



AGV SYSTEMS



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1. Company Introduction

Gyrobot Robotics Overview

Gyrobot and its partners integrate the R&D, manufacturing, marketing and engineering services of mobile robots. The business covers the areas of intelligent mobile robots and intelligent manufacturing applications. Our partner is the largest mobile robots designer and manufacturer in China.



Smart Logistics



Smart Patrolling

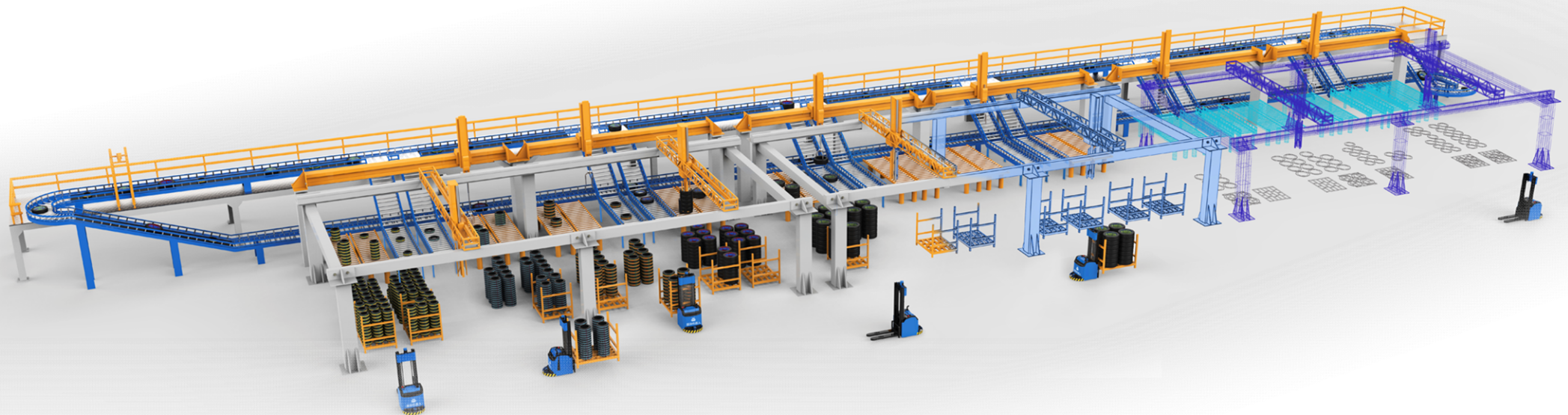
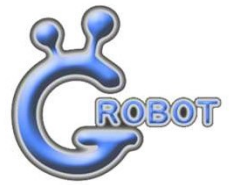


Smart Service



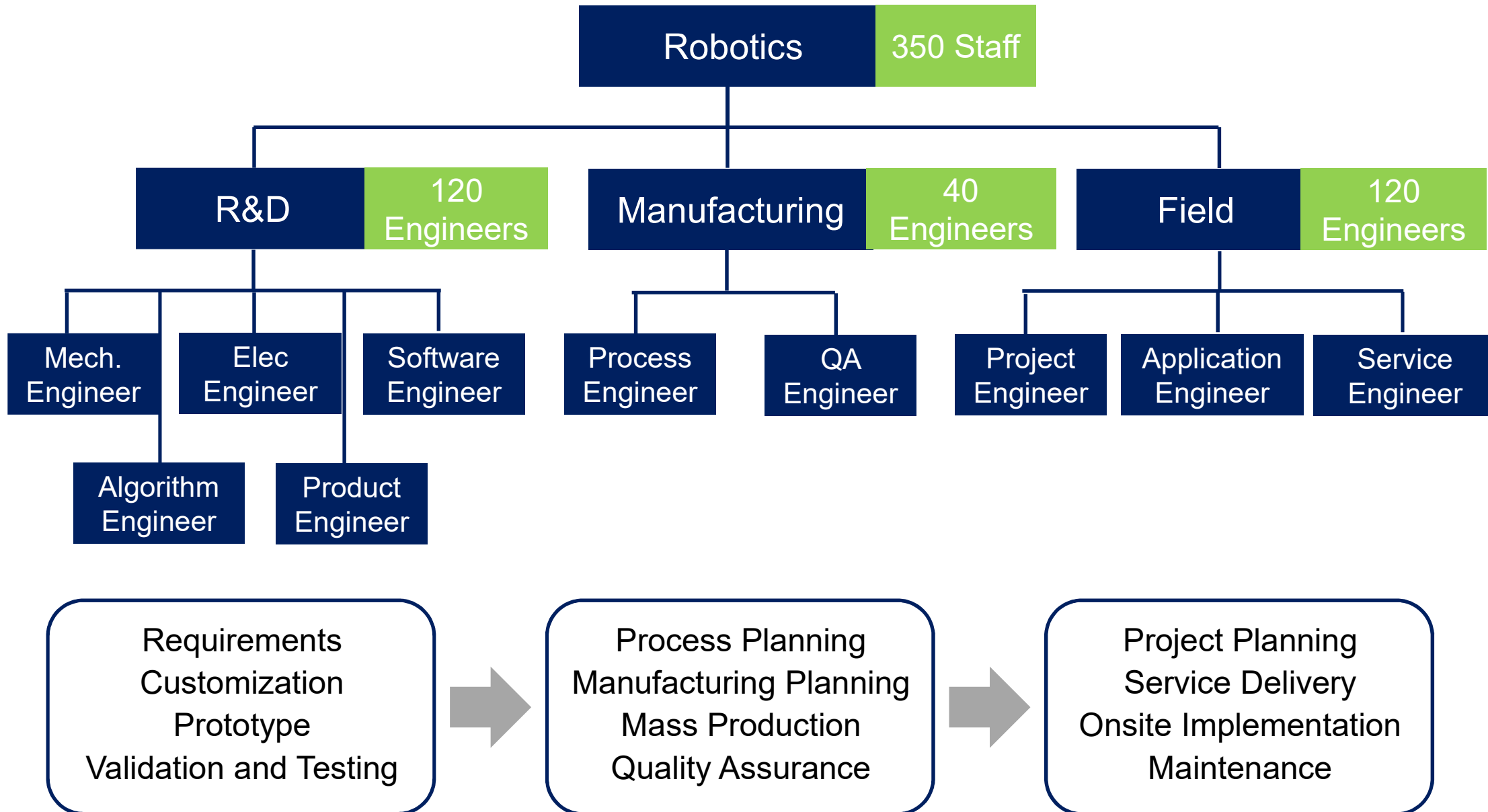
Smart Automation

Robotics – Current Smart Logistics Systems



Smart Industry Automation System including Material Sorting and AGV Handling

Our Engineer Staff



Largest Robotic Automation Research Center in China



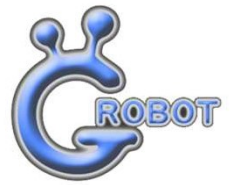
National Innovative Enterprise Recipient

National Enterprise Technology Center Award

Accredited Post-Doctoral Research Center

Our Robotics business has significant intellectual property with over 70 patents on the Star System. Patents cover every component of the system, including vehicle design, electrical design, navigation algorithm, path planning algorithm, dispatch system design, etc.

Quality Control and Assurance



Professional testing labs:

Hardware Lab

Large-scale Network Lab

Software Lab

Industrial Communication Lab

Environmental Lab

Failure Analysis lab

Temperature and Humidity Lab

Salt-fog Lab

Vibration Lab



Our Central Lab was accredited by China National Accreditation Service. This is the highest level certification available in China.

Complete quality control system and certifications



Global Customer Base



Alibaba Group

#1 E-commerce Enterprise in China



Cai Niao

#1 Warehousing Services, Supply Chain Management, and Technology Provider in Asia



BAIDU

#2 Search Engine in the World



State Grid

#1 Power Enterprise in China



Midea Group

Global Appliance Manufacturer



SAIC Motor

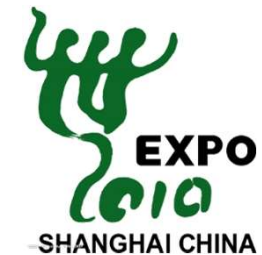
#1 Domestic Vehicle Manufacturer in China.
A General Motors Joint Venture Company



Zhongce Rubber

#1 Tire Manufacturer in China

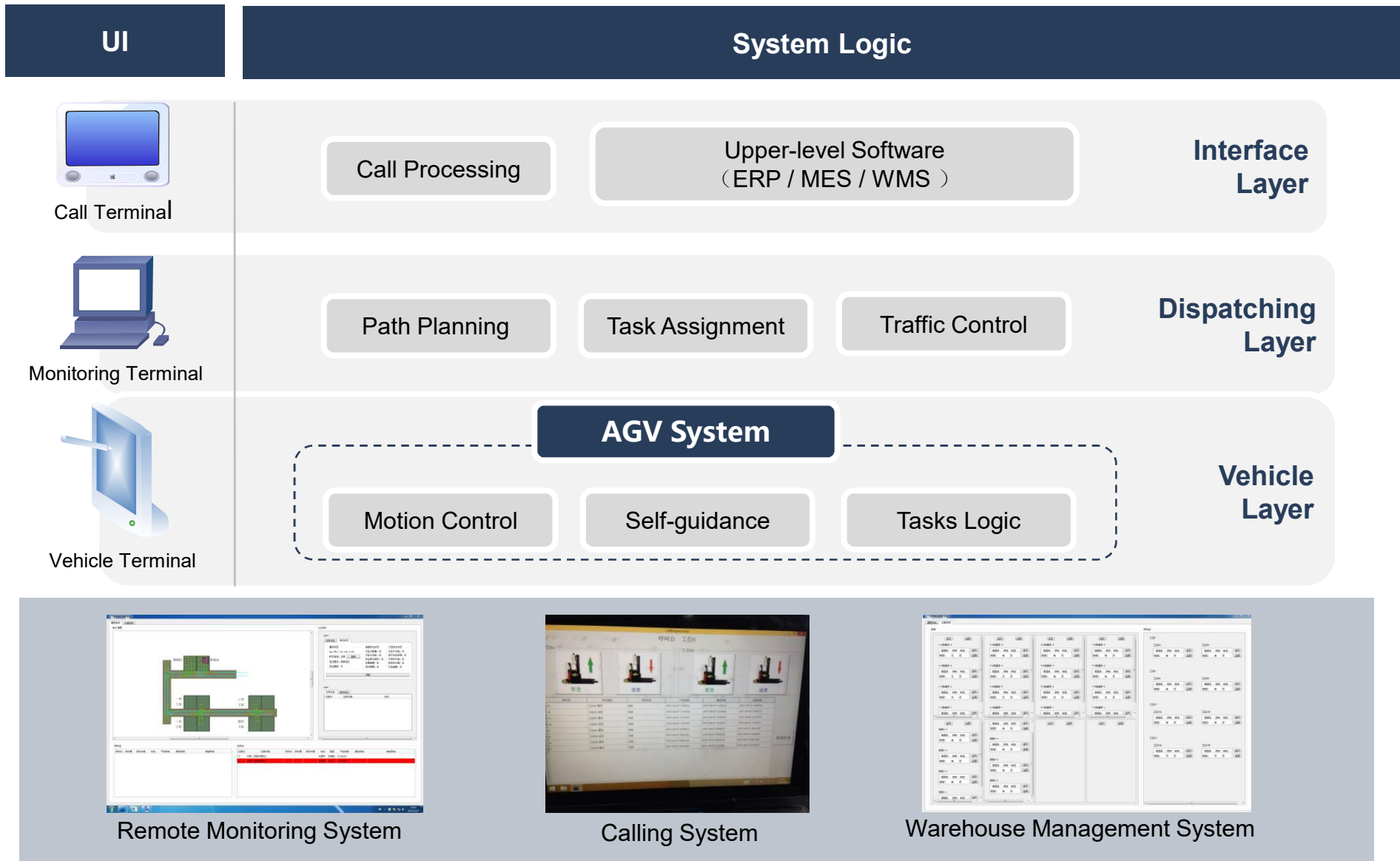
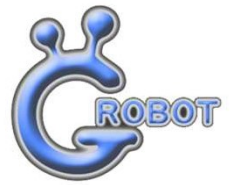
STAPLES





2. AGV Systems Introduction

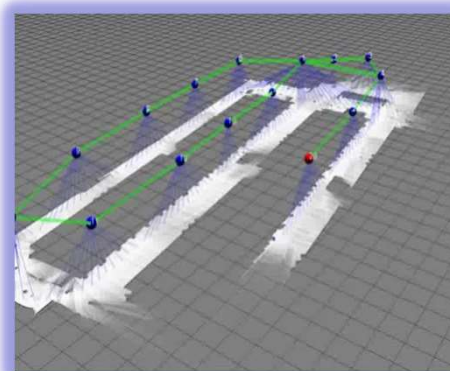
AGV System Overview



Navigation Solutions



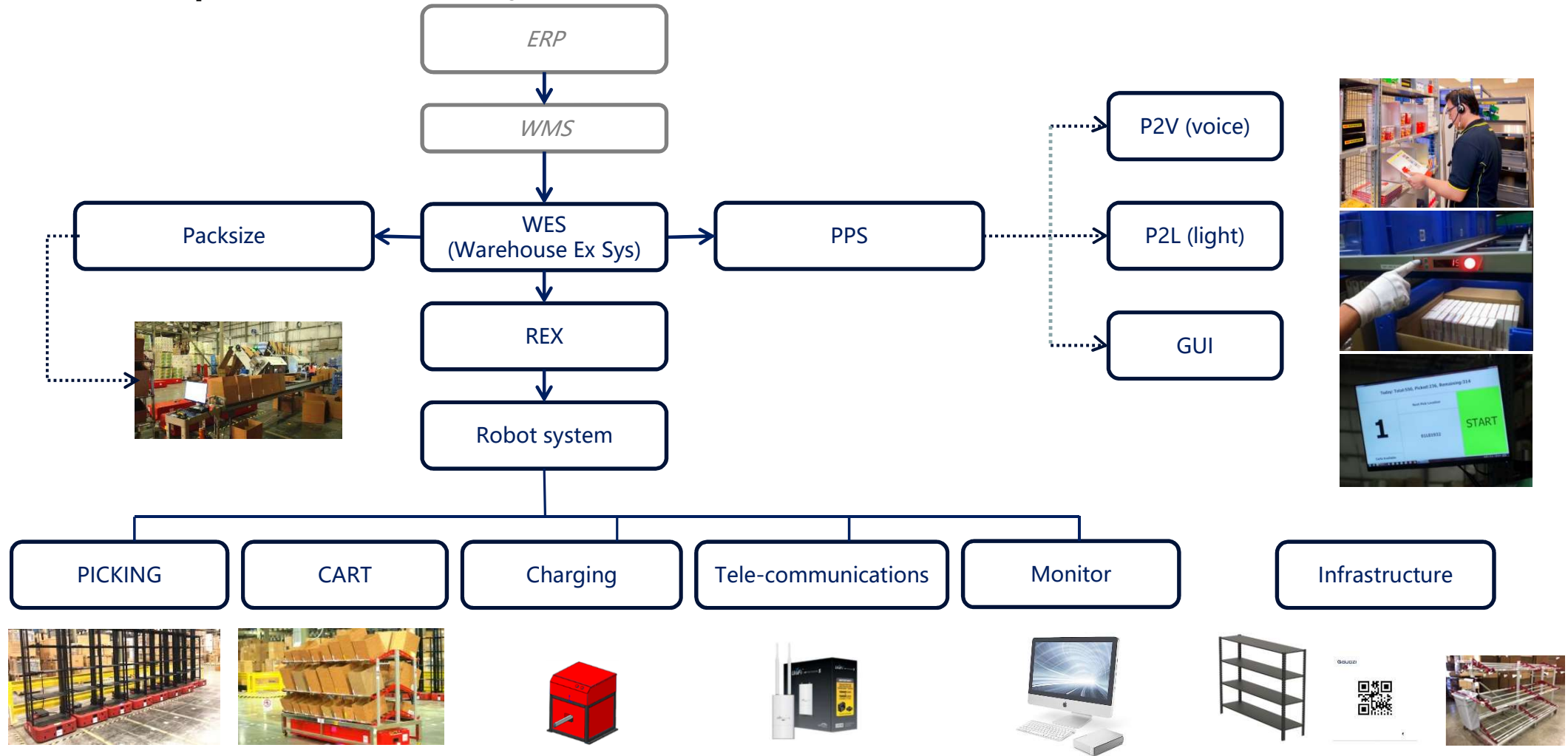
Scenario	Solutions
Indoor	Magnetic Tape / Magnetic Nail QR Code 2D Laser
Outdoor	Long Distance 2D Laser + Inertial 3D Laser
Wild	GPS + IMU



Star System



E-commerce warehousing logistics process — STAR system structure



Star System

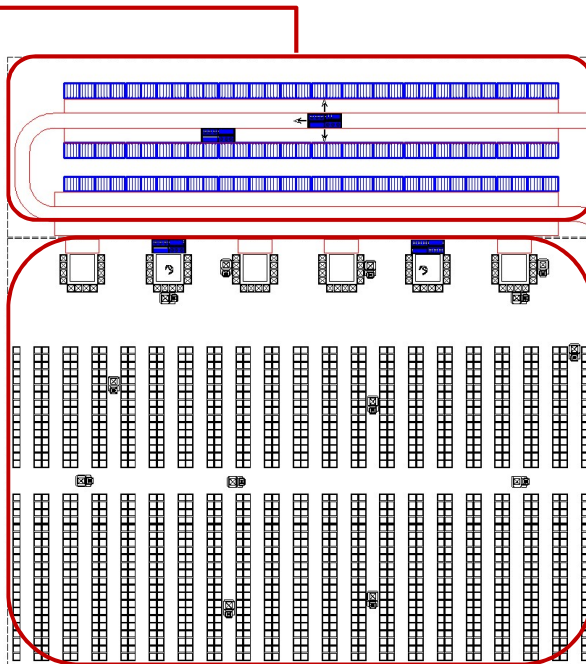


STAR SYSTEM — Solid Turn-key Solutions

Fast-moving SKU Picking



Slow-moving SKU Picking



Induction



Finalizing

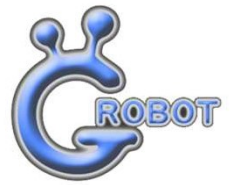
Carton Flow Picking:



Station Picking:



Star System



STAR SYSTEM



Cart AGV



Picking AGV



- Efficient sorting and replenishment system for warehouse logistics process with robotic solutions
- “Station Picking” + “Carton Flow Picking”
- The only logistics robotic system from China that has volume sales in overseas markets

AGV – Sorting and Picking



10 - 50 lbs. Loading Capacity

Supporting Equipment



Plastic Pallet



Static Shelf



Cart



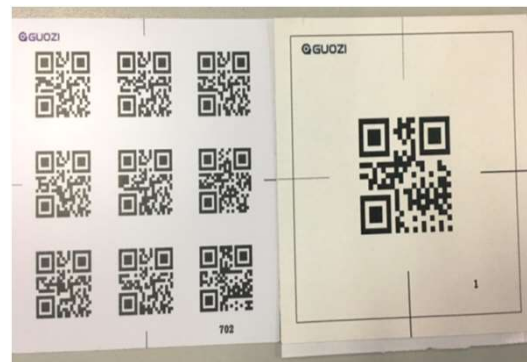
WIFI 2.4G/5.8G



Pickcell Shelf



Reflectory Material



QR Code



Autocharger



3. Applications

The introduction of Staples case -Star System

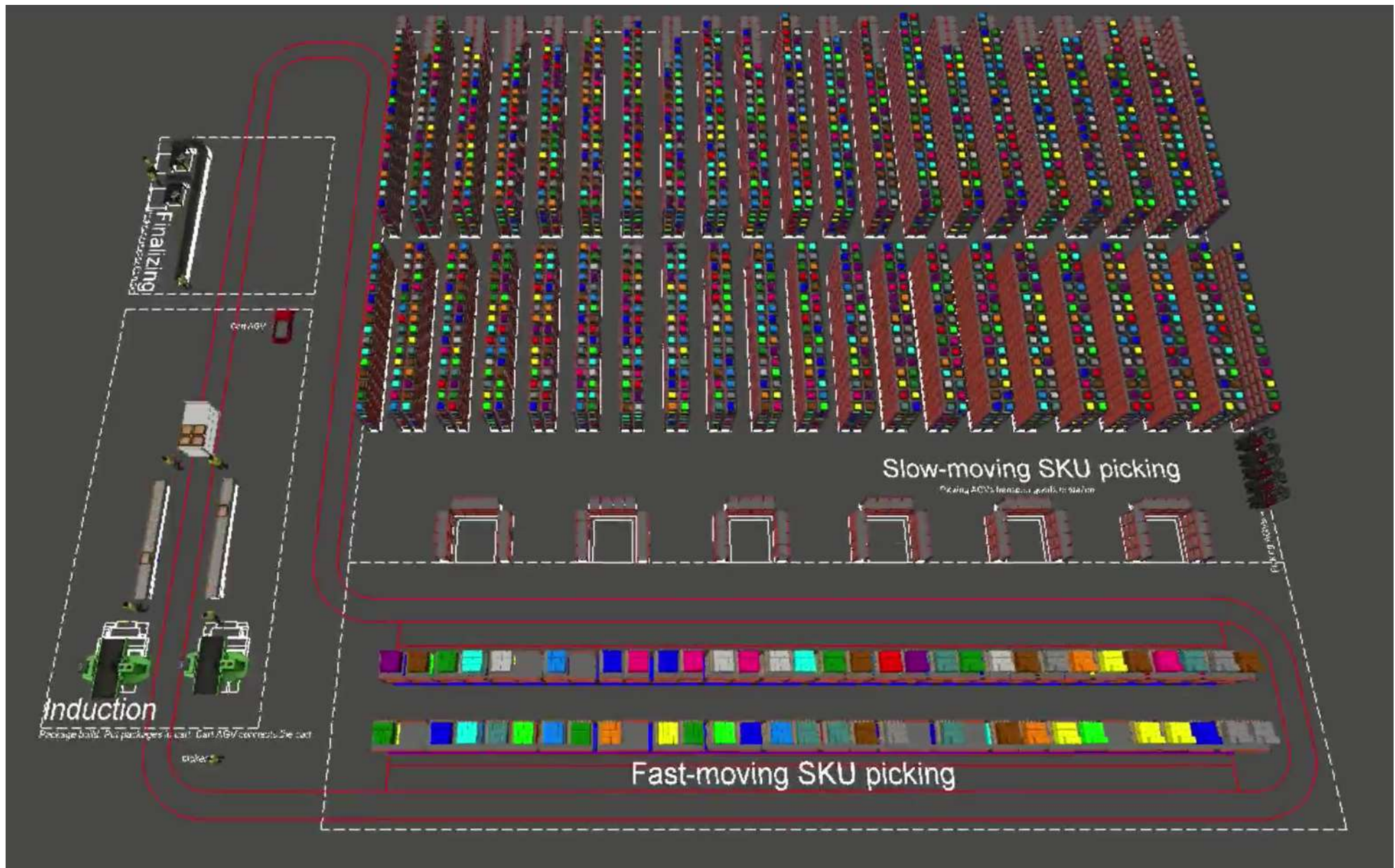
2017.6 Introducing an innovative GTP system in the US: STAR SYSTEM



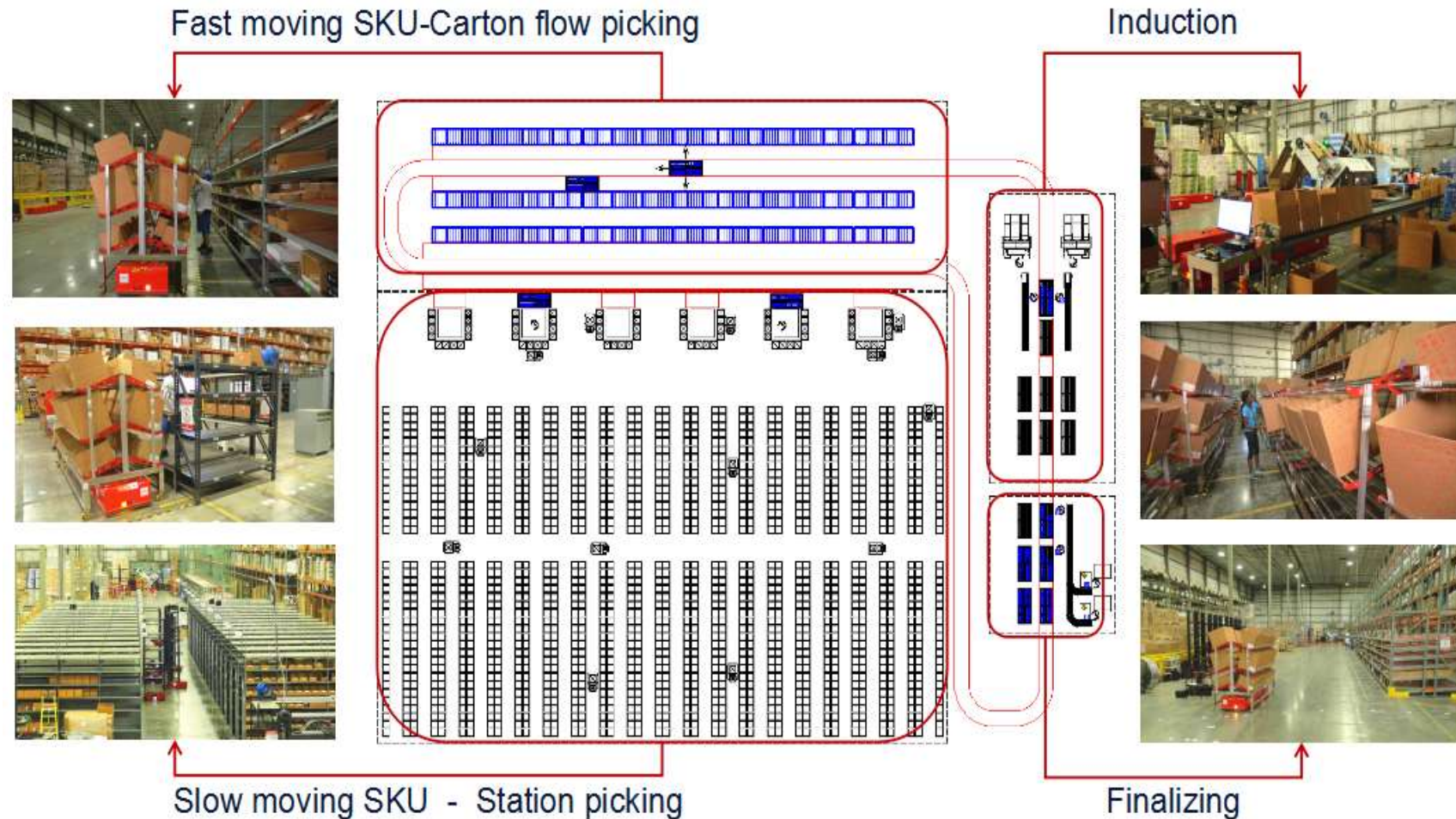
STAPLES®

- One of the world's top 500 companies, office supplies giants, one of the most professional B2B e-commerce platforms in the global office market
- There are more than 2,000 office stores and warehouse distribution centers in the world, covering 22 countries and regions. And there are more than 50 large warehouses in North America only.
- First KIVA end user from year of 2005, has the longest (13 years) time to use and optimize experience with KIVA system
- Our STAR system will completely replace KIVA's application in Staples from 2018

The introduction of Staples case -Star System



The introduction of Staples case -STAR System



This is a high-efficiency sorting and ordering fulfillment system. SKUs are stored separately in different zones based on the picking frequency. For fast-moving SKU picking, The solution is using Cart AGV leading the picker to find the right SKU. For slow-moving SKU picking. The solution is first using Picking AGV picks the SKU out from the storage to a station. Then picker picks the goods from the stations.

Two picking pattern's combination makes the system to achieve the balance of the storage density and picking efficiency.

The introduction of Staples case -Star System



Induction is the first step of the whole picking process

Jobs done in this step:

1. Package build: build and select the appropriate empty packages based on the goods in the orders.
2. Put empty packages in cart.
3. Cart AGV connects to a cart and runs to the CFL picking region.



The introduction of Staples case - CFL Picking

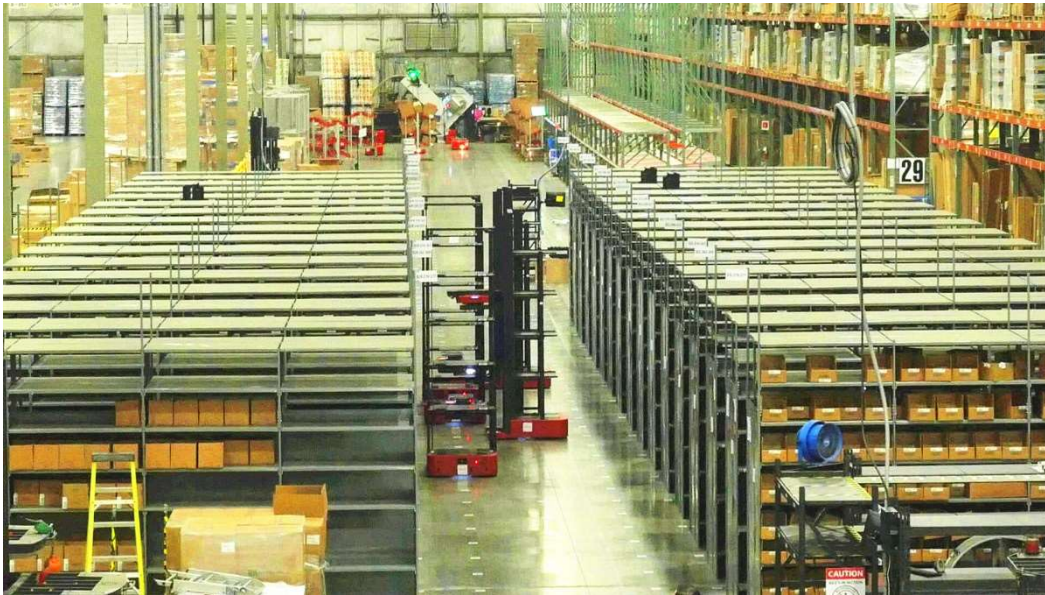


Fast-moving SKU picking region:

This region stores high-frequency picking SKUs. The storage method can be carton flow or pallet on the ground.

Cart AGV runs and stops at the right storage position based on the orders on the cart. After the picker picks the goods from this position. Cart AGV will run to the next storage position automatically.

The introduction of Staples case - Station Picking



Slow-moving SKU picking region:

SKUs stored in cartons, and the cartons stored in shelves. This region stores varieties of low-picking-frequency SKUs.

When a cart leaves from Induction Region with an Cart AGV, the Picking AGV starts picking cartons from shelves and transport them to a picking station.



The introduction of Staples case - Finalizing



Finalizing Region:

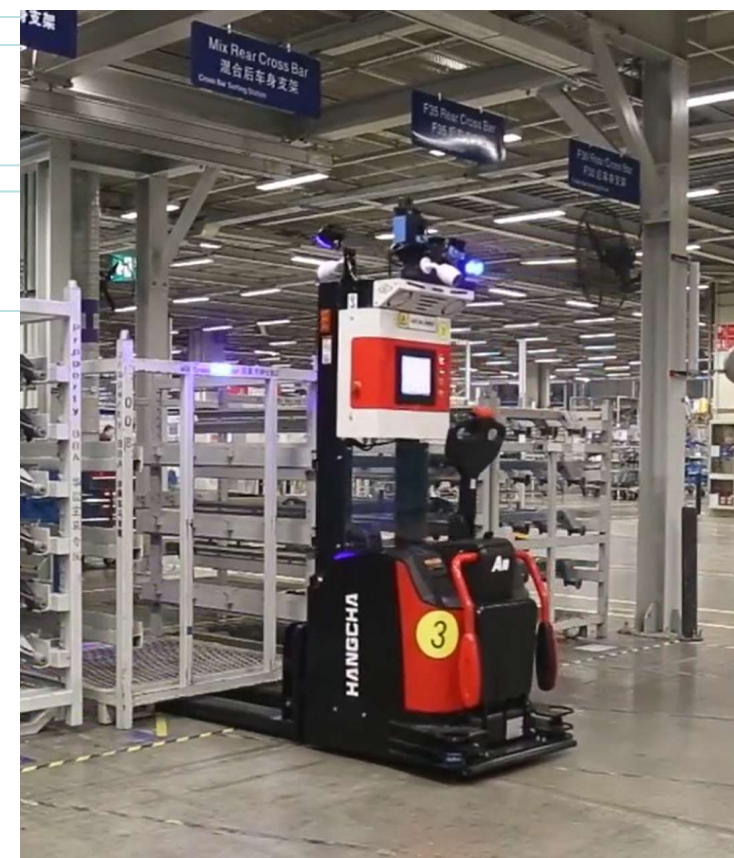
When finish picking, Cart AGV will transport the cart with full packages to Finalizing Region.

In this region:

1. packages released from the cart, then transport to next process like inspection and packaging.
2. Empty cart will be transported back to Induction Region.

AGV Application-Automobile Industry INDOOR

App	Product Transportation
Scene	Indoor High-bay Depot, Height 4-6M
Solution	Plate Lift
Nav	Reflective Laser Marker
Payload	1-3t



AGV Application-Hand Tool Enterprise

App	Warehouse Parts and Product Transportation
Scene	Indoor-tiered Warehouse with Link to Roller Way, High-precision Required.
Solution	Plate Lift, RFID Application, WMS Application
Nav	Reflective-laser Marker
Payload	1-3t



AGV Services

