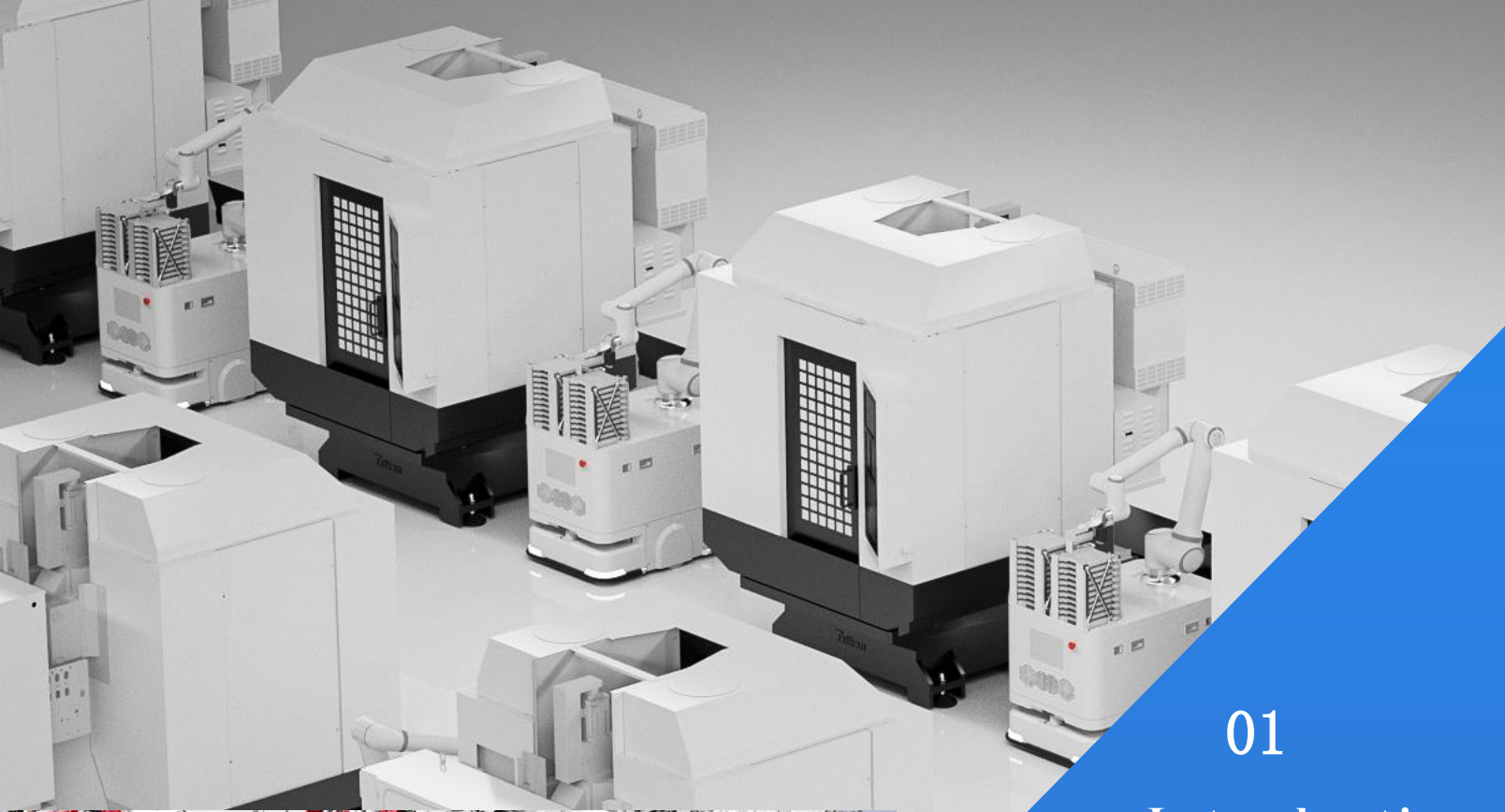


SHENZHEN TROY Intelligent Robotics Co., Ltd. Introduction

Since 2017



TROY INTELLIGENT

Contents

01 Introduction

02 Solution

03 Applications



TROY Intelligent is one of the top China High Technology Solution supplier!

TROY Group Profile:



ShenZhen TROY Intelligent Robotics Co., Ltd.

Room 411, Building E, Haoyi Commercial and Residential Building, Gangtou Industrial Zone, No. 27, Dapu 2nd Road, Baoan District, Shenzhen, China.

TROY CAS Consultant Service(Guang Dong)Co., Ltd
Add: 209, Building R, Shang Xia Wei Secon Industrial Technology Industrial Park, Ditang Road, Shanjing Street, Baoan District, Shenzhen, China.

TROY VietNam Consultant & Network Tech Co., Ltd.
Office Add: DV12-LK430 Yen Lo service land, Yen Nghia ward, Ha Dong district, Ha Noi city, Viet Nam.

TROY Vision: To Win the Future World with Our customers!

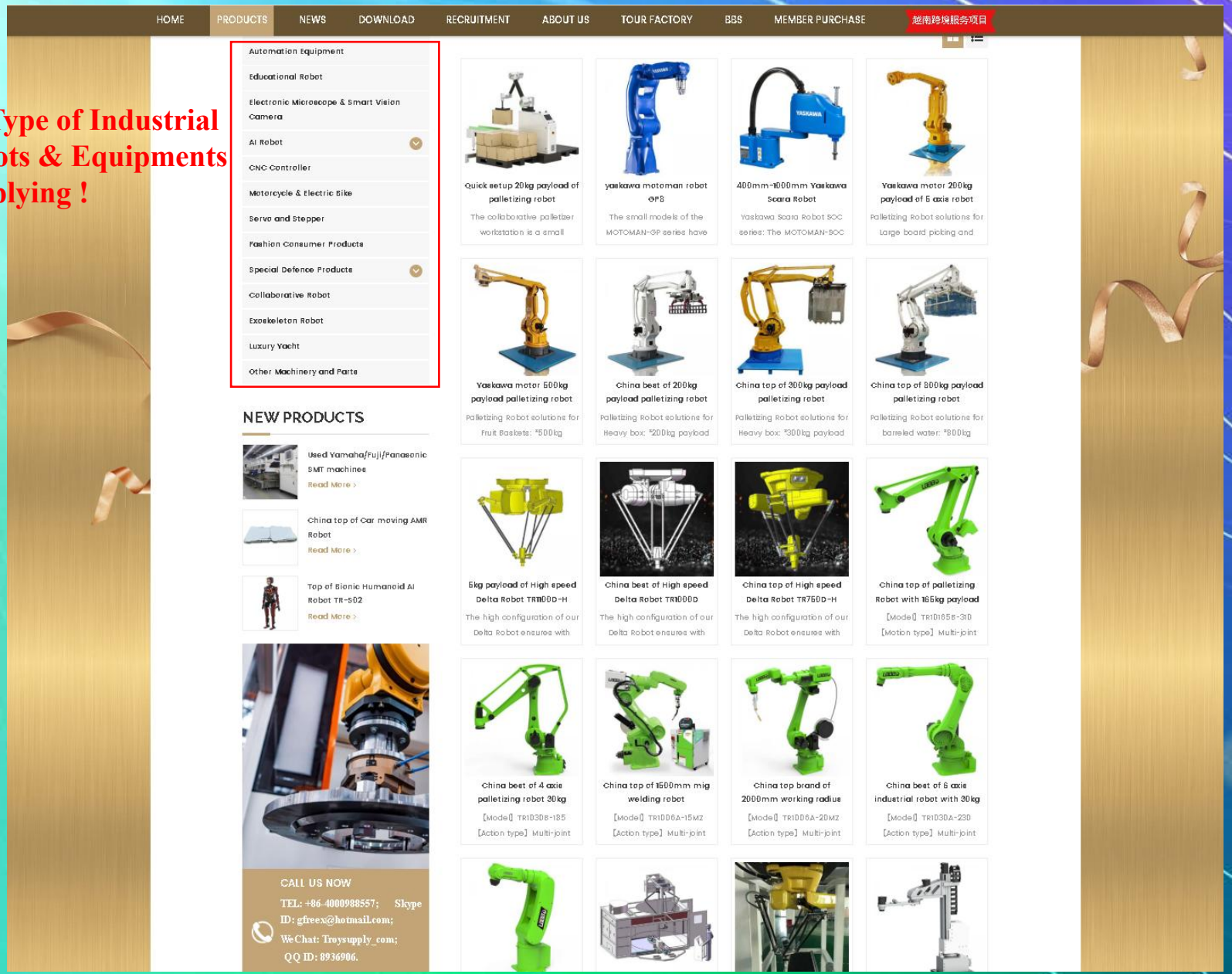
<SHENZHEN TROY Intelligent Robotics Co., Ltd.> is a high-tech R&D enterprise specializing in providing intelligent operation solutions for mobile robots such as AGV, composite robots and three-way forklifts. It has a 26-member tailor-made core R&D solution team and a professional after-sales service team. Relying on the organic combination of software control and a variety of robot equipment, it provides customers with high-efficiency and high-flexibility solutions such as compatibility scheduling of various mobile robots, intelligent logistics simulation, and automated process orchestration. It also exports robot-related products to the global market, provides overseas technical support, expands overseas subsidiaries, and delivers overseas projects.

TROY CE Certifications:



TROY Robotic Group ALL In One Platform

All Type of Industrial Robots & Equipments Supplying !



Yaskawa Servos Robot:

800kg payload palletizing robot supplier

Palletizing Robot (800Kg Payload)





Palletizing Robot solution for barreled water:

* 800kg Payload
* 3000mm Working radius
* 0.03mm Repeat Accuracy
* Yaskawa Servo system
* LNC Robot control system

The fastest speed of high-speed palletizing reaches 300 pieces/hour and the heavy duty palletizing load can reach 800KG

Yaskawa OEM Robot Exports

400mm-1000mm Yaskawa Scara Robot

Yaskawa Scara Robot

(High-speed operations)



Precision and Efficiency:

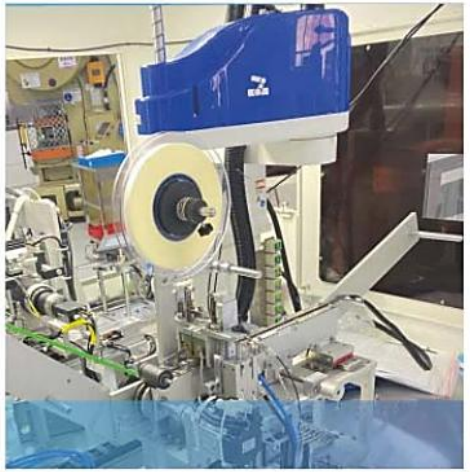
±0.01mm and ±0.005° repeatability precision, ensuring high efficiency and stability Operates non-stop at high speeds 24/7, maintaining consistent efficiency.



Copper Foil Visual Patching



Visual Positioning and Sorting of a 3C Product



Connector Loading/Unloading and Stacking

Yaskawa Scara Robot SOC series:



Automotive Universal Joint Deburring
Robot Model:SR6



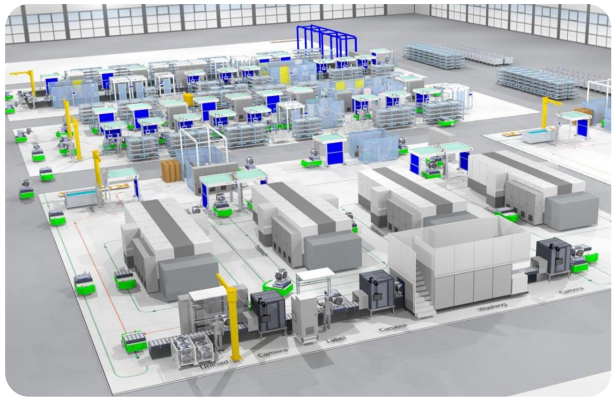
Heavy Load Automotive Pin Transport
Robot Model:SR6



Automotive Coil Winding Stacking
Robot Model:SR6

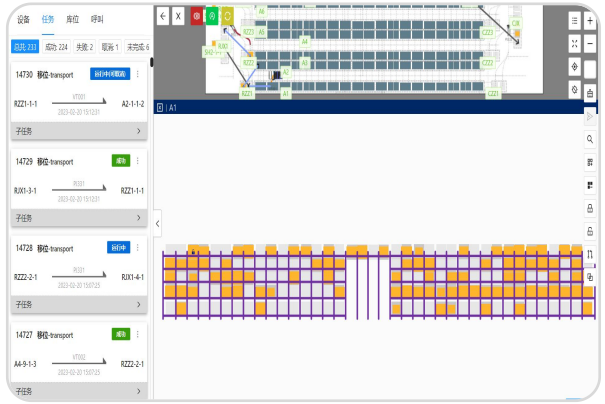
TROY Automation Solution

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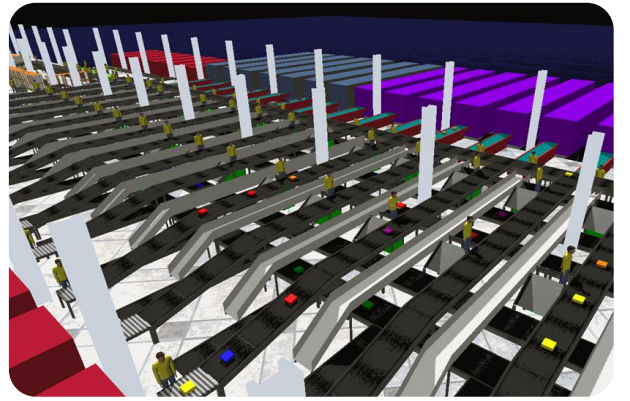
Animation Simulation Planning

Guided by lean production ideas, and supplemented by advanced warehousing and logistics equipment, simulation technology is used for feasibility demonstration.



Smart Central Control System

Complete and unified warehouse management, equipment control and data acquisition systems to achieve systematic and holistic operations.



3D Digital Twin

By using WEBGL game engine technology combined with the user's on-site craftsmanship, a 1:1 restoration of on-site 3D animation is achieved, and users can intuitively view the on-site operation status.

Industry Pain Points

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Pain points of AMR Robots Industry

Complex production orders

The order structure is mostly small batch and multi-variety, and urgent orders, bad orders and abnormal orders often appear. The production planning department is at a loss, and logistics also needs to be distributed in a refined manner, making enterprise management more difficult and forcing them to resort to new technologies.

Lack of integrity

Each equipment supplier strongly recommends its own products and does not provide customers with the best combination strategy for various equipment. Logistics integration is generally a simple combination of various multi-brand equipment, and the overall integration of the central control system is not adopted.

High management costs

The complexity and variability of business brings about management difficulties. It is difficult for employees to make correct judgments if their technical level does not meet the standards. It is necessary to rely on advanced technology for real-time calculation and statistical analysis to reduce management costs.

Information islands

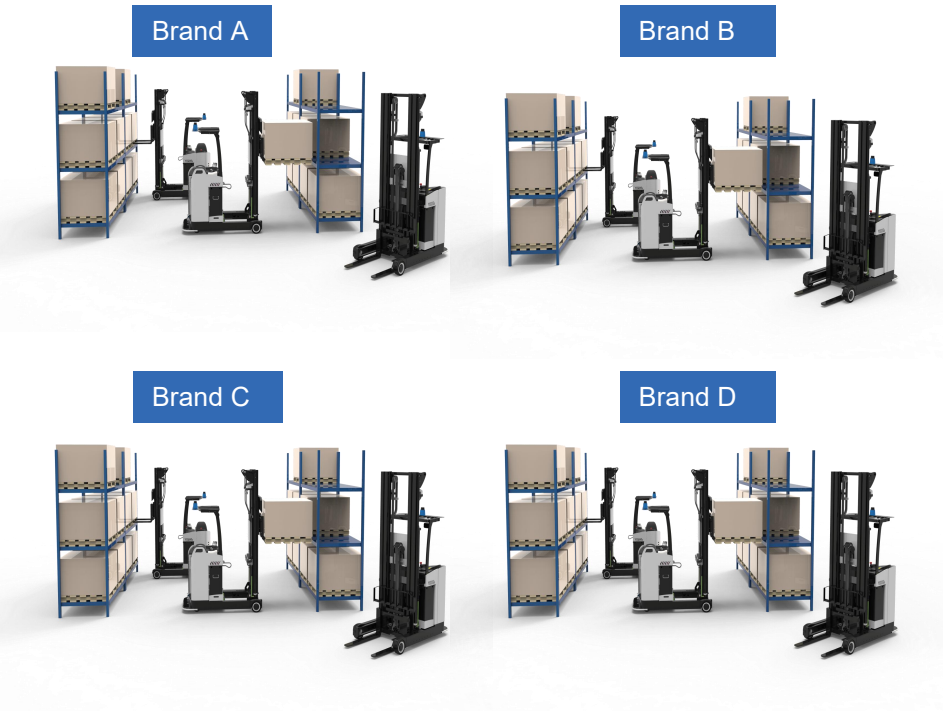
There are many processes, serious information silos, no coordination between upstream and downstream processes, the intermediate links rely heavily on manual intervention, non-pull production, and a disconnect between the production rhythm and the material distribution rhythm, resulting in waste.

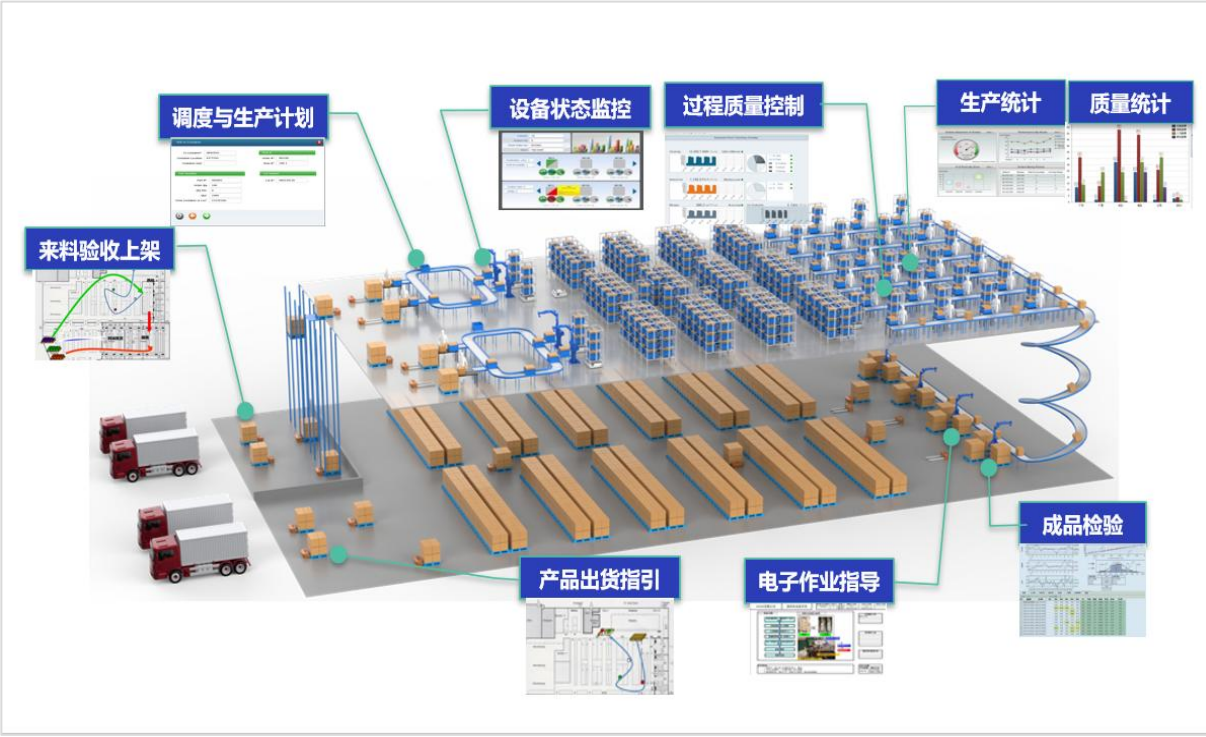
Order schedule missing

Complex production combinations require scheduling, and logistics systems that combine multiple sets of equipment also require scheduling algorithms. How to optimize the efficiency loss caused by combining different types of equipment from different manufacturers is a complex algorithmic problem.

Solution Comparison

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A. Traditional multi-brand AGV manufacturers usually use physical handover surfaces for connection, and set up multiple handover points in the venue, wasting venue space
B. When multi-brand AGV manufacturers share a channel, traffic control is required. When an AGV of one brand enters a channel, the area is locked, and other vehicles can only wait nearby, affecting business efficiency.

A. Increase space utilization. Break the boundaries of equipment types and systems, and merge multiple maps into one map.
B. Improve overall efficiency. The unified scheduling platform system can improve efficiency by 20%-30% through algorithm optimization.

Equipment data collection and intelligent linkage module

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Support multiple device communication protocols

PLC

Siemens
S7-1500
S7-1200
S7-400
S7-300
MODBUS

Mitsubishi
A-1E
MC
MC(UDP)
MODBUS

Omron
Fins(TCP)
Fins(UDP)

Huichuan
TcpNet
MODBUS

KEYENCE
MC
Nano Tcp
MODBUS

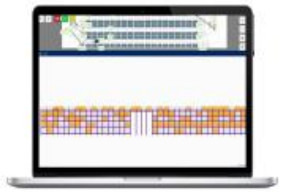
Matsushita
MC-3E

robot

KUKA
ABB
Yaskawa
FANUC

The protocol is configurable and
the points can be modified at any time

Multiple ways to create inventory



System Creation



Mobile terminal creation

HTTP

Interface creation



Scan code to create



3D laser creation



Photoelectric creation



Camera creation



Camera creation

Factory Solutions

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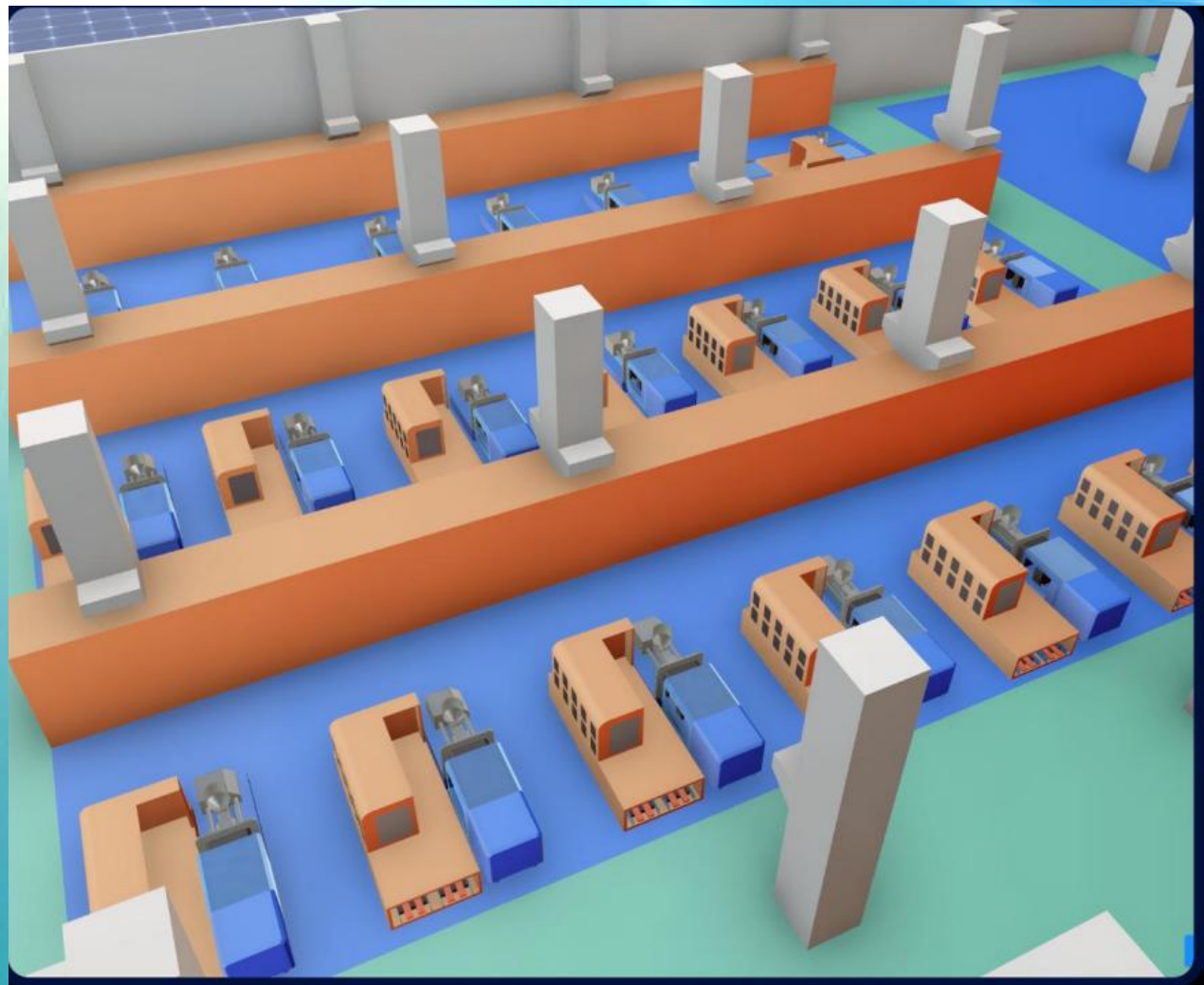


Significantly improve factory operation efficiency and space utilization, and efficiently complete factory automation tasks

TROY factory solution is highly flexible and configurable. Through the visual process arrangement engine, it can realize the task configuration of various factory handling processes. The downstream system connects and dispatches robots and automation equipment of multiple brands, multiple interfaces, and multiple navigation methods through the robot scheduling system RCS. The equipment works together to greatly improve the factory operation efficiency and space utilization, and efficiently complete the factory automation operation tasks.

Support animation simulation

TROY INTELLIGENT









Large screen on the web page, no software installation required, real-time viewing on smartphones, tablets, and TVs.

Standard

- ✓ 3D Model Import
- ✓ Texture Import
- ✓ Scene Setup
- ✓ Real-time vehicle animation
- ✓ Real-time route animation
- ✓ Real-time task animation
- ✓ Roaming Animation
- ✓ Vehicle Alerts (self-luminous)
- ✓ Theme Switch (light/dark)

Optional

- ✓ Custom Dashboard Charts [Including Design and Development]
- ✓ Data Collection for Other Equipment [e.g., Injection Molding Machines, Palletizers, Conveyor Lines]
- ✓ Real-Time Animation for Other Equipment [e.g., Injection Molding Open/Close Animation, Bubble Animation, etc.]
- ✓ Other customization

Support factory storage and logistics management

TROY INTELLIGENT

Five major management

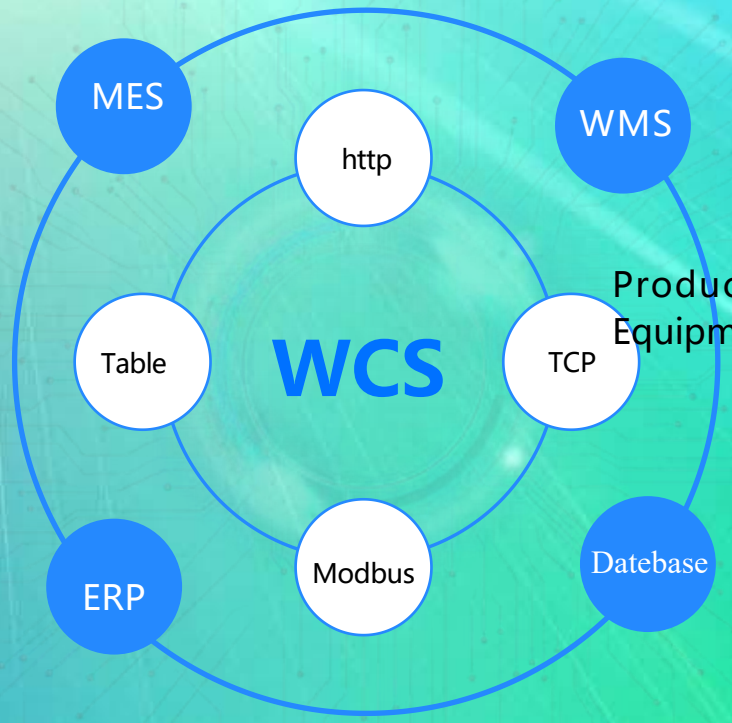


Warehouse area management	Stock location management	Container Management	Materials Management	Inventory Management
Name	Reservoir area	Container Type	Category	Location Name
Number of storage locations	Location Name	Container No.	Standard container	Location Code
Manually add a library area	Location Number	Standard load AGV	Item Number	Material Name
	Access Container		Material Name	Material Code
	Access Category		Manually add categories	Material quantity
	Manually add import to Excel		Manually add/import materials	Unit (Container Type)

Task Distribution

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Automatic tasks delivery



Production Equipments

CCS

A variety of terminal devices can trigger tasks

Manual tasks delivery



PDA



PAD



Call Box

Visual management

TROY INTELLIGENT

Provides a 1:1 real-time display of the entire logistics scenario, offering intuitive statistics and management data required by administrators.

Data Entry

- **Built-in 3D modeling**
- **Built-in pattern textures**
- **Built-in scene configuration**
- **Built-in AGV data**
- **Extended Device 2 Data**
- **Extended device 3 data**
- **Extended System 1 Data**
- **Extended System 2 Data**
- **Expanded System 3 Data**

Input Processing

Model processing (compression, lightweight, stylization, post-processing, animation, shader)

Protocol conversion (PLC , IO , host computer)

Protocol conversion (Material data, order data, task data)

Data driven views

Output



WEBGL engine, viewable anytime, anywhere

Solution Architecture

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Business System

ERP (Enterprise Resource Planning)
Full-process business tracking for orders, inventory, production, and quality.

WMS (Warehouse Management System)
Multi-terminal support, batch management, automatic posting, and fully paperless operations.

MES (Manufacturing Execution System)
Track the entire process from planning, picking, production, reporting, inspection, and warehousing

APS (Advanced Planning and Scheduling)
Automatically schedule production plans based on sales orders and material preparation status

Send order

Feedback order status

Huizong Command and Control System

Digital Flexible Intelligent Logistics Central Control System

Smart warehouse management IWMS

Logistics order scheduling

Equipment data acquisition and linkage

AGV mixed scheduling

Logistics 3D Digital Twin

Scene Management

Model / Texture Management

WEBGL

Data-driven

Arrange tasks to each subsystem reasonably according to upper-level orders, and organize each module to run reasonably and efficiently

Sending tasks

Feedback task status

Robot Control System (RCS)

Equipment centralized control PLC system

Equipment PLC control system

Other equipment control systems

Send Action

Feedback action status

Execution Layer

Mobile Robot (AGV)



Lifting AGV



Roller AGV



Forklift AGV

Warehousing and logistics equipment



Box robot



Stacker



Conveyor Line

Other Equipment



Robotic Arm



Machining Center



Non-standard automatio



elevator



PDA

Smart logistics case in the food industry

TROY INTELLIGENT

- **Customer needs**

A large domestic food manufacturer wants to carry out unmanned transformation of workshop logistics, and use AGV+ conveyor lines to replace manual material handling, realize automatic material calling, automatic handling, automatic material dumping, automatic cleaning and handling of empty barrels, automatic transportation of finished products, automatic sorting, and automatic palletizing;

Carry out digital transformation of the entire logistics process, realize full process digitization, visualization, and real-time viewing of logistics operation status.

- **Solution:**

Hardware:

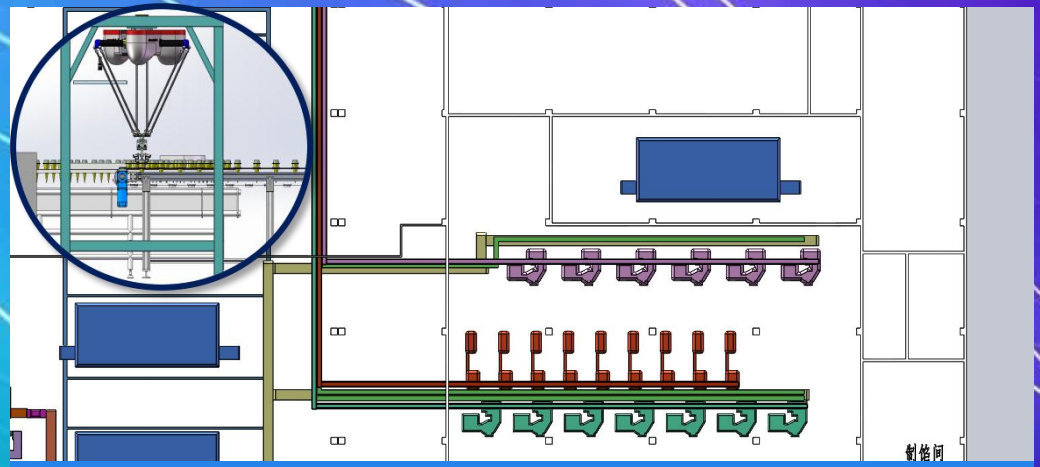
Standard MA | Customized FA | PDA | Charger | Lift

Software:

TROY CCS | RDS | Hoist docking | Conveyor line docking | Auto door docking

- **Realized value:**

The unmanned logistics and handling process is realized, the progress of on-site operations is visualized, and the combined batching of the same material for multiple machines is realized. The efficiency is greatly improved compared to manual work, and there is no need for manual phone calls to urge materials, and the delivery of materials is more punctual.



Automatic docking of non-standard production machines



AMR | Auto Charger | AMR-FL

Smart batching case in auto parts industry

TROY INTELLIGENT

- **Customer needs**

A large domestic auto parts manufacturer wants to solve the problem of the last 50m of material on the automatic production line. It wants to automate the workshop logistics to achieve unmanned operation of the entire process, connect with the upstream jacking vehicle, and connect with the downstream automatic production machine.

- Solution:

HardWare:

AMR-CTU | Auto Charger | Docking point modification

Software:

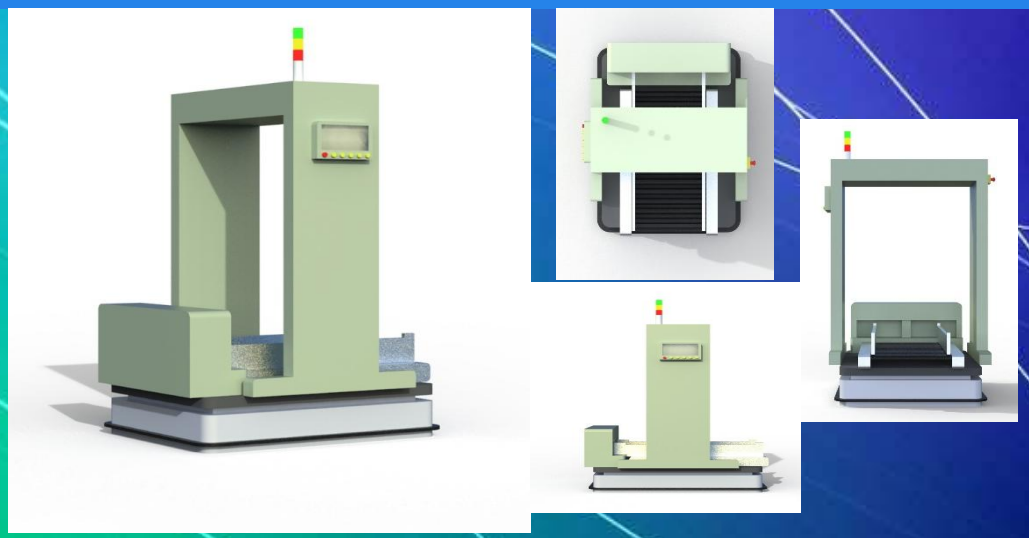
TROY CCS | RDS | Quick warehouse connection | Machine docking

- **Realized value:**

The self-developed unmanned roller and clamping AGV can pick up materials from the shelf and dock with rollers at different heights. It can achieve timely batching according to the needs of different materials and automatically return empty boxes. At the same time, it takes into account the priority of each material and delivers it according to priority.



AMR-CTU



Smart logistics case of auto parts high-bay warehouse

TROY INTELLIGENT

- **Customer needs**

A large domestic auto parts manufacturer wants to automate the finished product warehouse to realize automatic storage of packaged materials, automatic shipment according to orders, and assisted picking;
Digital transformation of the entire logistics process to realize full process digitization, batch call, visualization, and real-time viewing of logistics operation.

- **Solution:**

Hardware: customized FA + charging pile + three-way forklift + beam shelf + handheld mobile terminal;
Software: customized logistics central control system + scheduling system + customized material call system.

- **Value realization:**

Unmanned logistics handling, digitalization of warehouse management, and visualization of on-site operation progress are realized;
Intelligent reminders for manual palletizing and stacking during warehousing, and automatic allocation of optimal storage locations;
When leaving the warehouse, import orders, automatically complete the material departure and removal according to the preset material rules and batch rules, and manual only needs to scan the code to confirm;
More manual warehousing, unpacking and packaging operations, and inventory operations can all be supported.



Beam shelf loading and unloading vehicle



Home Appliances Smart Logistics Case

TROY INTELLIGENT

- **Customer needs**

A large domestic household stove manufacturer wants to automate the finished product warehousing process to achieve automatic warehousing, automatic palletizing, automatic code scanning, automatic warehousing, automatic outbound delivery, and automatic sorting of finished products;
Digital transformation of the entire logistics process to achieve full process digitization, batching, visualization, and real-time viewing of logistics operations.

- **Solution:**

Hardware:

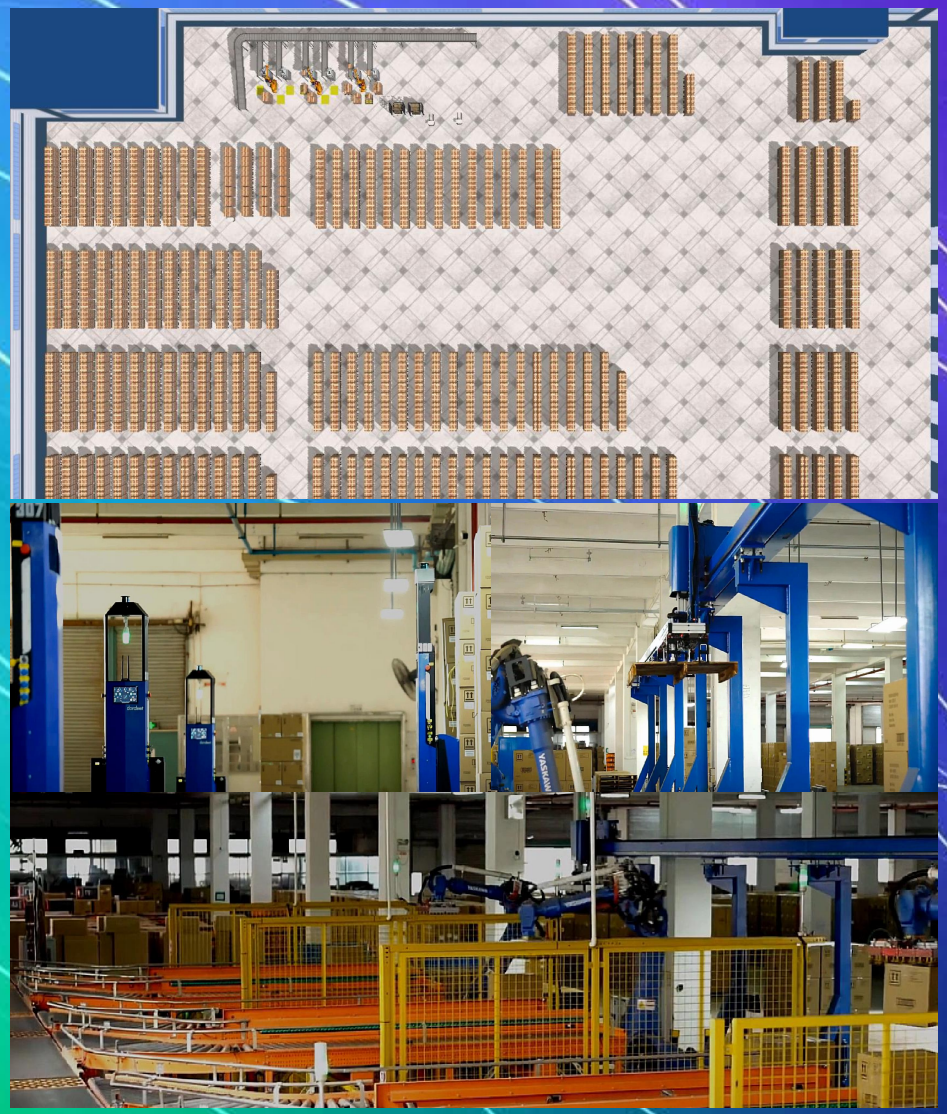
Robot Arm	Customized FA	PDA	Charger	Output Line	Pallet Truss

Software:

TROY CCS	RDS	WMS	Conveyor line docking	Automatic door docking

- **Realized value:**

It realizes unmanned logistics and handling, digitalization of warehouse management, and visualization of on-site operation progress; the number of warehouse logistics personnel is reduced by 80%, and the efficiency is improved by 50%; the optimal storage location is automatically allocated to reduce the moving distance



Machining Intelligent Logistics Case

TROY INTELLIGENT

- **Customer needs**

A large foreign-funded auto parts company needs to automate the logistics of the CNC workshop to realize the automatic distribution of materials on demand, reduce the inventory of work-in-progress, reduce the handling intensity of employees, and improve the automation level of the workshop.
Realize the on-demand supply of blanks, deliver them to the line side in full, solve the problem of the last 1M transportation, and automatically realize the upstream and downstream transportation between machines, empty container recycling, and subsequent expansion of automatic loading.
Realize the unmanned, digital, and visualized process of the whole process, and view the logistics operation in real time.

- **Solution:**

Hardware:

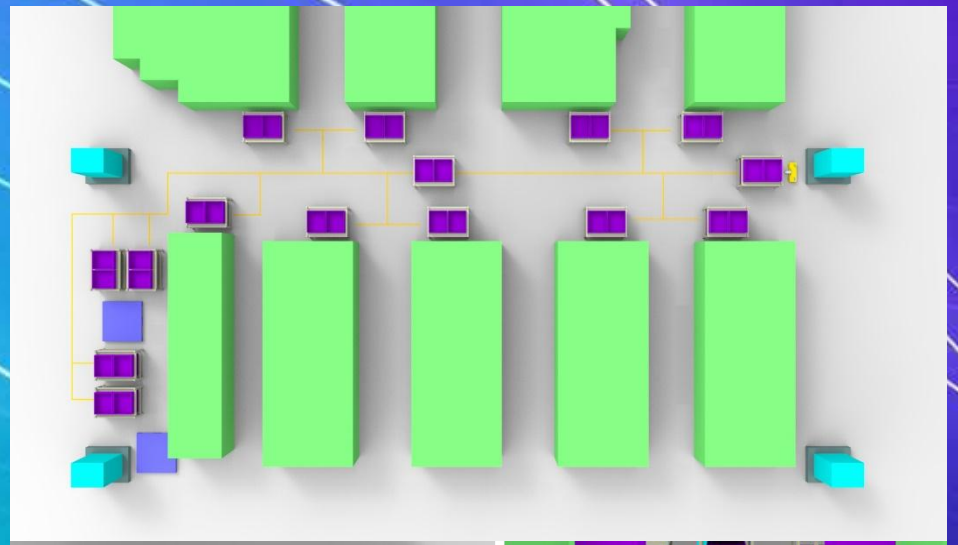
Standard MA | Charging Pile | Customized racks

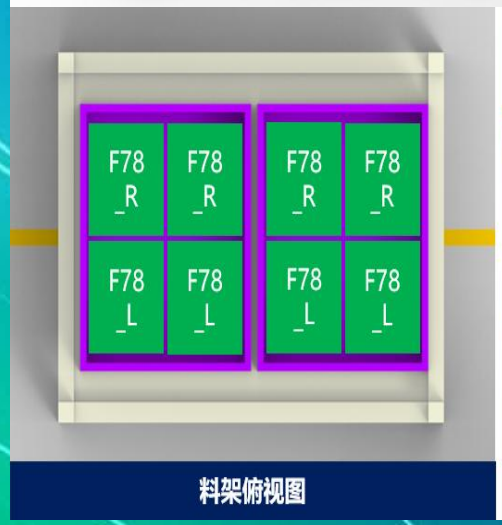
Software:

TROY CCS | RDS

- **Realized value:**

The entire logistics and handling process is unmanned, the progress of on-site operations is visualized, the priorities of different machines can be configured, the timely supply of materials is ensured, the production rhythm of on-site products is accelerated, and the released manpower can be engaged in more high-value work.





料架俯视图


料架侧视图

Tobacco industry intensive storage intelligent warehousing case

TROY INTELLIGENT

Customer needs

A large domestic tobacco factory wants to automate the raw material warehouse to realize automatic storage, automatic outbound storage, automatic sorting, and automatic delivery according to orders after the materials are matched;

Digital transformation of the entire logistics process to realize the digitalization of the entire process, batch communication, visualization, and real-time viewing of logistics operation.

Solution:

Hardware: customized Di Niu forklift + charging pile + hoist + handheld mobile terminal;

Software: customized logistics central control system + scheduling system + hoist docking + WMS docking.

Value realized:

Unmanned logistics handling, digitalization of warehouse management, and visualization of on-site operation progress are realized;

Support 3D digital twin display, and real-time viewing of 3D warehouse display effects;

Automatically allocate the optimal storage location when entering the warehouse to reduce the moving distance;

Delivery docking orders, complete the removal of materials according to preset rules, and automatically scan codes;

Manual storage, unpacking and packaging operations, and inventory operations can all be supported.



Unmanned Forklift ground intensive storage

