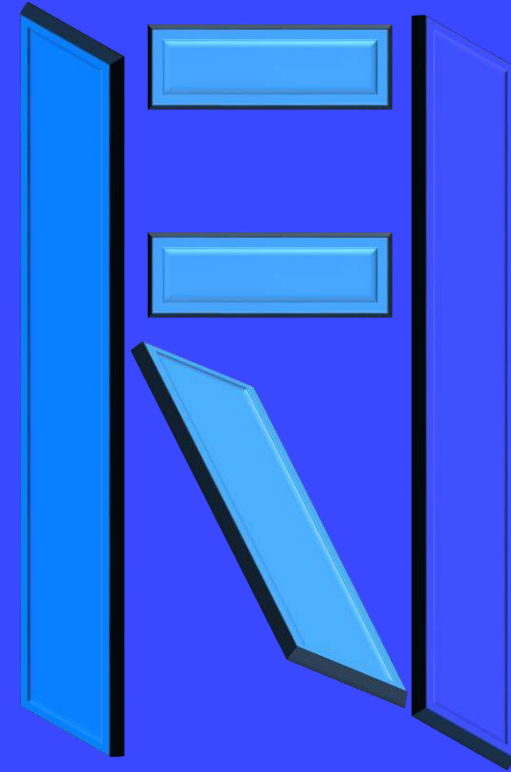Retail Scenario Solutions
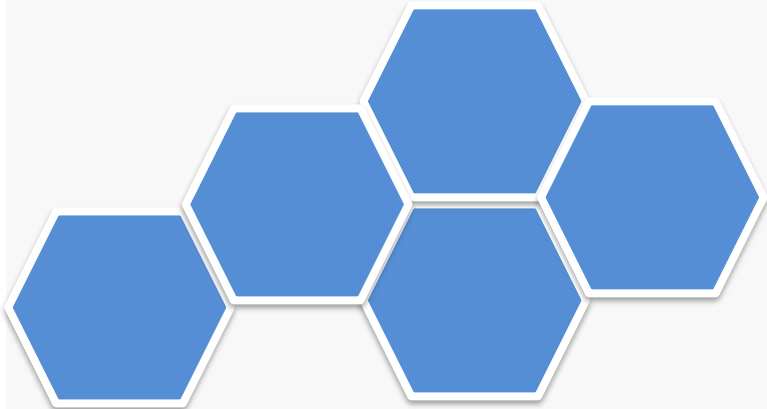
Grocery

Infantron
Infantron [S] PTE LTD

INFANTRON (S) PTE LTD was established in 1996 with a vision of innovation and invention based on global changes. Our Quality objective is to achieve zero customer complaint per month to achieve customer satisfaction through excellent customer service. Infantron R&D team is highly enthusiastic in design, development and testing. Infantron latest product is robotic systems for hospitals, hotels, restaurants, malls and etc. Our design of excellent robotics catered for variable needs and requirements in order to reduce the manpower, reduce human error, cost effective and highly productive.
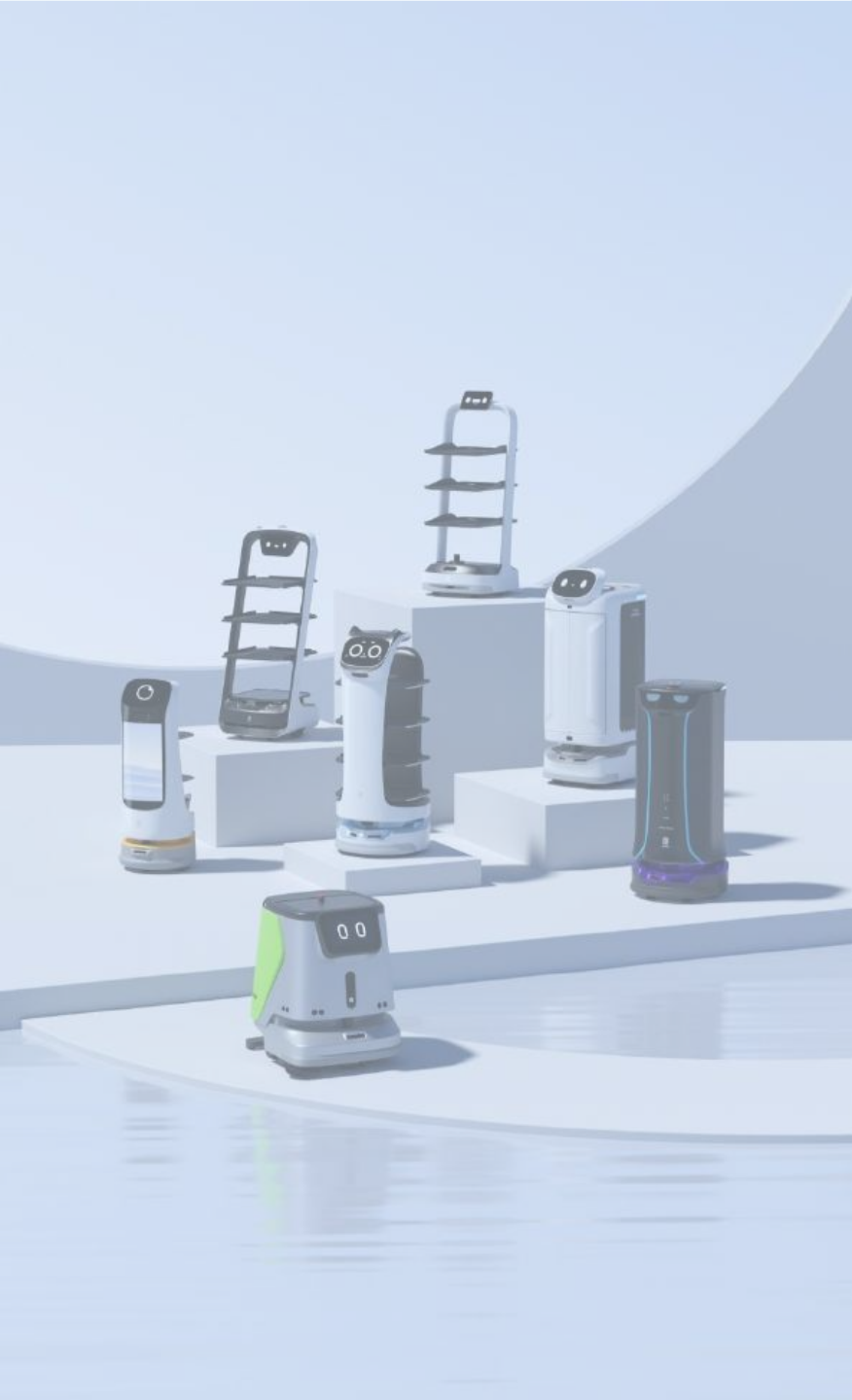
CONTENT

2024

01
Cleaning Pain points

Layout of grocery

3 main types : Food & Wine, Fresh Goods, General Goods

In supermarkets, the three main commodity categories of food and wine, fresh vegetables and general goods are often divided into nine areas for the display: bread and food area, beverage and wine area, food and beverage area, catering area, frozen goods area, fresh food area, dairy area, daily necessities area, kitchenware area, cashier area, and so on.

Food & Wine

② Bread & Food Area

③ Beverage & Wine Area

⑧ Catering Area

Fresh Goods

① Frozen Goods Area

⑤ Fresh Food Area

⑥ Dairy Area

General merchandise

④ Daily Necessities Area

⑦ Kitchenware Area

⑨ Cashier Area

2024

Cleaning pain points

Four Major Cleaning Challenges: Difficult Recruitment, Multiple Standards, High Frequency, High Cost

In supermarkets, food, beverages, and fresh produce are the primary products sold daily. In large, comprehensive supermarkets, the fresh food section accounts for over 65% of total sales. Consumer demand is high, with the average customer purchasing fresh food three times a week. Among these, fruits and vegetables are bought most frequently, averaging 4.48 times per week, followed by fish and seafood at 2.39 times per week. The variation in foot traffic across different areas results in differing cleaning frequencies and standards.

Difficult Recruitment

According to the United Nations' 2022 World Population Prospects, the proportion of the global population aged 65 and older is expected to increase from 10% in 2022 to 16% by 2050. Currently, most cleaning staff are older employees, making it difficult to recruit younger individuals for these roles.

Multiple Standards

In supermarkets, the food and general merchandise sections primarily consist of shelves, requiring thorough cleaning of hard-to-reach areas underneath. In contrast, the fresh food section mainly consists of freezers and similar fixtures, where the floors are often wet and slippery, necessitating effective water absorption and floor cleaning methods. These varying cleaning standards result in significant differences in the tools and methods used for cleaning.

High Frequency

In the fresh produce section, there are many unpredictable factors that contribute to waste, such as beverage spills and loose food items falling. High-traffic areas like entrances and checkout counters, as well as zones prone to such accidents, require more frequent cleaning to maintain a consistently high level of cleanliness.

High Cost

Supermarkets have long operating hours, typically exceeding 12 hours a day. During business hours, the frequent movement of customers and staff makes cleaning difficult. Therefore, comprehensive cleaning is usually scheduled for the limited time before opening, while high-traffic areas are cleaned during operating hours.

INFAN Cleaning Solution

Optimizing resource allocation for a clean shopping environment

We are committed to utilizing smart solutions to optimize cleaning resource allocation, ensuring a consistently clean shopping environment and enhancing customer satisfaction.

INFAN600BOT + **Cleaner** > **Cleaner + Cleaning equipments**

- Enhance the customer shopping experience
- Reduce the workload of cleaning staff
- Assist in the efficient allocation of cleaning resources

Cleaning Scenarios	Robot	Cleaning Requirement	Cleaning Mode
Food & Wine	reddot winner 2023 **INFAN600BOT**	Dairy products and frozen goods are often stored in freezers, which can cause the floor to become slippery as ice melts. These areas require efficient, frequent cleaning, approximately once every hour.	Scrubbing
Fresh Goods		Consumers purchase fresh food an average of three times per week, resulting in high foot traffic and frequent debris on the floor. This necessitates cleaning every 2-3 hours.	Sweeping
General Goods		Dust and debris tend to accumulate beneath shelves and hanging displays. With traditional cleaning practices, these areas are typically cleaned once per day.	Scrubbing & Sweeping

2024

02
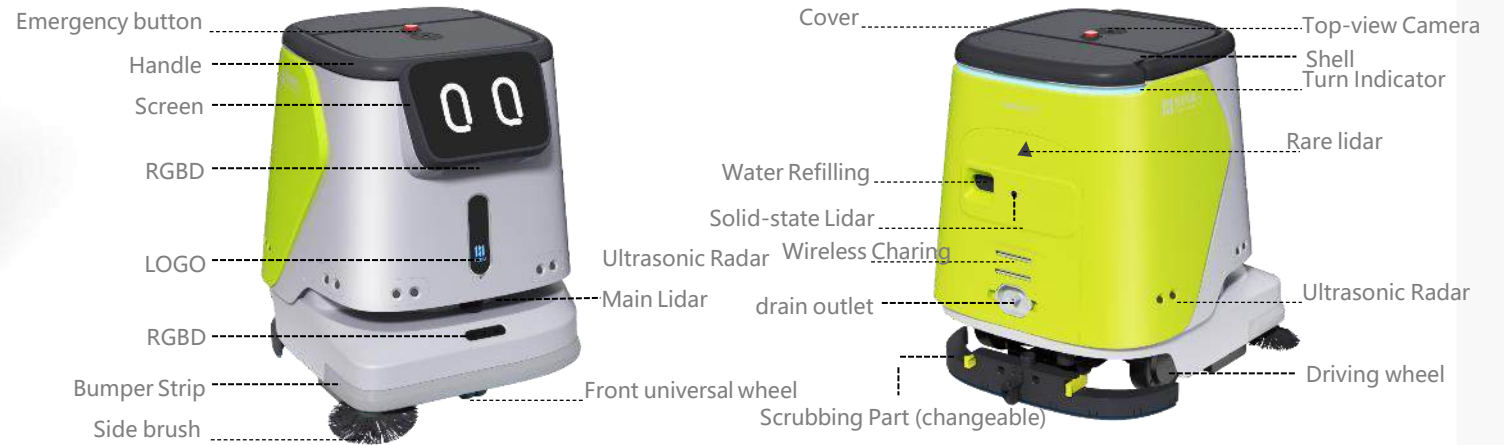# Product Introduction

Product Positioning

INFAN600BOT

Clean & Clever, 4-in-1

•Infantron Technology introduces its first commercial cleaning robot, capable of performing scrubbing, sweeping, mopping, and vacuuming tasks all at once.

• It offers 4 cleaning modes: Sweep-vacuum-mop, sweep-mop, carpet-vacuum, and scrub.
•Optional accessories include a versatile docking station available in fixed and deployable options (with a mobile water tank), as well as charging docks, enabling continuous 24/7 autonomous operation and unmanned cleaning.

•Accessible through PC and mobile devices, the digital cleaning software allows remote management of multiple robots via cloud-based platforms. The mobile app offers remote control, clear cleaning data, and facilitates companies' transition to digital cleanliness.

•The cleaning robot features both manual and automatic modes, providing users with flexibility to adapt to different scenarios and preferences.

•When the 600BOT's battery is low, it can swiftly switch to a spare battery within 30 seconds, ensuring uninterrupted cleaning and enhancing operational efficiency.

reddot winner 2023

Key Components

INFAN600BOT
Key Components

Scrubbing Part（Hard Floor）

Mopping & Vacuuming Part
（Hard Floor）

Vacuuming Part
（Optional accessory for Carpet)

Emergency button

Handle

Screen

RGBD

LOGO

RGBD

Bumper Strip

Side brush

Ultrasonic Radar

Main Lidar

Front universal wheel

Cover

Water Refilling

Solid-state Lidar

Wireless Charing

drain outlet

Scrubbing Part (changeable)

Top-view Camera

Shell

Turn Indicator

Rare lidar

Ultrasonic Radar

Driving wheel

2024

Specification

Size	629 (L) * 552 (W) *695 (H) mm	**Weight**	75Kg (with Battery)
Battery	24V 50Ah	**Charging Time**	< 3.5h
Duration time	5h (Scrubbing); 5h (3-in 1 mode); 4h (Carpet vacuuming); 9h (sweeping)	**Water Protection**	IPX4
Speed	1.2m/s	**Min passing width**	70cm
Max climb angle	8°	**Max obstacle height**	20mm
Max gap width	35mm	**Running noise**	< 70dB
Cleaning width	500mm (with brush)	**Cleaning efficiency**	700-1000㎡/h
Tank capacity	Clean water tank 15L Sewage tank 15L	**Dust box capacity**	2.5L
Screen	10.1Inch touch screen	**Operating mode**	Manual, Automatic
Automatic recharge	Available (Charging pile required)	**Self-drainage**	Support(station required)
Temperature	1 ~ 40°C	**Interaction**	Supports announcements and voice broadcasts
Sensor	Lidar, ultrasonic sensor, depth camera, RGB camera, infrared camera, electronic anti-collision strip, magnetic induction sensor, etc		
Applicable surface	Hard floor: marble, tile, terrazzo, PCV, epoxy resin, etc Soft floor: short wool carpet		

Key Function

Transitioning from singular cleaning modes to a modular design, our all-in-one cleaning monster embodies a streamlined, process-oriented approach.

Combining sweeping, mopping, vacuuming, and dust mopping functionalities into one, the 600BOT embodies a modular design for its cleaning components. Diverging from the conventional single-task mode of traditional cleaning robots, the 600BOT comprehends varied cleaning scenarios, evolving from a singular to a process-oriented cleaning approach.

01 Scrubbing

Instantly infusing floors with revitalizing water, the high-speed rotating brush effortlessly removes stains, while the final water suction ensures prompt collection of floor wastewater without any residue left behind.

Wet cleaning of hard floors

02 Sweeping

Employing a sweep, suction, and mop mode, the specialized dust-mopping pad, tailored for hard surfaces, achieves a comprehensive cleaning process: it sweeps debris upfront, suctions dust in the middle, and finally mops the floor.

Dry cleaning of hard floors

03 Vacuuming

The carpet vacuuming mode, featuring a separate front sweep and rear suction design, ensures powerful suction strength, achieving a commercial-grade cleaning effect for carpets.

Dry cleaning of carpeted floors

04 Dust Mopping

The sweep-and-pop mode is ideal for hard floor surfaces where quiet operation or daytime cleaning demands are paramount. It allows for the closure of the hard floor vacuuming mode.
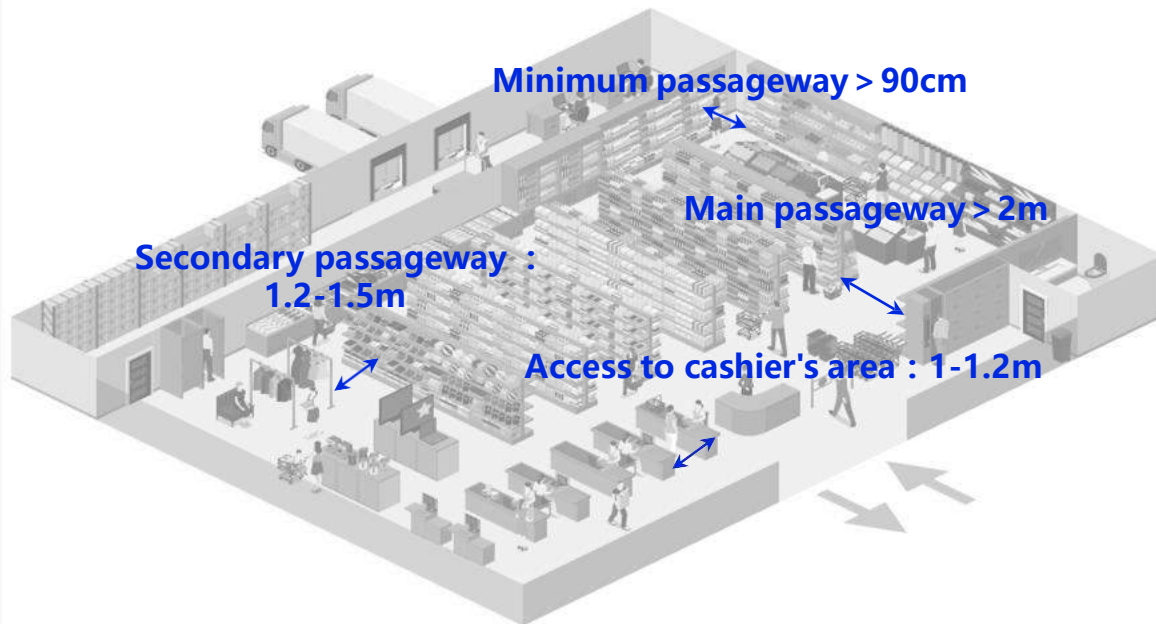
Dry cleaning of hard floors (silent)

Product Advantage

70cm ultimate passing width, 88cm turnaround width - unobstructed access to shelves

In common supermarkets, the retail area typically occupies 60-70% of the total space, with the warehouse area accounting for 15-20%, and other ancillary areas comprising 15-20%. For supermarkets with a retail area exceeding 600 square meters, the main aisles should be wider than 2 meters, secondary aisles between 1.2 and 1.5 meters, and the narrowest aisles wider than 90 centimeters. Cashier aisle widths range from 1 to 1.2 meters.

Supermarket Layout

Minimum passageway > 90cm

Main passageway > 2m

Secondary passageway : 1.2-1.5m

Access to cashier's area : 1-1.2m

Product Advantage

Dynamic Environmental Navigation Enhancement System –
Designed specifically for human-machine coexistence in dynamic high-traffic areas.

INFAN integrated dynamic environment navigation enhancement system truly ensures that robots operate without loss, jams, or collisions, reducing the frequency of human intervention, and providing a safer and more worry-free experience for customers.

SLAM 2.0
It supports automatic real-time map updates, based on current environmental data, improving the stability and quality of localization in dynamic scenarios.

Sensing 2.0
The integration of multiple sensors (RGBD, LiDAR, ultrasonic) in the 600BOT has been reinforced, greatly enhancing the robot's perception capabilities regarding suspended obstacles. This ensures better safety for robot operations in scenarios involving suspended obstacles.

Online cover 2.0
In scenarios with numerous dynamic objects, this algorithm can dynamically adapt and generate rational paths in real-time based on changes in the environment, facilitating comprehensive coverage and cleaning throughout the scene. By utilizing this algorithm, the robot's flexibility increases. For instance, if the path is obstructed, the robot promptly adjusts its route, preventing prolonged obstructions.

Product Advantage

Customized Edge Cleaning : Individualized Cleaning for Complex Scenarios

The system offers four teaching modes: "Zero Edge, Conservative Edge, Standard Cleaning Path, Non-cleaning Movement Path." During deployment, users can choose or modify them as needed. Additionally, they can be sorted or combined according to the specific cleaning tasks in real-world scenarios. This flexibility allows the 600BOT to effectively clean and navigate through complex terrains, narrow passages, edges, corners, and irregular areas.
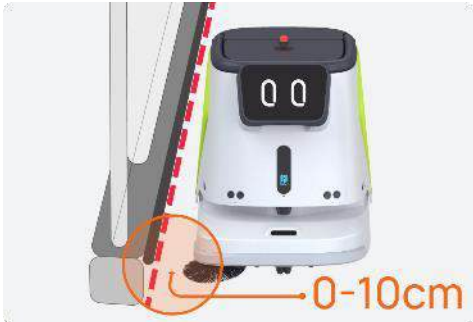
Zero Edge Cleaning

Ideal for regular wall edges, the robot can closely adhere to the wall edges, enabling zero-distance edge cleaning.

0cm

Conservative Edge Cleaning

Suitable for glass walls, black walls, reflective metal walls, and similar edges, ensuring safety.

0-10cm

Standard Cleaning Path

The robot does not proactively approach edges but instead cleans only along the instructed route.

16cm

Non-cleaning Movement Path

When moving from area A to area B, the robot's motion trajectory is specified, and it does not need to clean during transit.

Cleaning area A
Non-cleaning Movement Path
Cleaning area B
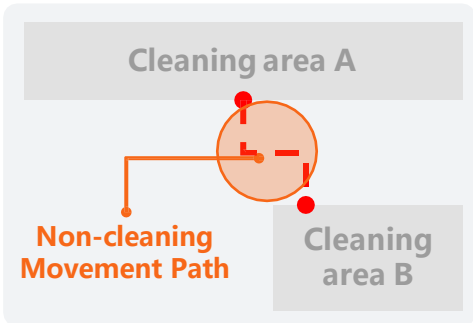
Product Advantage

PC building tool : Mapping a 30,000 square meter area can be accomplished in as little as 25 minutes.

Leveraging INFAN's industry-leading LiDAR mapping technology, coupled with the robot's onboard mapping tools and PC-based mapping assistance tools, we can efficiently establish maps of areas as large as 30,000 square meters. This streamlined mapping process is more convenient, time-saving, faster, less prone to lag, and more stable, resulting in a 50% increase in mapping efficiency.

Implementation of the map : 20min

Optimization of maps : 2min


Map generation : 3min

*Test data in an open field

Product Advantage

Scheduled automatic cleaning tasks enable true unmanned cleaning operations

You can automate scheduling tasks using the robot's built-in software, allowing you to specify cleaning areas, coverage, time, mode, frequency of cleaning cycles, duration, and more. During task execution, in the event of urgent water or power needs, predefined workstations, mobile water stations, charging docks, etc., can be utilized for temporary recharging, ensuring smooth completion of tasks.
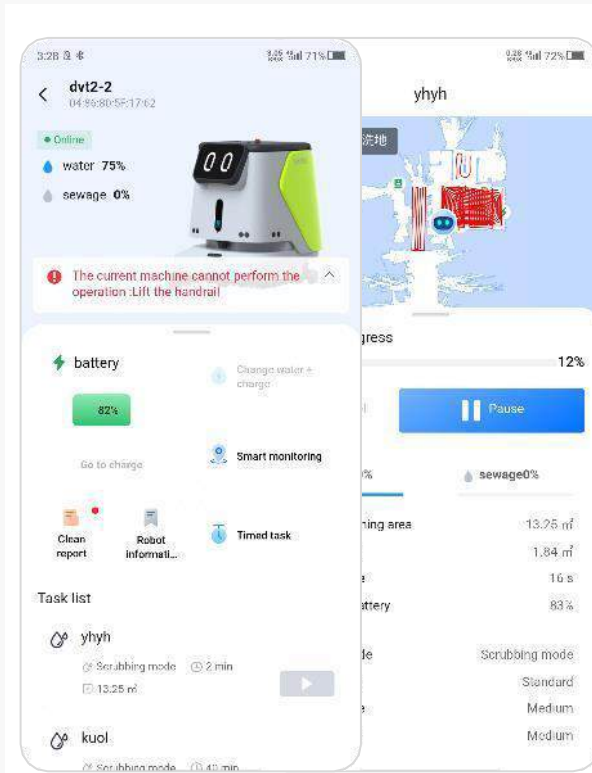

Remote Cleaning

During busy cleaning periods, in case of sudden floor cleaning requirements, you can remotely call the robot to the designated area for cleaning tasks using PUDULINK. Additionally, real-time monitoring of the cleaning status is possible.

Night cleaning

During non-business hours, the robot follows pre-set scheduled tasks to clean designated areas, reducing cleaning costs during off-hours, increasing cleaning frequency, and ensuring cleaning quality.
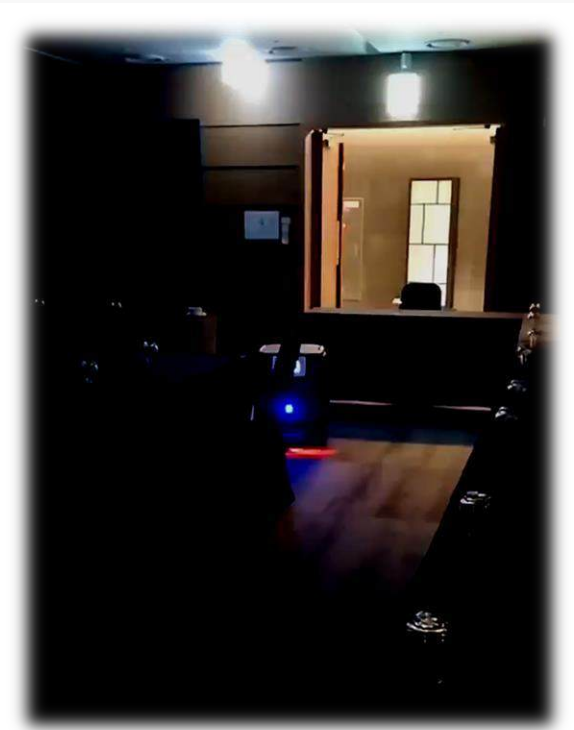
URL：
https://drive.google.com/file/d/1LhOx9LgHp25ozOsXt1W
cuR74HvAWVHZ7/view?usp=drive_link

Product Advantage

INFAN OS: Openness of a single system function

We offer API interfaces for the robot's fundamental features such as point-to-point movement, path cruising, and customizable UI, catering to the needs of developers for secondary deep development of the robot.
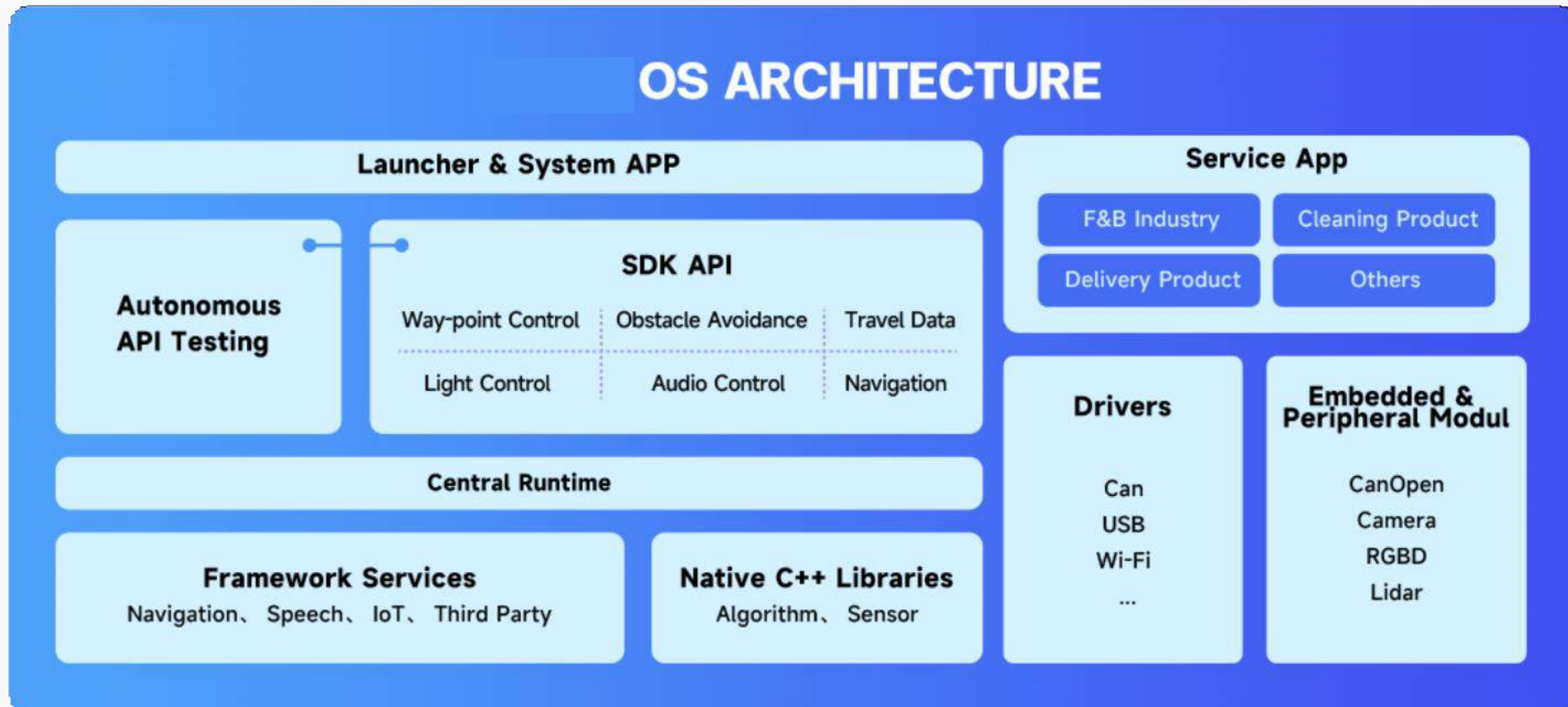
Product Advantage

Open API : open mission-level and data privacy management

We support the integration of INFAN cloud platform API interfaces or the deployment of private API interfaces for local access. This enables seamless integration with third-party digital management systems, enhancing customer efficiency in robot management and utilization while ensuring the privacy of cleaning data. This approach accelerates the digitization of cleaning processes for businesses.

Available data and services

- Task API
- Workstation API
- Map API
- Motion State API
- Cleaning Data API
- Warning API
- ... ...

INFAN Cloud API

Machine data is connected to customer systems through INFAN cloud, supporting additional services such as INFANLINK and the Merchant Management Platform.

600BOT → INFAN Cloud → Third-party system
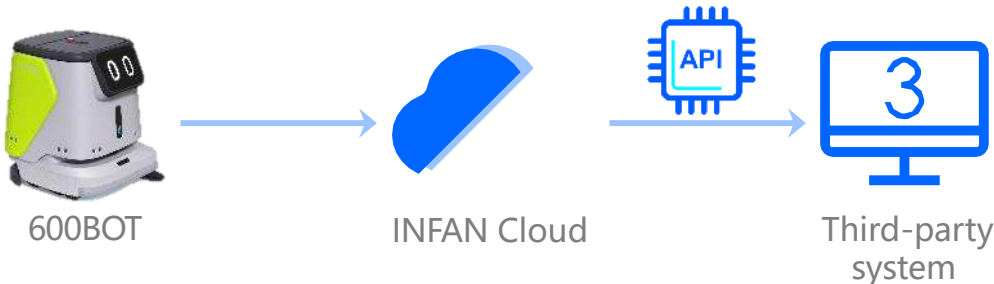
Local API

Data transmission is limited to communication between the customer system and the robot itself, enhancing privacy protection. It does not involve the use of additional services like INFANLINK or the Merchant Management Platform.

600BOT → Third-party system
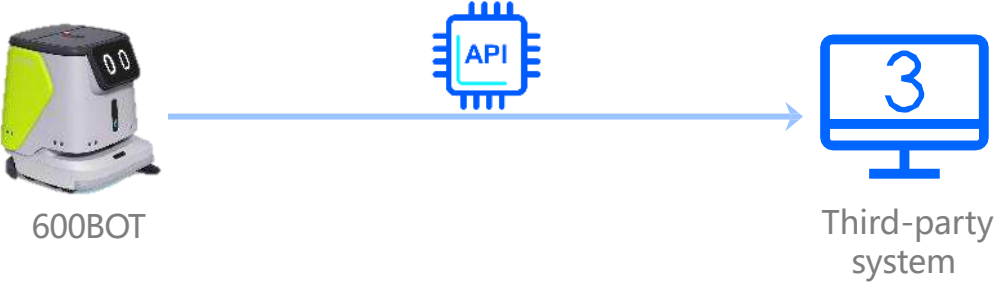
Product Advantage

IoT - Fully automated cleaning requirements across regions

When cleaning across different areas, the robot can automatically enter the target area through gates or utilize elevators to quickly reach specified floors. After completing the cleaning, the robot can return to the original area thr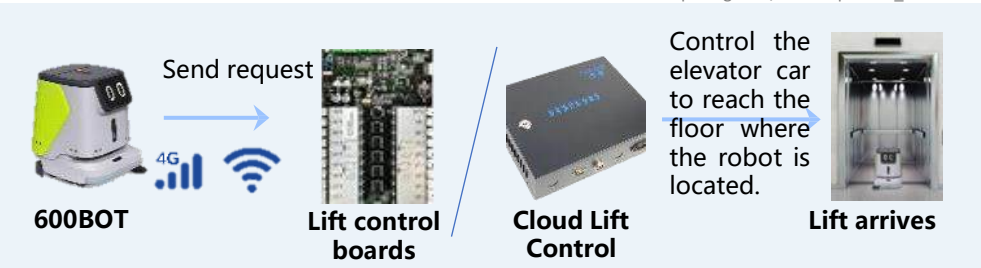ough the gates, facilitating efficient cleaning operations. This method not only enhances work efficiency but also reduces the risk of cross-contamination during the cleaning process.

Automatic Lift Riding

Robot automatically rides the lift for cross-floor cleaning:
Method 1：Install elevator control hardware IoT modules.
Method 2：Cloud-based elevator control eliminates the need for on-site deployment or modifications.

URL：https://drive.google.com/file/d/1C9kbB-xZc1t5PQlNL6CH4Np-87SgHZ76/view?usp=drive_link

600BOT → Send request → 4G / WiFi → **Lift control boards** → **Cloud Lift Control** → Control the elevator car to reach the floor where the robot is located. → **Lift arrives**

Automatic Gate Passing

Robot automatically pass through gates, motorized doors, roller shutters, etc. within the scene.

600BOT → Send request → Bluetooth → **Gate control** (board) → Sending door opening commands → **door opener** → Control door opening → **Gates/Motorised Gates...**
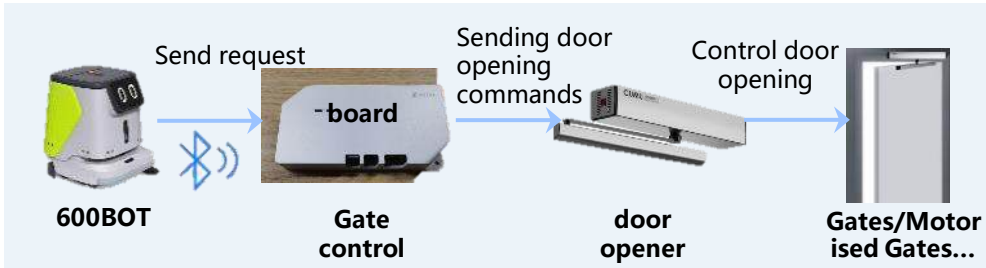
Product Advantage

Peripheral Accessories-Expansion of Multiple Scenario-based Uses

Users can connect various peripheral devices, such as flashing lights, cameras, foggers, and scent dispensers, to the power outlet provided by the robot. This design enhances the robot's flexibility, enabling it to adapt to diverse work environments and task requirements. It increases the versatility and practicality of its applications, allowing for a wider range of functionalities and uses.

1

Flashlight • optional

To provide the robot with a comprehensive audiovisual interaction system, the 600BOT will activate flashlights or a buzzer/speaker during moving. This serves as a reminder to prevent collisions with people, enhancing safety during operation.

This significantly enhances the alertness function of the 600BOT in customer scenarios, preventing pedestrians from accidentally colliding with the robot, thus improving the safety of human-robot coexistence environments.

2

Camera • self-bought

To accommodate customer-provided camera devices, we offer installation kits and power interfaces, enabling the cameras to be mounted on the 600BOT platform. This facilitates environmental monitoring and recording, enhancing surveillance capabilities.

It can achieve remote environmental monitoring and driving record functions, meeting customer safety monitoring needs and providing evidence for liability determination in unforeseen circumstances.

2024

Product Advantage

E-Management

Clean Management Platform (PC)

1. Digital Cleaning Dashboard with BI View

Real-time digital presentation of cleaning processes and results, efficiency statistics, detailed energy consumption, information, and cleaning reports.

2. Multi-Robot Online Management

Statistics on robot task and peak workload periods

3. Fault Information Collection/Statistical Analysis

An intelligent cloud-based system supports remote notifications to maintenance personnel in case of robot malfunction or maintenance needs, providing real-time updates on the robot's status and location to ensure prompt on-site resolution.

4. Export of Comprehensive Cleaning Data

Assist operations managers in conducting in-depth analysis and continuously optimizing business processes based on evidence, aiming to achieve the most optimal and rational workflow models.

Product Advantage

E-Management : Clean Management Platform (APP)

01 Remote task management
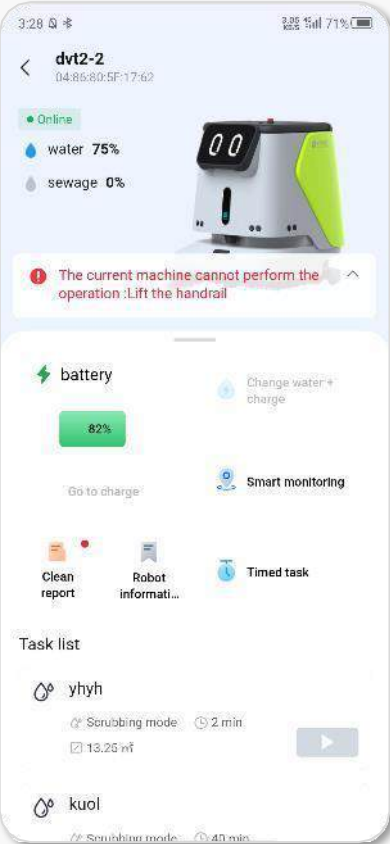
02 Remote task status monitoring
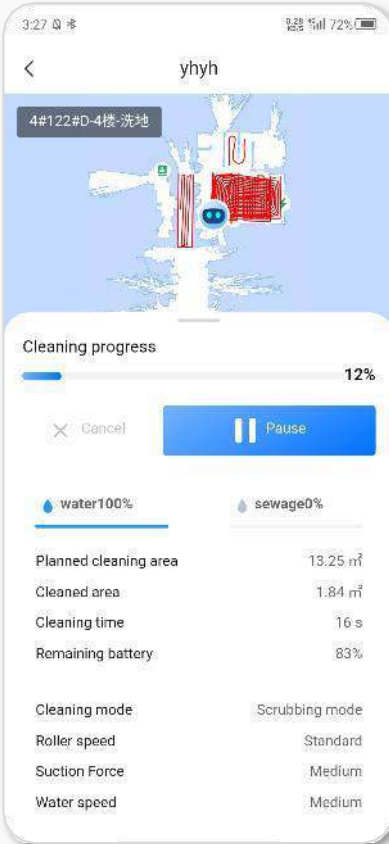
03 Multi-robot status

04 Fault slarm notification

05 Multi-dimensional clean datagrams
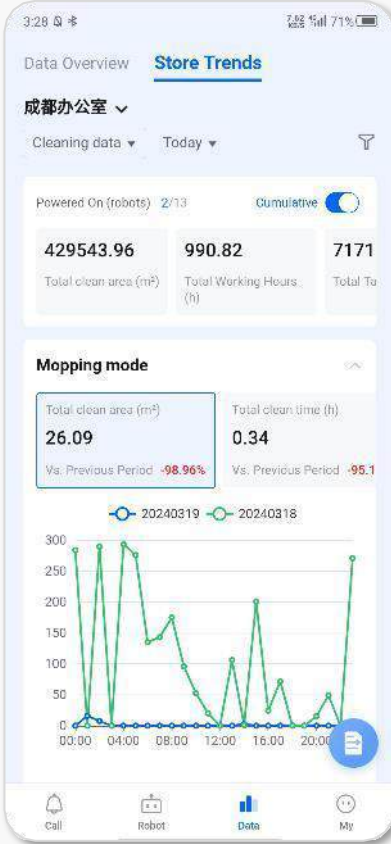
03
Cleaning Solutions

Applied scenarios

Suitable for various scenarios in departmental food supermarkets

Applicable to common floor materials in departmental food supermarkets, such as tiles, marble, wooden flooring, etc.

Food and beverage area   **The fresh goods area**   **General merchandise area**

Configuration Recommodation

The 600BOT has a cleaning coverage of 2000-3000 m² per session and can complete three cleaning sessions per day. Therefore, the 600BOT can cover a total cleaning area of 6000-9000 m² per day.

In a supermarket with an actual area of 7,000 m², the area requiring frequent floor cleaning is approximately 2,500 m². Under traditional methods, floor cleaning is done once daily, whereas with a combination of manual la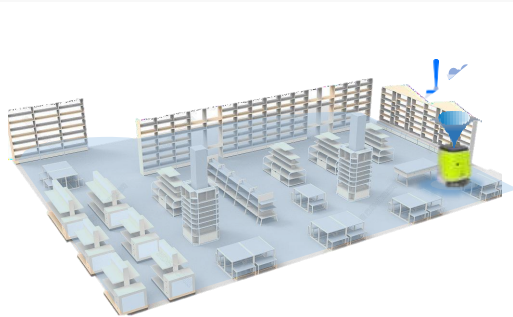bor and the 600BOT, cleaning frequency can increase from once to three times. This reduces the duration of intensive and complex floor cleaning by 19 hours, allowing cleaning personnel to focus more on cleaning easily overlooked areas such as shelves and refrigerators.

Working mode: Floor washing

Working hours: 0:00-3:00, 7:00-10:00

Duration: 3.5 hours per session

Working area: Full Area Cleaning material: tile

Cleaning area: 2,100㎡

Working mode: Charging

Working hours: 03:15-06:45,

10:15-13:45, 20:30-0:00

Charging time: 3.5 hours per session

 Work area: Charging

station/workstation

Working mode: Sweeping

Working hours: 17:15-20:15

Duration: 3.5 hours pe session

Working area: Full Area Cleaning

Floor material: tile

Cleaning area: 2,100㎡

Quick Changeover

Working mode: itinerant washing

Working hours: 14:00-16:40

Duration: 2.4 hours per session

Working area: **fresh good area, cashier entrance and other high-flow areas**

Floor material: tile

Clean area: 1,680㎡

2024

7*24h Unattended cleaning solution

IoT + INFAN Cloud Platform+ Infanlink - Software and hardware integration ecology for true unattended cleaning

Through Infanlink/Cloud Platform, you can set up automated task schedules for the 600BOT. During task execution, in case of urgent water or electricity issues, the 600BOT can pause and recharge at designated stations such as workstations, mobile water stations, or charging docks, ensuring smooth completion of tasks.

IoT technology enables the 600BOT to navigate freely in different areas, eliminating the challenge of restricted movement. It can seamlessly travel to wherever it needs to clean.

Infanlink & Infan Cloud platform

Automated task scheduling & remote management

Gate connection

Interzone cleaning

Mobile water Station & Charging pile

Automatic drainage and charging

No water system modification required

Workstation

Automatic drainage and charging

Spotless, Comprehensive Cleaning Solution

Solution for blind spots and missed areas in supermarkets

In supermarkets, there are shelves and displays of various sizes, often with suspended areas underneath where dust tends to accumulate, affecting the overall cleanliness of the environment.

Area: Below shelves/freezers/other hanging display shelves

Cleaning method: Cleaning staff often crouch on the floor to manually scrub or wipe the underside of shelves using small brushes or towels.

Cleaning frequency: every half a month

Back pain + low frequency + low efficiency

Cleaning mode: Long edge brush + sweep - vacuum-mop mode

Cleaning method: A long-edge brush is used to sweep dust and debris from underneath the shelves, directing them beneath the robot. The rolling brush then performs cleaning underneath, while the vacuum function effectively collects the dust into the dust box.

Cleaning frequency: 2 times per day

The numerous gaps are hard to clean.

Area: Small square brick floor

Cleaning method: Cleaning staff use a mop to clean the floor/ Cleaning staff use a floor scrubber to clean the small square tile areas.

Cleaning frequency: daily

Cleaning mode: floor washing mode

Cleaning method: Instantly infusing floors with revitalizing water, the high-speed rotating brush effortlessly removes stains, while the final water suction ensures prompt collection of floor wastewater without any residue left behind.

Cleaning frequency: 2 times per day

Special scenarios fixed point cleaning scheme

Reducing safety risks caused by slippery floors

In the supermarket fresh produce area, the entrance and exit can become slippery during rainy days, increasing the risk of customers slipping and falling. This poses a high safety risk.

Area: entrance and exit

Cleaning method: In rainy weather, floor carpets are laid to absorb excess water. Cleaning staff conduct frequent patrols to manually mop the floor and remove standing water.

Cleaning tools: mops, squeegees, buckets, warning signs, etc.

Area: Fresh good area

Cleaning method: Cleaning staff clean the floor twice a day using squeegees and mops to remove standing water.

Cleaning tools: mops, squeegees, buckets, warning signs, etc.

"Clean as you go" mode can quickly wash and dry the floor, reducing the occurrence rate of accidents.

Area:

Entrance & Fresh Produce Section

Cleaning method: The 600BOT conducts scheduled patrols for fixed areas, suctioning away excess water from the floor.

Cleaning mode: Floor washing mode/water suction mode

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Customized skin that matches the brand image

Customized exterior designs help establish a friendly image for the robot, enhancing brand consistency

Santa Claus series	Waiter series	Cleaner series
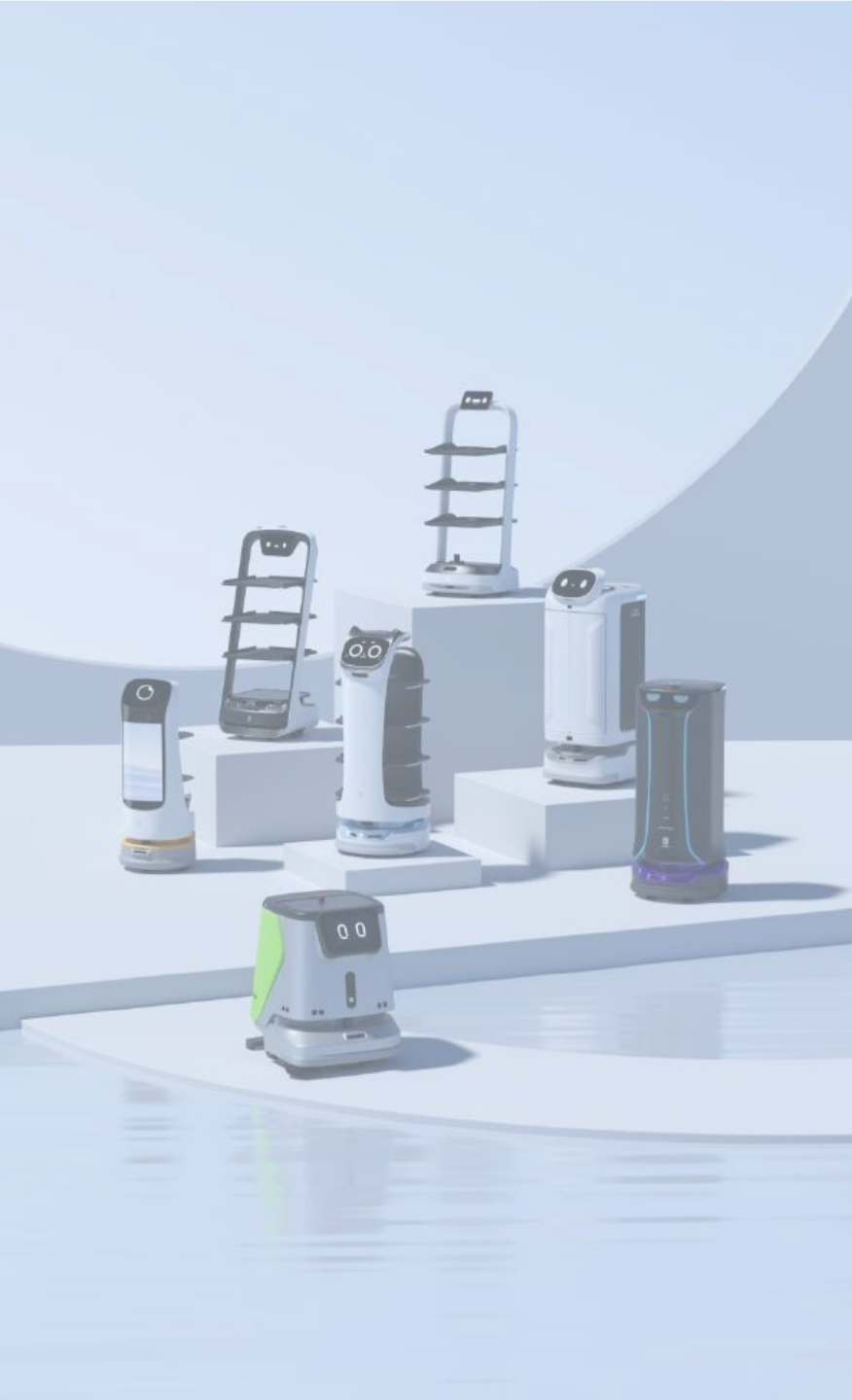
04
Successful Cases

Customer Background

The Top 3 Electronics Retailer In Europe

This brand's customers have over 10,000 retail stores globally, spanning across more than two-digit countries and regions.

Location	**Size**	**Cleaning staffs**	**Cleaning mode**	**Open hours**
Germany	7,000 m² (75,347 sqft	2 people cleaning once a day	The third-party cleaning company	10:00-19:00

Applied scenarios ------>	**Configuration** ------>	**Cleaning mode**

Short wool carpet · Wood floor · Tile · Cement floor

1 for Vacuuming & 1 for Scrubbing

2 x 600BOT & 1 Charging Station

1 600BOT for Sweep-vacuum-mop mode: Vacuuming short-pile carpet areas twice a day, with a full area sweep and suction at noon.

1 600BOT for floor washing mode: Washing non-short-pile carpet areas twice a day.

1 cleaner: Cleaning display shelves, etc., 2-3 times per week.

Actual applied scenarios

Automated cleaning for higher cleaning standards and efficiency

Rainy day, gate area cleaning

Planning cleaning paths autonomously

Narrow area cleaning

Multiple floor material cleaning

Comparison of scrubbing effect

Man-Robot Collaboration For One Week

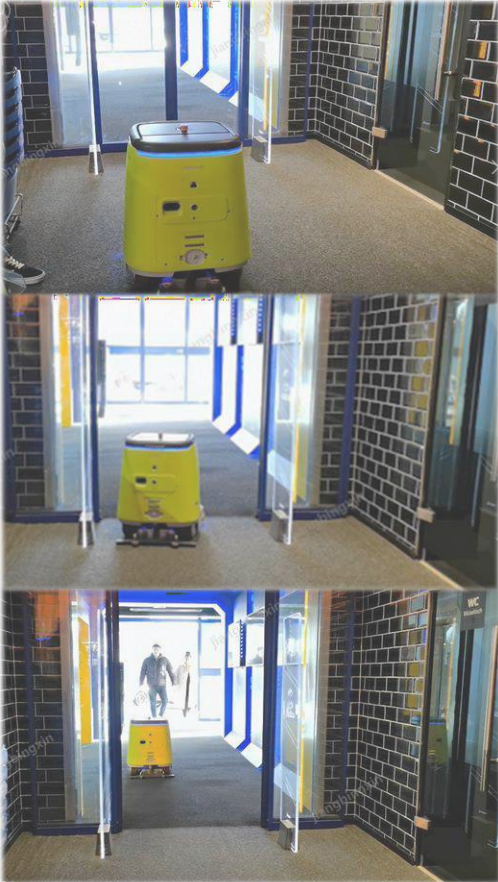## Improving cleaning frequency during non-business hours and reducing cleaning costs

Customers can schedule cleaning tasks, allowing the 600BOT to maintain its original cleaning process while increasing cleaning frequency during midnight and early morning hours. This automated cleaning process provides greater peace of mind. Additionally, outsourcing cleaning staff's cleaning frequency has been reduced from seven times per week to three times per week, resulting in reduced cleaning costs.

	Wet cleaning after shelves are loaded during working hours	**Dry cleaning in non-peak hours during working hours**	**Deep wet cleaning during non-working hours**

	01:00	07:00	10:00	13:00	14:30	19:00	22:00	Next day 01:00
Monday		Scrubbing · Basic cleaning		Sweeping			Scrubbing	
Tuesday		Scrubbing		Sweeping			**Scrubbing**	
Wednesday		Scrubbing · Basic cleaning		Sweeping			**Scrubbing**	
Thursday		Scrubbing		Sweeping			**Scrubbing**	
Friday		Scrubbing · Basic cleaning		Sweeping			**Scrubbing**	
Saturday		Scrubbing		Sweeping			**Scrubbing**	
Sunday		Scrubbing		Sweeping			**Scrubbing**	

2024

One Day Task Schedule Of 600B0T

Automated cleaning for higher cleaning standards and efficiency
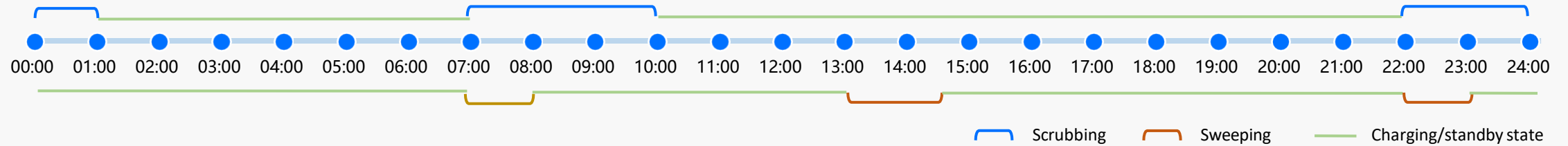
Robot	Cleaning mode	Time slot	Floor material	Cleaning area		Working duration
	Scrubbing	07:00-10:00	Wood floor, Tile	Full Area Cleaning	2,100㎡	3h
	Charging					
Scrubbing 600BOT	Scrubbing	22:00-23:15	Wood floor, Tile	Full Area Cleaning	2,100㎡	3h
	Charging					
	Vacuuming	07:00-08:00	Short wool carpet	Carpet area	700㎡	1h
	Charging					
Sweeping 600BOT	Sweeping	13:00-14:30	Short wool carpet	Main passageway + secondary passageway cleaning (high traffic area)	1,000㎡	1h30min
	Charging					
	Vacuuming	22:00-23:00	Short wool carpet	Carpet area	700㎡	1h
	Charging					

Note: The figure shows the planned task arrangement, the actual cleaning business may change according to the specific situation of the site.

2024

Scrubbing Data Analysis for a specific week

The 600BOT can reduce heavy floor cleaning work hours for cleaning staff by 51.14 hours per week.

51.14 hours	**35,789.2 ㎡**	**60.22 kw*h**	**264.74 L**
Total scrubbing hours	Total scrubbing area	Cumulative power consumption	Cumulative water consumption

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
Scrubbing area (㎡)	4694.28	4266.2	3290	4405.76	7735.8	6776.8	4620.36
Power Consumption (kw*h)	7.9	7.18	5.54	7.4	13.02	11.4	7.78
Cleaning Duration (h)	6.7	6.1	4.7	6.3	11.06	9.68	6.6
Water Consumption (l)	34.72	31.56	24.34	32.58	57.22	50.14	34.18

Reducing cleaning workload during peak traffic hours

The 600BOT works 1.64 times more on Fridays and weekends compared to regular days.

On Fridays and weekends, supermarket foot traffic is higher, necessitating higher costs for outsourced cleaning staff working overtime on non-business days to ensure cleaning quality and efficiency. Additionall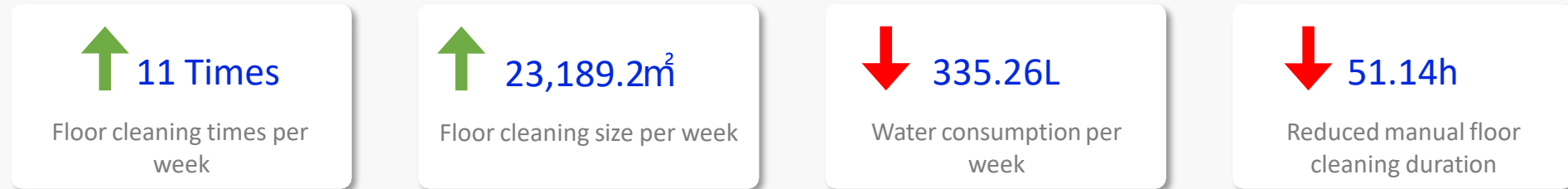y, during peak traffic periods, cleaning staff must exert more effort and focus to ensure the supermarket's cleanliness and hygiene.

- On Fridays, the cleaning area is 1.9 times that of a regular workday, and the cleaning time is 1.8 times longer than a regular workday.
- On weekends, the cleaning area is 1.37 times that of a regular workday, and the cleaning time is 1.29 times longer than a regular workday.

Cleaning Area (m²)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2347.14	2133.1	1646	2202.88	3867.9	3388.4	2310.18

Power Consumption (KW*H) / Cleaning Duration (H)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
3.95	3.59	2.77	3.7	6.51	5.7	3.89
3.35	3.05	2.35	3.15	5.53	4.84	3.3

Water Consumption (L)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
17.36	15.78	12.17	16.29	28.61	25.07	17.09

2024

Comparision between traditional cleaning mode & Intelligent cleaning mode

⬆ **11 Times**

Floor cleaning times per week

⬆ **23,189.2㎡**

Floor cleaning size per week

⬇ **335.26L**

Water consumption per week

⬇ **51.14h**

Reduced manual floor cleaning duration

	Cleaner + Traditional cleaning equipment	Cleaner + CC1
Number of cleaners	2 cleaners	1 cleaner +2 CC1
Cleaning frequency per week	6 times	Cleaner：3times，CC1：14 times
Cleaning duration per week	48 hours	Cleaner：4.5 hours，CC1：66.5 hours
Cleaning size per week	12,600㎡	35,789.2㎡
Water consumption per week	600L	264.74 L

2024

Reducing Cleaning Task Costs

Man-Robot collaboration VS Traditional mode

2 * [robot] **Working everyday** **+** **1** * [worker] **Working times a week** **=** **2** * [worker] **Working everyday**

Starting from the sixth month, the cost of cleaning tasks significantly decreases compared to the original traditional mode.

Chart — € (y-axis) vs Month (x-axis):

Man-Robot collaboration mode:
- 1st: 42,800 €
- 2nd: 44,600 €
- 3rd: 46,400 €
- 4th: 48,200 €
- 5th: 50,000 €
- 6th: 51,800 €
- 7th: 53,600 €
- 8th: 55,400 €
- 9th: 57,200 €
- 10th: 59,000 €
- 11th: 60,800 €
- 12th: 62,600 €

Traditional mode:
- 1st: 9,000 €
- 2nd: 18,000 €
- 3rd: 27,000 €
- 4th: 36,000 €
- 5th: 45,000 €
- 6th: 54,000 €
- 7th: 63,000 €
- 8th: 72,000 €
- 9th: 81,000 €
- 10th: 90,000 €
- 11th: 99,000 €
- 12th: 108,000 €

Monthly Costs   — Man-Robot collaboration mode   — Traditional mode

*The calculation ignores water and electricity bills

2024

ROI

$$\text{ROI} = \frac{\text{Cleaning performance} + (\text{Original monthly cost} - \text{New monthly cost})}{\text{New monthly cost}} = 170\%$$

Man-Robot collaboration mode

Total **1,473**

€37 × 30 days

€24 × 12 days

VS

**Traditional mode**

Total **2,500**

€80 × 24 days

€24 × 30 days

2024

Value

Easier cleaning supervision

✓ Remote monitoring of cleaning quality.
✓ Visual cleaning reports assist management in better monitoring the use of cleaning supplies and equipment, preventing waste and excessive usage.
✓ By optimizing cleaning processes and resource utilization, it is possible to reduce the environmental impact of cleaning and achieve environmental conservation and energy-saving goals.
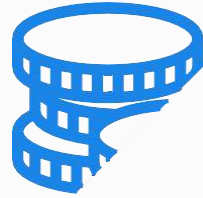
Reduced cleaning cost

✓ Reduce unnecessary water costs by 75%.
✓ Optimize the ratio of cleaning staff to machines, reducing unnecessary third-party service costs.
✓ By optimizing cleaning schedules and task assignments, cleaning costs can be saved, and the efficiency of cleaning work can be improved.

Improved cleaning quality

✓ Robots are not affected by factors such as fatigue, emotions, or personal preferences, ensuring consistent cleaning quality.
✓ Robots can navigate and plan cleaning routes automatically, without needing rest or shift changes, thus ensuring continuous cleaning and improving cleaning efficiency.

Scale Advantage

The world largest commercial service robot manufacturer

Total Sales Quantity

70,000+

70,000+ * units have been sold worldwide

Market Share in All Scenarios

TOP1

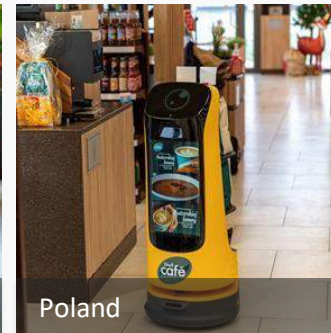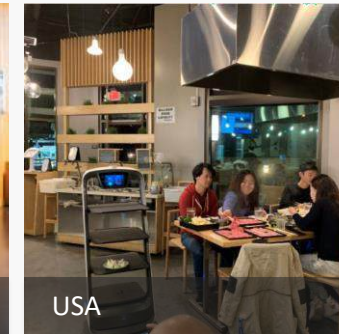The market share in the full range of commercial service robots is No.1

Market Share of the Overseas Catering Industry

>80%

Overseas catering industry's market share > 80%
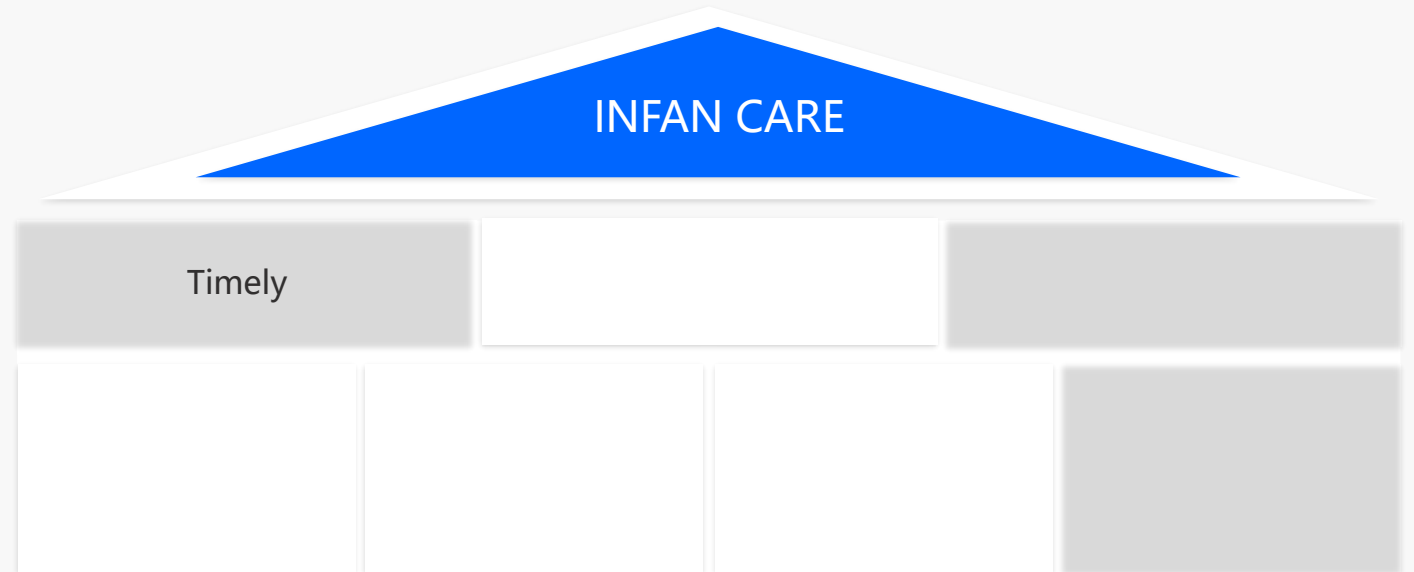
* Relevant statistics as of Dec. 2023

Korea

Australia

USA

Jordan

Switzerland

Poland

China-Shenzhen

China-Xiamen

Malaysia

Japan

China-Hongkong

China-Taiwan

Operation Advantage

Offline Service:

- 1 Year Free Warranty

- 7 × 24 Hours Service

- Local Service & Support

INFAN CARE

Timely

INFAN Robotics has a thorough after-sales support system and humanized after-sales policy as well, whenever it is needed, we are going all out to offer service and reach your satisfaction.

Thank you!

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