiaries in the United States, Germany, Japan, South Korea, and more, extending business, operations, and services to 40+ countries and regions worldwide.

Our Expertise: Focusing on advanced robotics and AI technology, Multiway Robotics is committed to delivering cutting-edge Smart Intralogistics Solution to our customers. Multiway offers a comprehensive, integrated innovation delivery platform and solutions, ranging from core sensors and algorithms to self-developed unmanned forklifts and upper-level control systems. Hardware products include a full range of unmanned forklifts and four-way shuttle, while software systems encompass WMS, RCS, WCS, on-site management systems, and various visual solutions.

Software WMS, RCS, WCS, Multiway Horizons, Simulation

Hardware: AGV forklifts, AGV Tugger, AMR & Four-way Shuttle

After successfully delivering numerous benchmark projects in industries such as factories, warehousing, and logistics, Multiway has become a trusted and ongoing collaborative partner for many industry-leading customers.

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