



Axle

Wisdom in the heart, containing all things



#SmartSolutions
...since 1953!

Sun Narula Group

Hospital Logistics Automation Solution
Autonomous Mobile Robot



WARRENWELL

Leader for Hospital Integrated Solutions

Warrenwell was established in April 2012 in Suzhou New District Medpark. It has a modern comprehensive R&D center of 30,000 square meters and is a high-tech enterprise specializing in hospital intelligence and automation with over 100 independent intellectual property rights. The company has an international management team, leading technology and concepts, and continues to deeply cultivate the field of hospital intelligent development, committed to providing technology-leading and quality-first overall solutions. Since its establishment, it has served more than 300 users throughout various provinces and cities across China and has won wide acclaim. As a leading enterprise in the industry segment, Warrenwell leads the formulation of industry standards, sets industry benchmarks, and continuously promotes the sustained and good development of the industry as a leader, innovator, and pioneer.

Warrenwell's mission is to "use technological innovation to promote medical progress, and medical development to benefit human well-being". Driven by the challenges faced by customers, Warrenwell has continued to improve its core competitiveness through relentless innovation, deeply integrating emerging technologies with advanced manufacturing, and fully assisting customers in achieving their vision goals. Warrenwell has become a trusted brand for customers with its leading innovative technology, outstanding product quality, and rich practical experience, deep market insight into demand, and continued creation of value for customers.



WARRENWELL has achieved
ISO 9001, ISO 13485 and ISO 14001
management certifications



WARRENWELL is in
possession of more than 100
independent intellectual
properties



The OR&ICU equipment has
been accredited with CFDA, CE
and RoHS certificates

Axle

Leading the New Trend of Medical Supplies Transportation

With the trend of intelligent, automatic, and information-based development in hospitals, the value of these technologies in daily hospital management is becoming increasingly prominent. We focus on the field of hospital logistics, and are committed to grasping the overall logistics, exploring the professional needs of departments, focusing on details, and integrating and connecting the transportation of hospital materials. Axle autonomous mobile robots are agile, adaptable to various complex operating environments, and fill the gap in hospital logistics transportation. Multiple models meet differentiated needs in different scenarios, implement intelligent informationization at the end, and create a diversified, flexible, and stable smart hospital.

Core Strengths

- ◎ Design for multiple scenarios to meet special needs.
- ◎ Flexible and agile scheduling, easy task planning, and convenient upgrading and transformation.
- ◎ The efficiency and safety level of material transportation have been greatly improved.
- ◎ The development of automation, informationization, and intelligence has driven the promotion of hospital image.



Intelligent, Flexible



Network Communication

- Using 4G and WIFI wireless communication technology to realize system scheduling and multi-device communication.
- Docking with the hospital elevator control, access control module, automatic elevator calling, automatic door opening.
- Docking with the hospital management system.



Cluster Control, Path Planning

- Path algorithm: plan global path and calculate optimal route.
- Traffic control: set the priority of the road network to avoid congestion.
- Autonomous decision-making: multiple devices synchronize communication to achieve autonomous decision-making.



Multi-sensor Fusion, Autonomous Driving

- LiDar, TOF camera, ultrasonic sensor technology fusion, reasonable configuration, walking obstacle avoidance, flexible safety.





1

Lifting Platform

Automatic loading and unloading shelves.

2

Laser Radar

20m space scanning ahead to identify obstacles.

3

Ultrasonic Sensor

Full-body distribution. Anti-touch edge, anti-collision.

4

E-stop

Emergency stop, ensure safety.

5

HD Touch Screen

7 inch screen. Unlock, task assignment.

6

TOF Camera

Distance detection of obstacles by vision.

7

Status Light

Different colors indicate statuses.



Cabinet Type C200

Large-capacity and high-load, used for material transportation in public areas.



Shelf Type C300

Multi-layer shelves and classified placement, designed for internal material transportation of departments.



Latent Type C400

Automatic loading and unloading of matching containers, used for daily transportation of bulk materials or medical waste.

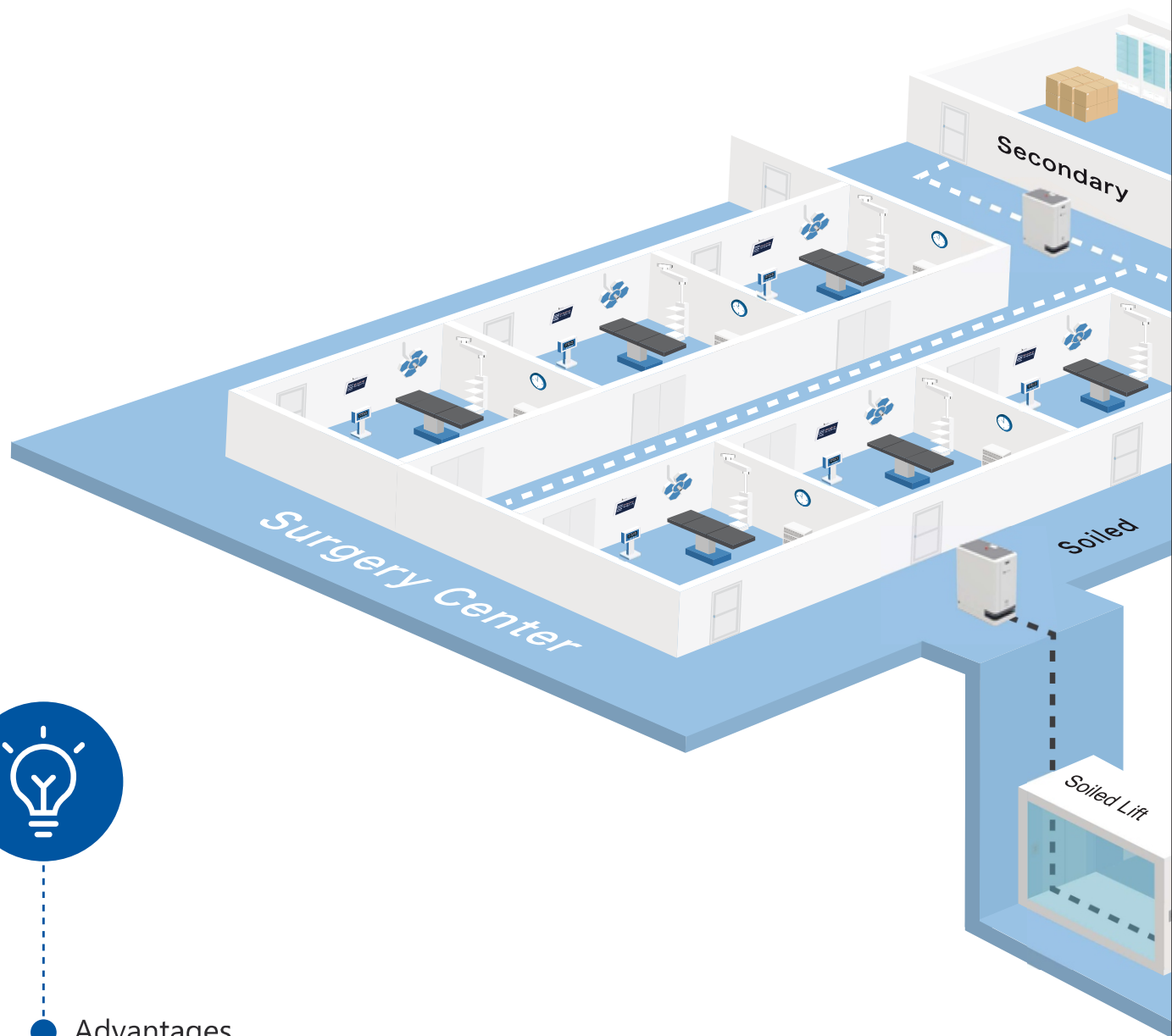


Latent Type C500

Automatic loading and unloading, ultra-high payload, used for transporting extra-large volume materials.

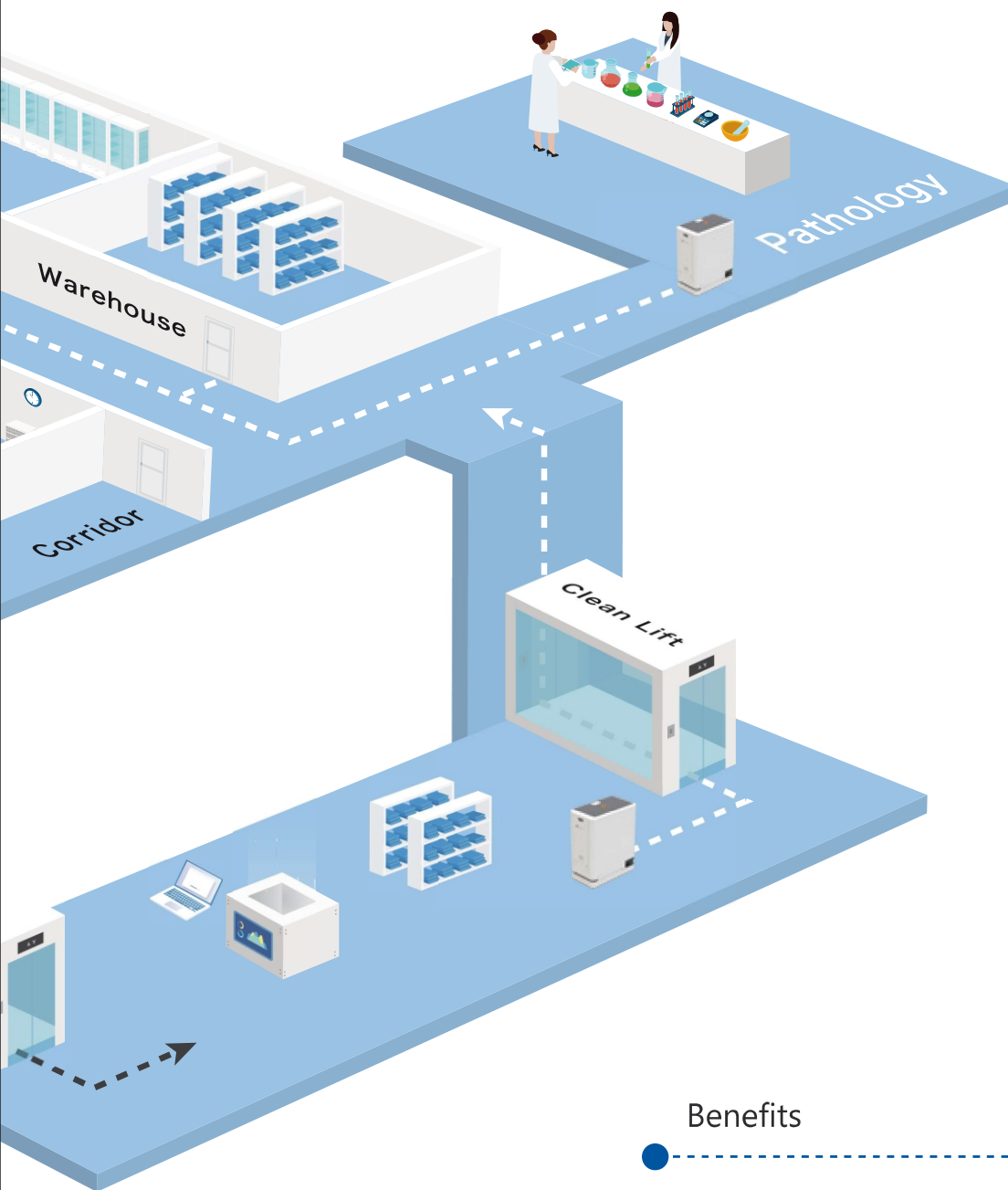


Surgery Center/CSSD/Pathology Solutions



Advantages

- Efficient disinfection supply collection and delivery, traceable instrument counting and checking, meet the circulation of materials between the OR and CSSD.
- Batch delivery before surgery and remaining surgical bags return, reduces workload of nurses.
- Instant delivery and batch delivery of pathological specimens are flexible, efficient, and fast.



Benefits

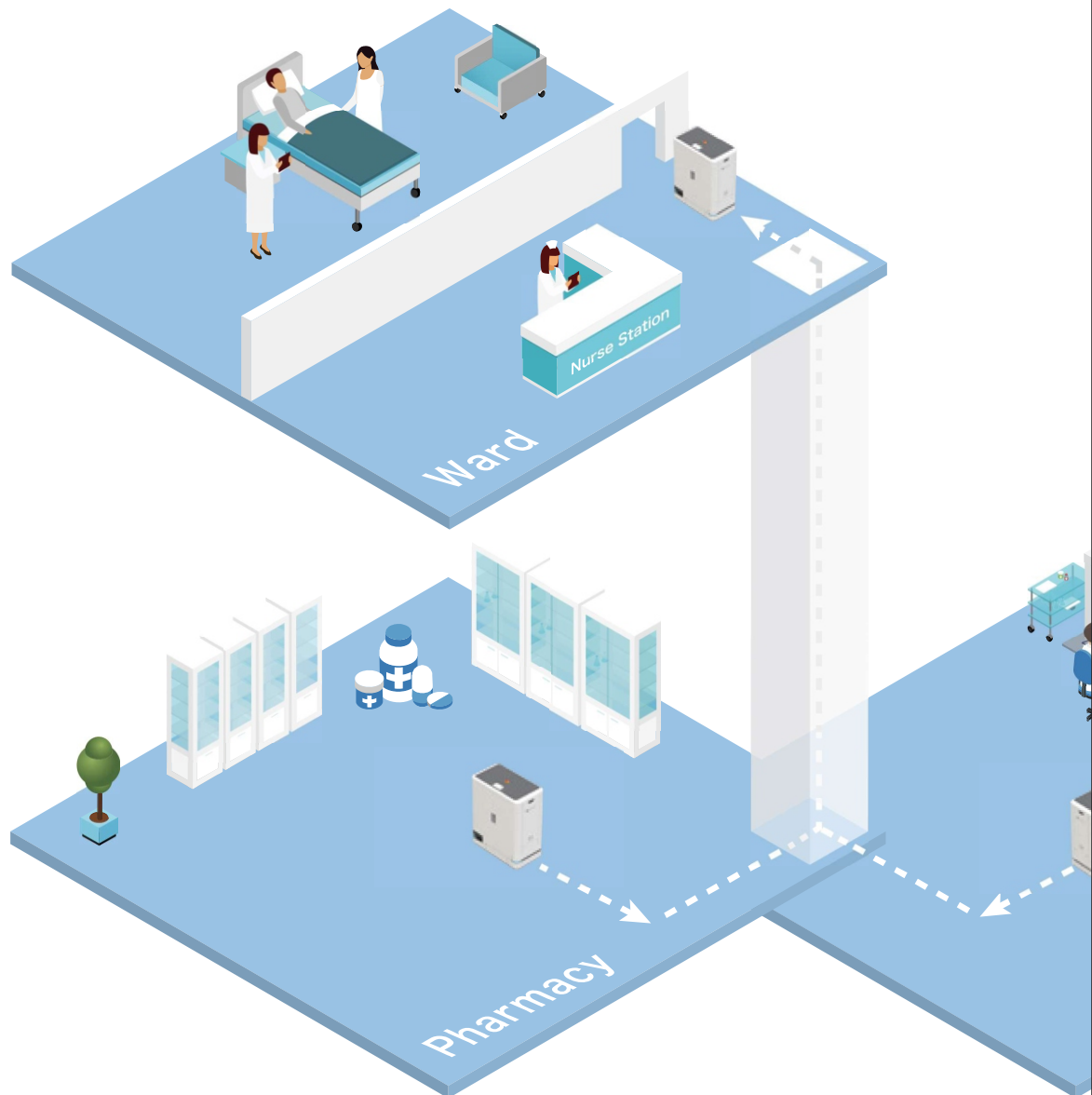


- Different models serve different scenarios. Clean and dirty dual channels cooperate, effectively reducing labor input, simplifying the check and count process, and releasing nurse's time and energy.
- Multi-batch transportation improves the efficiency of goods transportation, clarifies the information flow of goods transportation, and makes it traceable.

Pharmacy/PIVAS Solutions

Advantages

- Fast and efficient delivery of routine large-volume IV bags.
- Timely delivery of high-frequency STAT order drugs.
- Handling multiple tasks at the same time.



Benefits

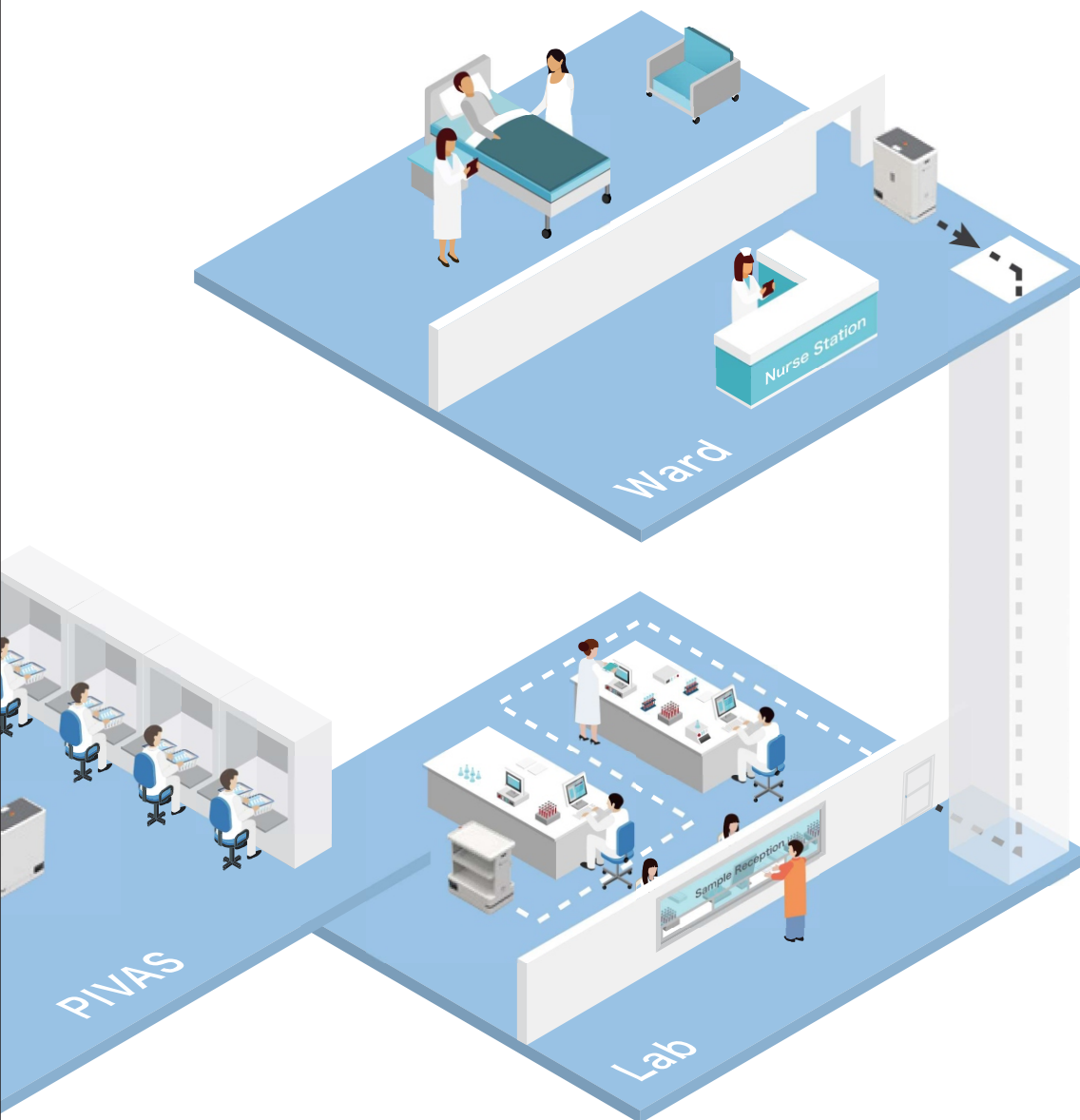
- Solve the problem of frequent and large-scale transportation of goods between wards, pharmacies, and PIVAS.
- High-performance combined with reasonable planning ensures the timeliness, safety, and stability of transportation.



Lab Solutions

Advantages

- Delivery of routine and temporary samples in the ward.
- Logical running path to meet the frequent back and forth logistics needs between the sample receiving area, experimental area, and testing area.



Benefits

- Saving manpower and optimizing transportation efficiency of inpatients samples.
- Reform the internal sample distribution process of the Lab, optimize the process, save time, and improve efficiency.

Garbage Station / Laundry Room Solutions



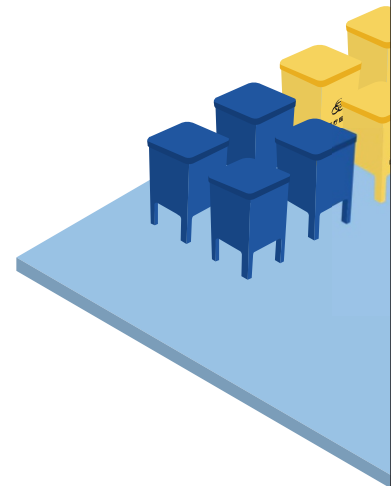
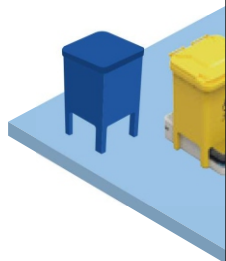
Advantages

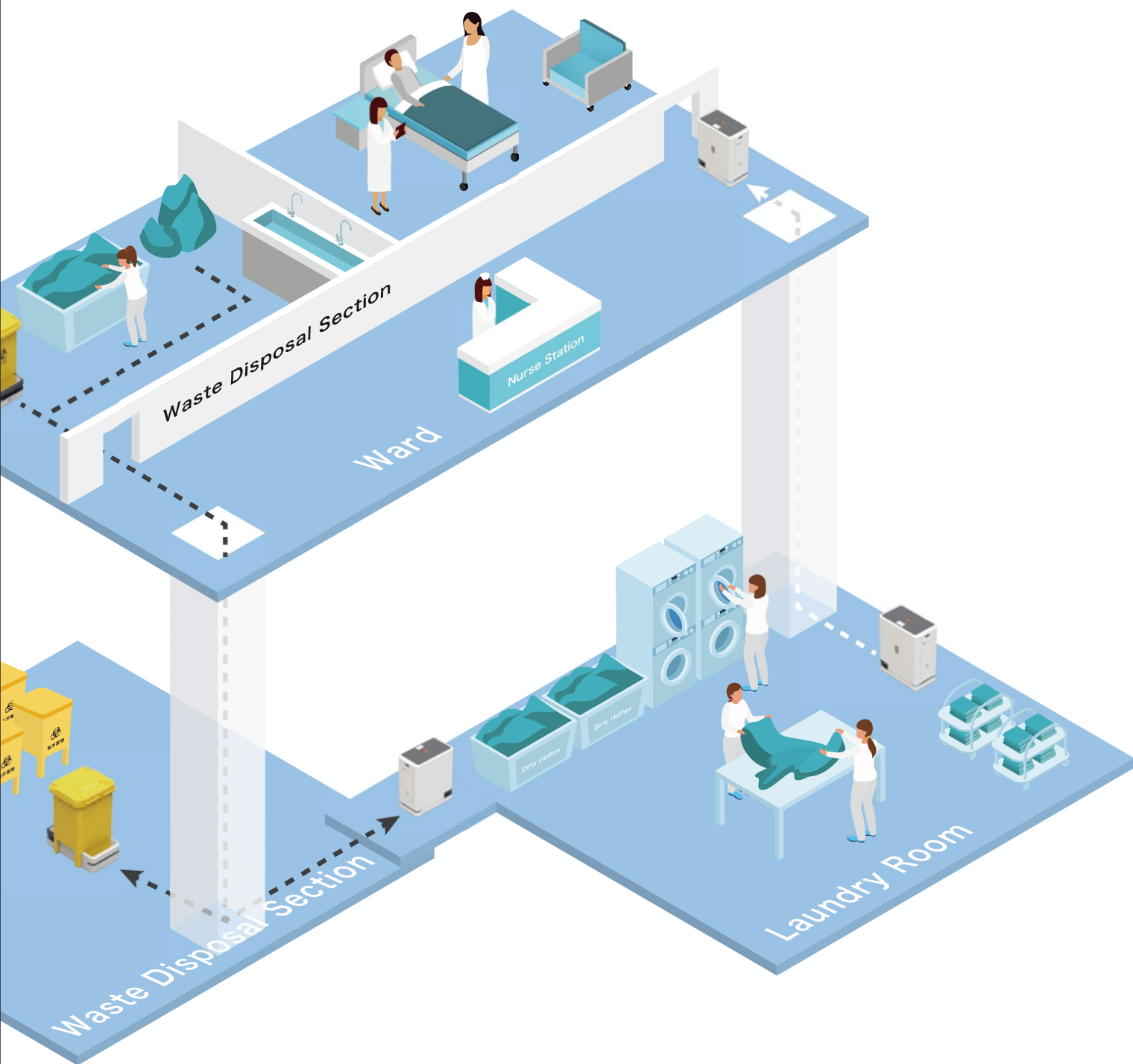
- Undertake the specialized transportation of medical waste, with clear and transparent information throughout the process, to ensure the safety.
- Responsible for the scheduled collection of various daily garbage, and specialized route transportation, reducing pollution and cross infection.
- Collect contaminated linen, distribute clean clothing and bedding, separate clean and contaminated items, and ensure the safety and non-pollution of materials through dual-channel transportation.



Benefits

- From comprehensive information processing of household waste to medical waste, the entire process is monitored and recorded, ensuring traceability and compliance with various standards for medical waste disposal.
- Reasonable planning and scheduling, as well as the separation of clean and contaminated clothing and bedding, save manpower and significantly improve efficiency.
- Flexible operation of autonomous mobile robots can effectively solve the problem of the last 100 meters of transportation, and comprehensively and significantly improve the level of informatization and intelligence.





Model	Cabinet C200	Shelf C300	Latent C400	Latent C500
Load	300kg	300kg	300kg	500kg
Size	L930×W516×H1160mm	L930×W516×H1030mm	L1130×W516×H315mm	L1380×W670×H365mm
Navigation and Sensor	TOF Camera, Ultrasonic Sensor, Laser Radar			TOF camera, Laser Radar
Charging Time	2.5h	2.5h	2.5h	4h
Battery Life	8h	8h	8h	8h

① System Planning

Work with the client to plan the logistics transmission system based on the quantity, types, department settings, and operational issues encountered in the hospital. Reasonably and effectively plan the transmission path and station settings of the logistics transmission system and optimize work processes.

② Solution Design

Based on the system planning, communicate repeatedly with the design institute and the owner to determine the final solution.

③ Implementation

Our company has experienced project management and construction personnel who install the system according to customer's requirements and strictly implement construction standards to meet design and aesthetic requirements.

④ Operation Maintenance and Training

Establish a long-term cooperative relationship with the client, and provide customize services, support, and training beyond expectations based on customer needs.



To create is to give life.



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