

Industry Solution

# Cafeteria Industry



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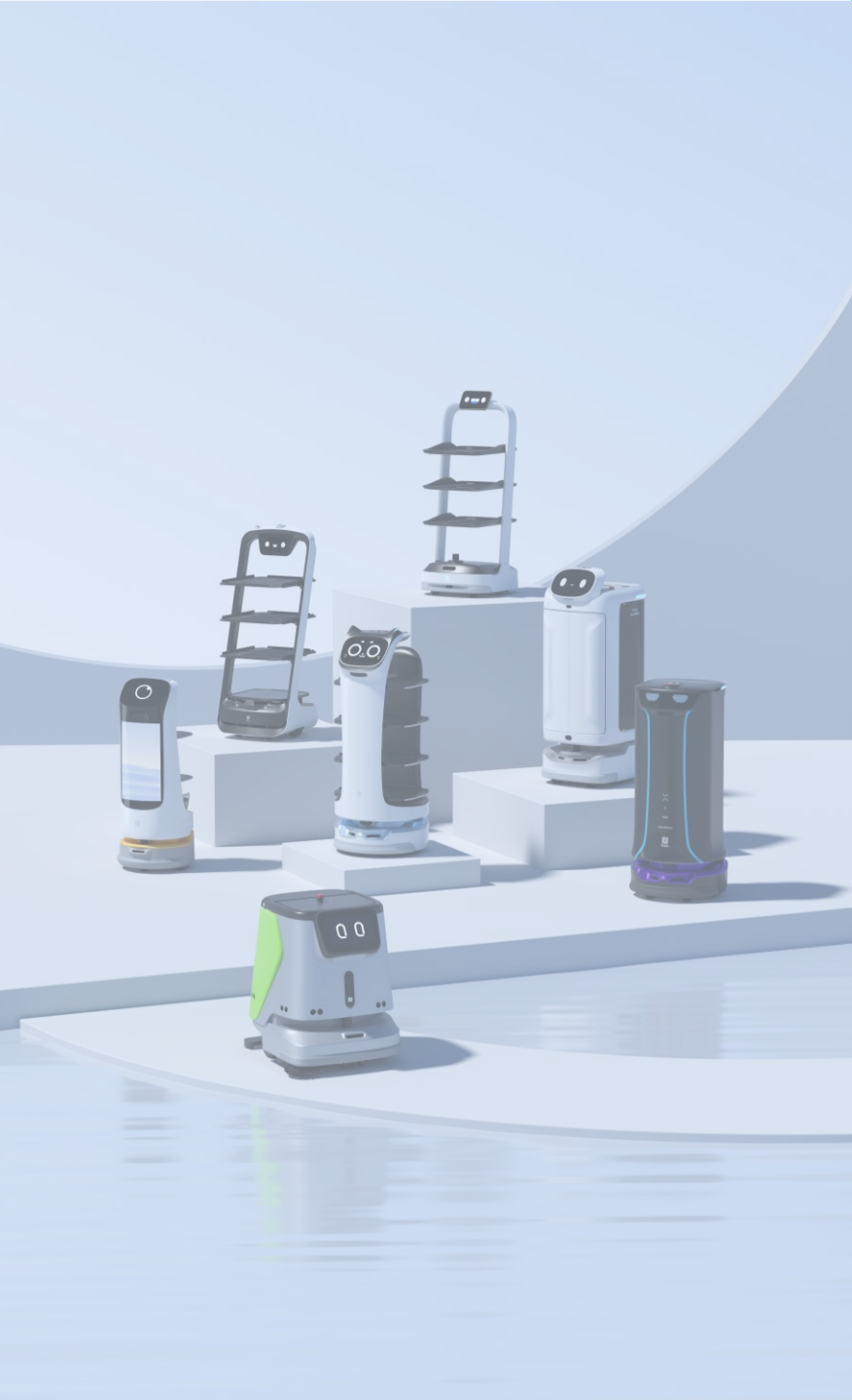
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01

# Industry Overview

# What's the cafeteria?

## Cafeteria:

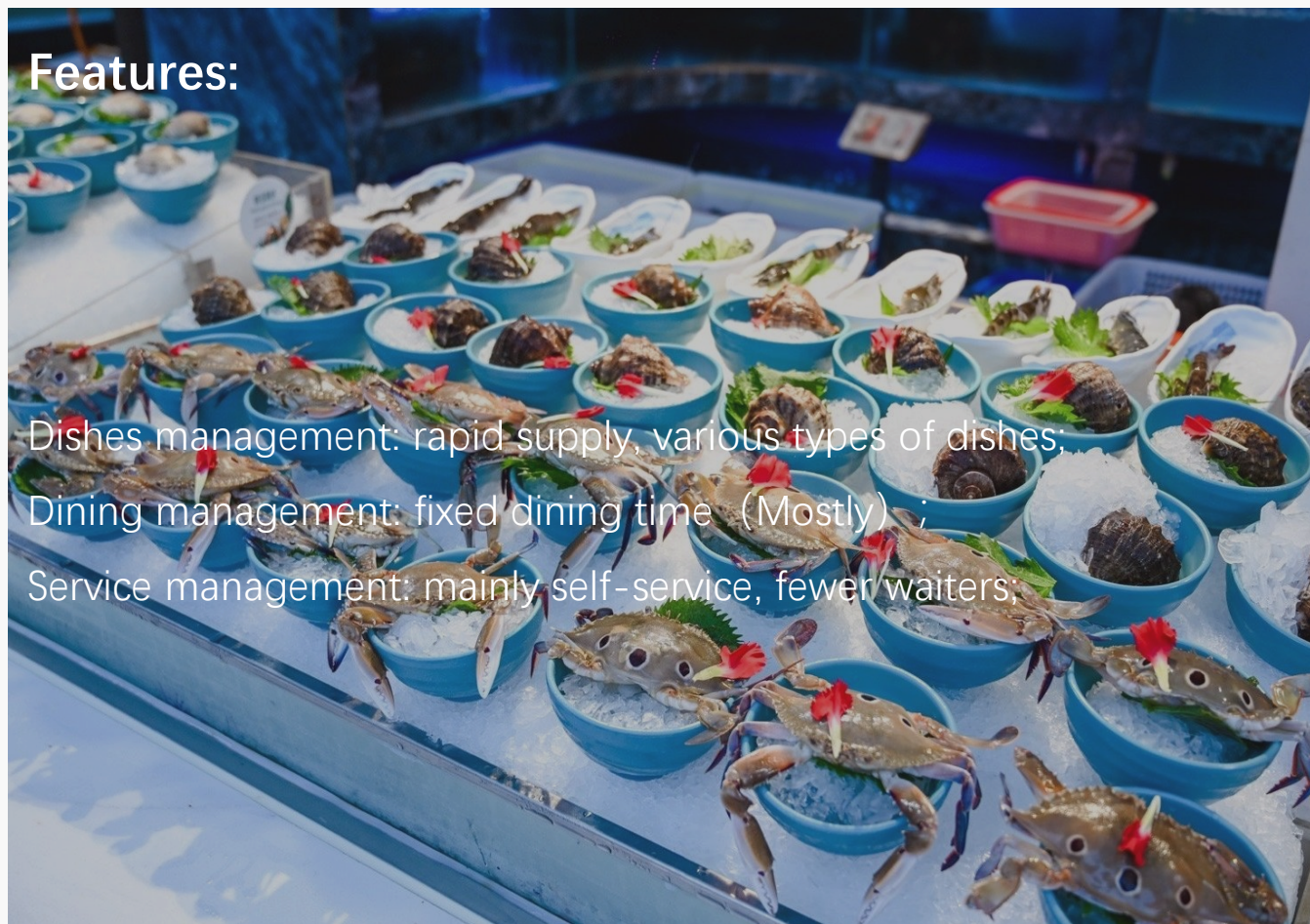
Restaurant where customers choose dishes that suit their own tastes.

## Features:

Dishes management: rapid supply, various types of dishes;

Dining management: fixed dining time (Mostly) ;

Service management: mainly self-service, fewer waiters;





# High Cost

Multiple Dishes

Ingredients Waste

Ingredients Cost

.....

Staffing Shortage

Hourly Wages ↑

Training Cost

.....

Rent

Ads Cost

Utility Bill

.....



30%

Ingredients Costs



30%

Staff Costs



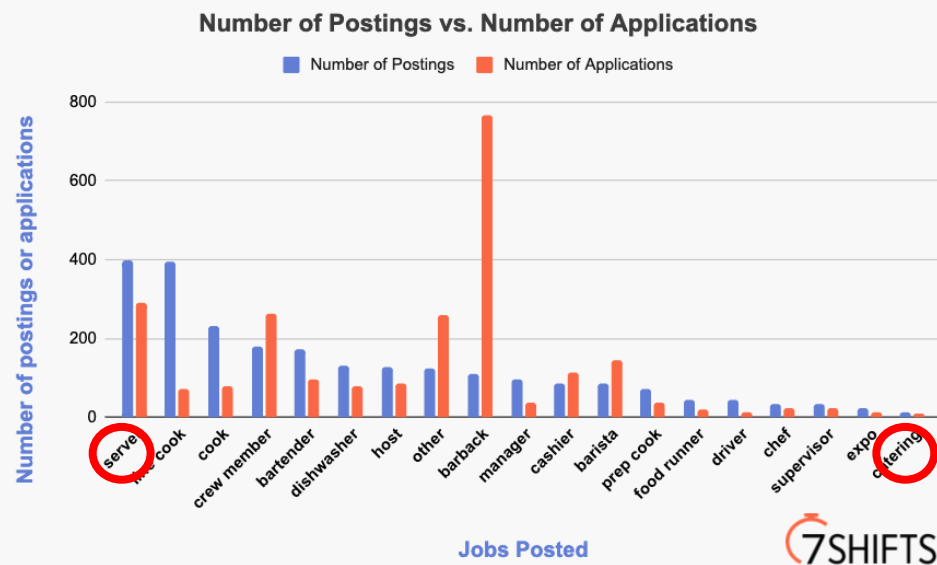
40%

Other Costs



\*According to the U.S. Securities and Exchange Commission website

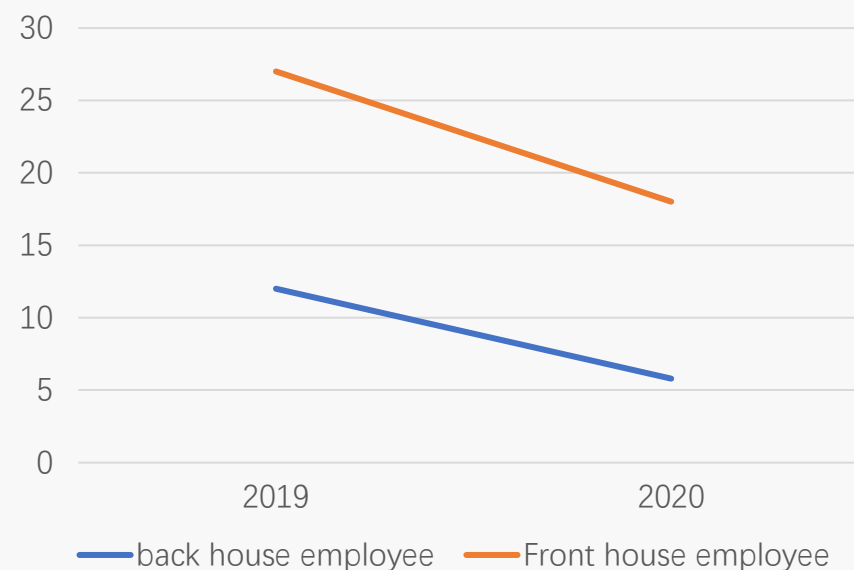
# Staffing Shortage of the cafeteria



\*Restaurant jobs data was sourced from over 2,400 job postings from over 1,800 restaurants. | From 7Shifts

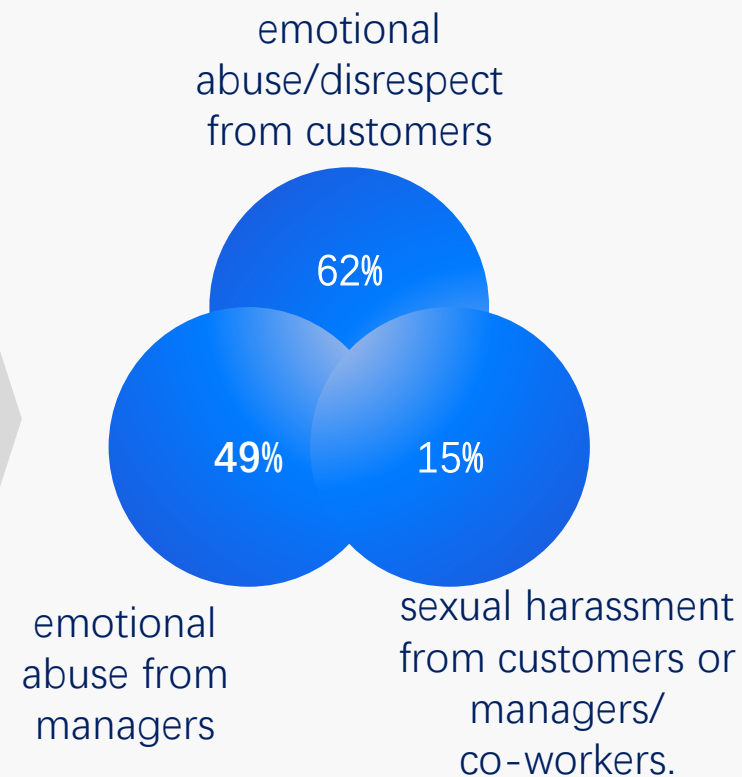
26% of restaurants say they are looking for cooks and line cooks, while 17% are in need of servers.

Full-service concepts are operating with **6.2 fewer** employees in the back of house and **2.8 fewer** staff members in the front of house .



\*According to a report by Black Box Intelligence and Snagajob that includes survey results from over 4,700 former, current and future hourly restaurant workers.

# What makes the staff shortage?



\*According to Black Box/Snagajobs'report .

# Bad user experience

In the first quarter of 2022, customers mentioned short staffing **3 times** more often in their Yelp

reviews than in the year-ago period, according to the restaurant review site.

**Mentions of long waits rose 23%.**

Untimely  
service

Emotional  
service

Long  
waits

Low  
customer  
satisfaction

The customer satisfaction scores for independent and small chain restaurants also dropped this year, **to 80 out of 100, from 81.**

Consumers were less happy with fast-food chains this year compared with 2021 — the sector's score **slipped to 76 out of 100, from 78.**



# Current state of the cafeteria



## Staff Management

Staff have abuse experience from Cafeteria & less of them still want to be a waiter;



## Cost Control

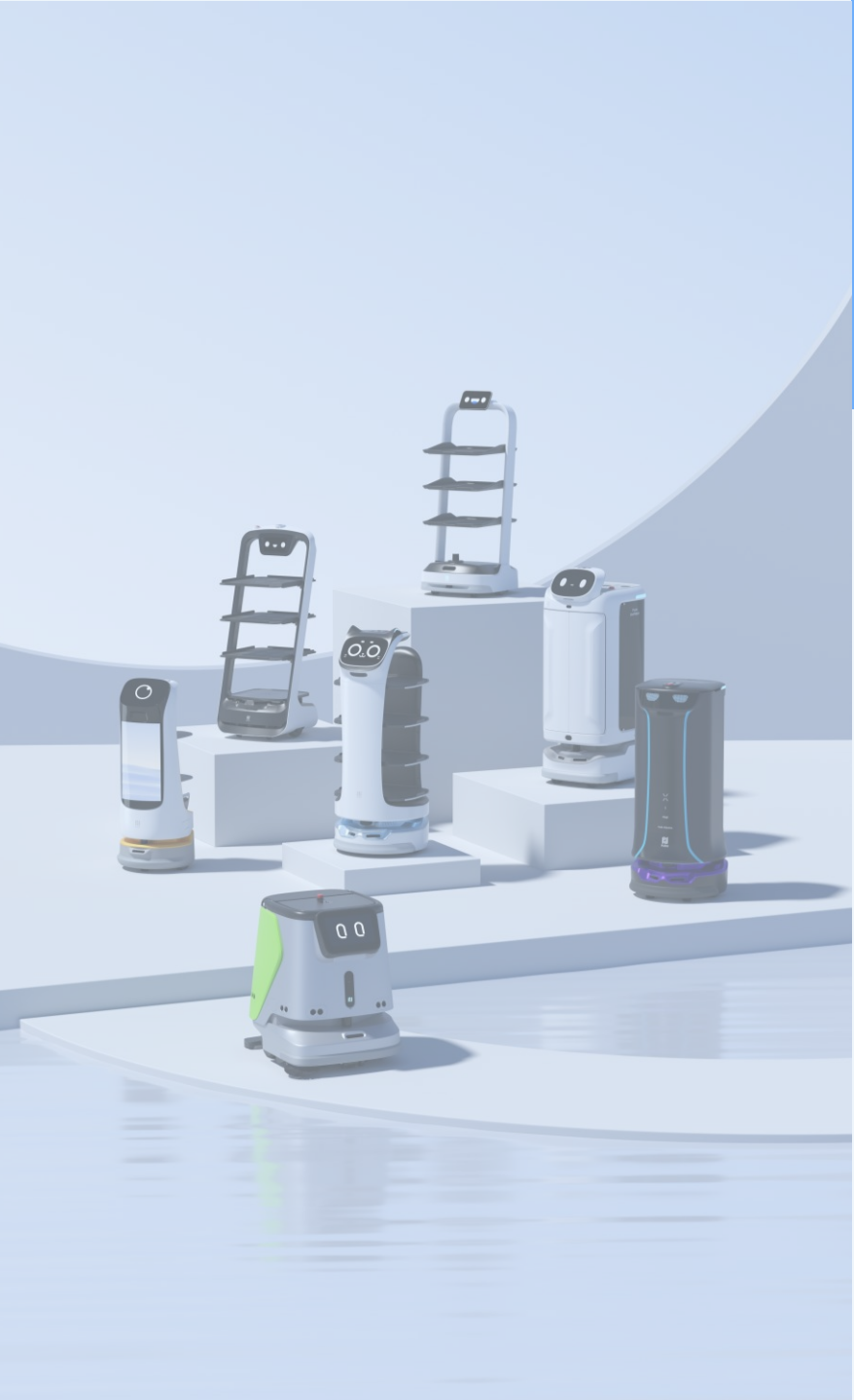
Employee turnover makes recruitment more difficult and training costs increase;



## Service Efficiency

Staff turnover makes customers have bad experience ,Such as : Long waits, Untimely service....





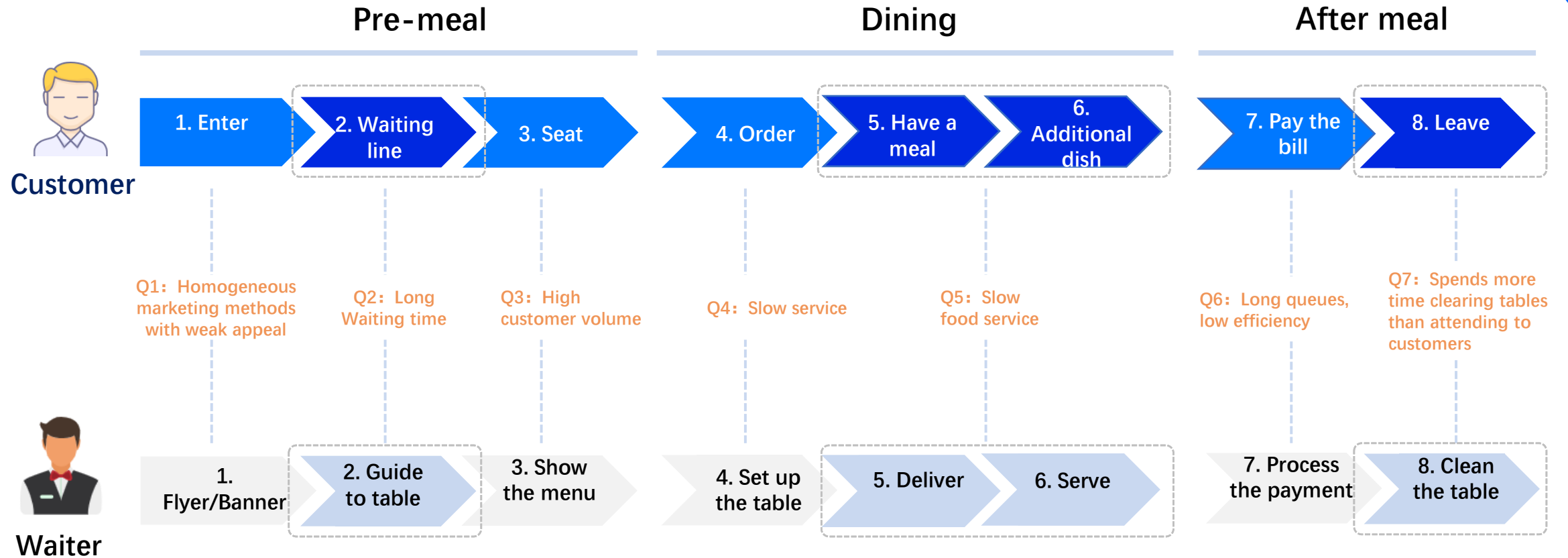
02

# Scenario Solutions

# Intelligent digital cafeteria

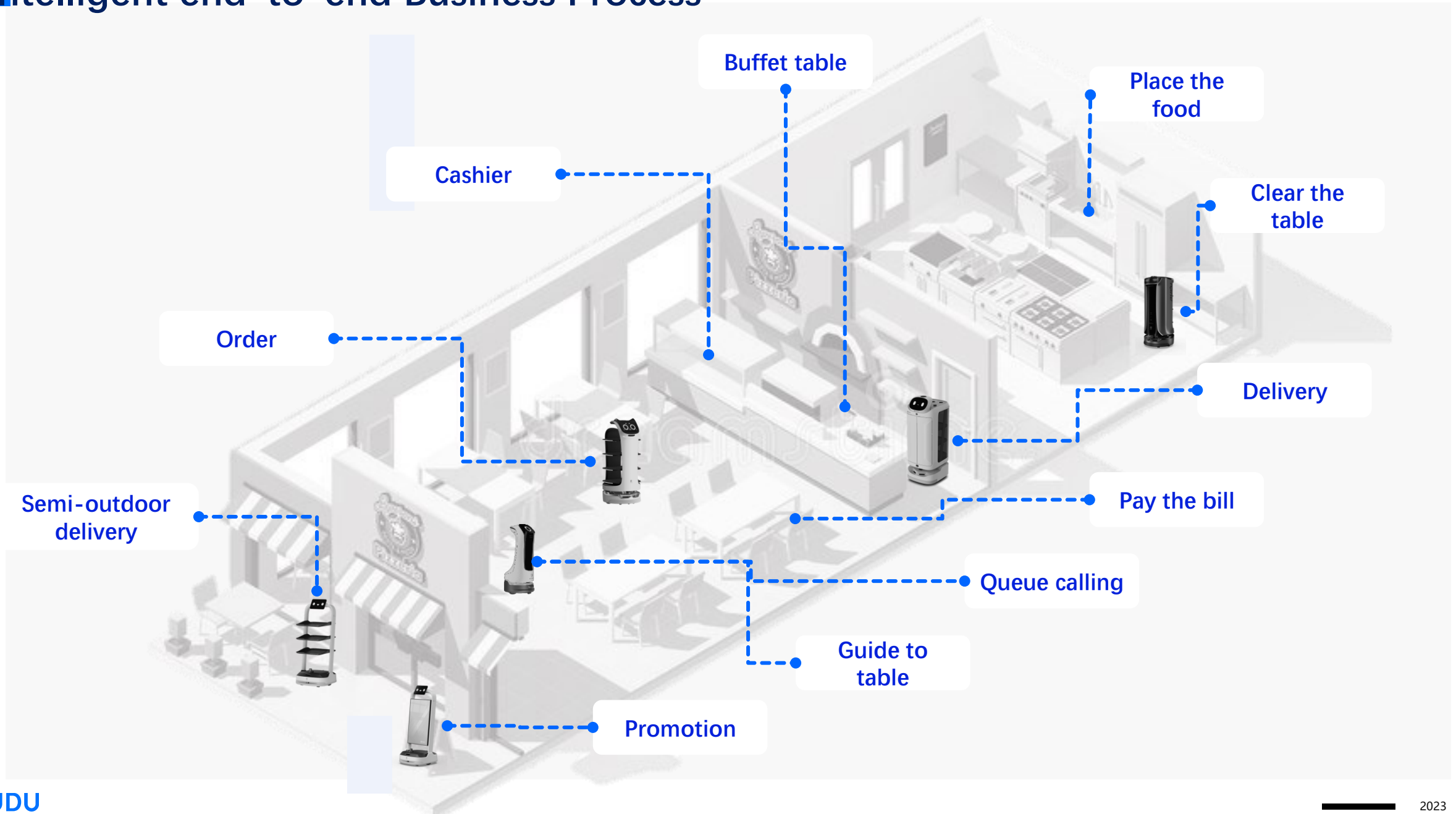


# Scenario scheme 1: Cafeteria Experience Process





# Intelligent end-to-end Business Process

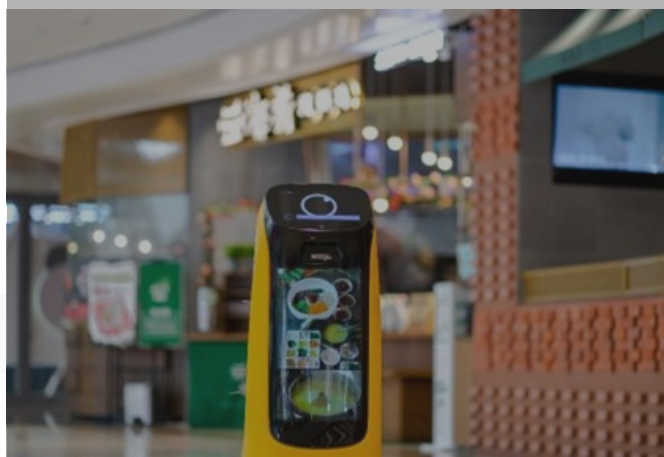
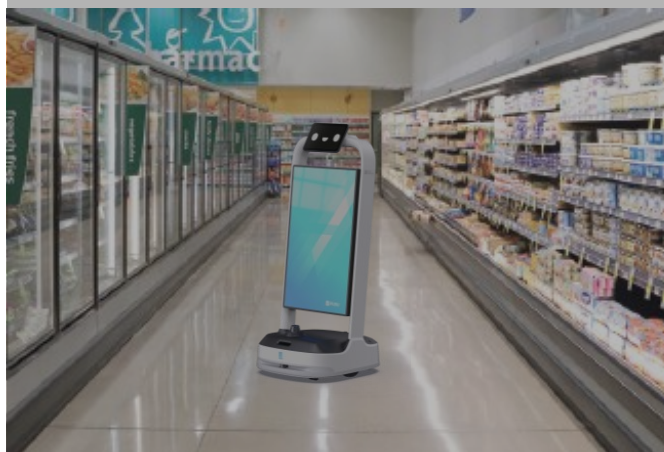




# Pre-meal: Promotion

## Brand new store marketing

Large mobile advertising screens provide cafeteria with a wider range, more high-frequency, more eye-catching, more accurate marketing, so that the store's brand, preferential activities, specialty goods and other products touch more customers, activity conversion rate is further improved.





# Pre-meal : Promotion



## Ketty Bot

18.5" Ads, LCD screen

Better sense of watching

Machine weight	38kg
Battery run time	> 8h (one time)
Speed	Max 1.2m/s
Charging time	4.5h

Adopt intelligent **screen + power amplifier** to achieve light, sight and sound multi-directional surround attraction.

4K



**Built-in advertising screen,**  
From ergonomics, it perfectly matches the comfort of customers when walking.

## PUDUBOT 2

32" Ads, capacitive touch screen

Super large screen, super wide field of view

Machine weight	42kg
Battery run time	8h (one time)
Resolution ratio	Max 1.2m/s
power supply mode	Charging port supply



For different scene modes, the presentation form and **content of the size screen can be customized.**

\* Support audio, video, text, network connection and other rich materials.

# Pre-meal : Promotion

Unlimited duration,unlimited frequency, single daily fee

**5\$**

Mobile + technology, more eye-catching

Remote advertising via the PUDU Cloud

Mobile AD broadcast, full area coverage

Buy once, use forever

**Robot mobile advertising screen**

Attraction

Usability

Coverage rate

Product cost

15s/180 times/day/point position

**32\$**

Display less form, easy to be ignored

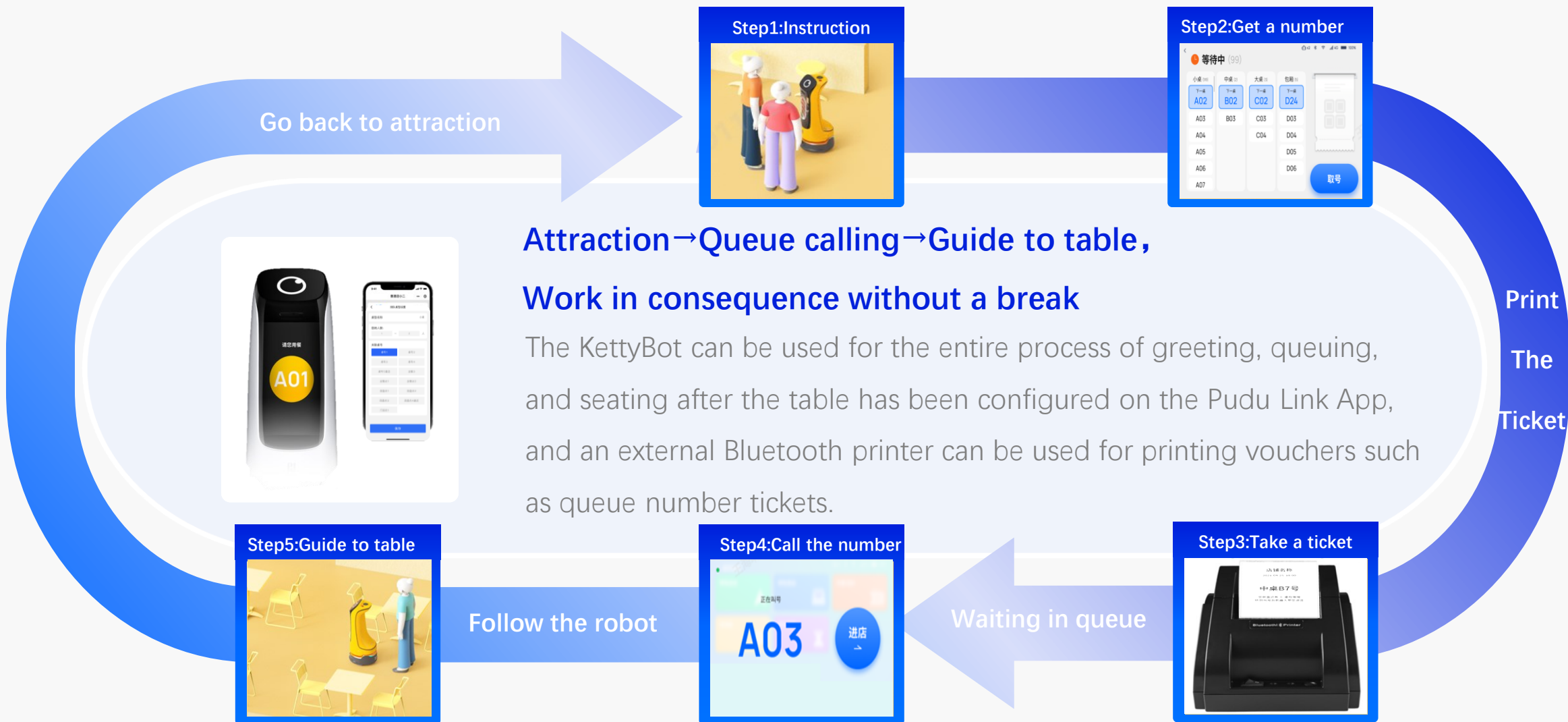
Advertising replacement requires manual field operation, time consuming

Fixed display area is about 5m<sup>2</sup>

A promotion requires a large number of advertising screens

**Traditional fixed advertising screen**

# Pre-meal : Queue calling + Guide to table



# Dining : Seat and Order

## How to integrate ?



Video URL: [https://drive.google.com/file/d/1XqPMc5u3BRxDZTKXXxurgyP-Yc\\_uGb3x/view?usp=share\\_link](https://drive.google.com/file/d/1XqPMc5u3BRxDZTKXXxurgyP-Yc_uGb3x/view?usp=share_link)

- 01 3<sup>rd</sup> party APP development
- 02 Install the 3<sup>rd</sup> party APP in Ketty
- 03 Configuration

Click me to start ordering~



Order meals after guiding to the seat



3<sup>rd</sup> party food-ordering apps





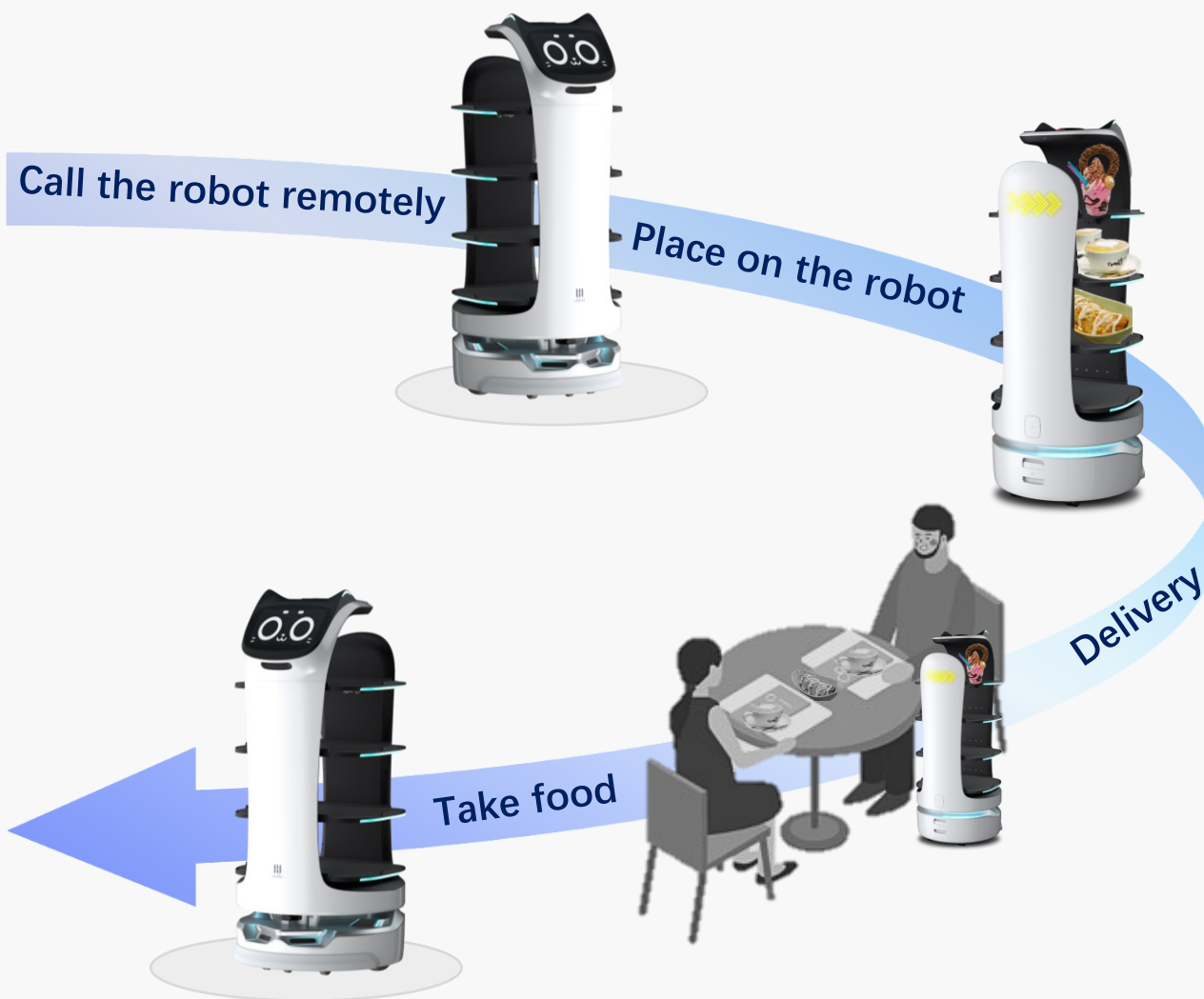
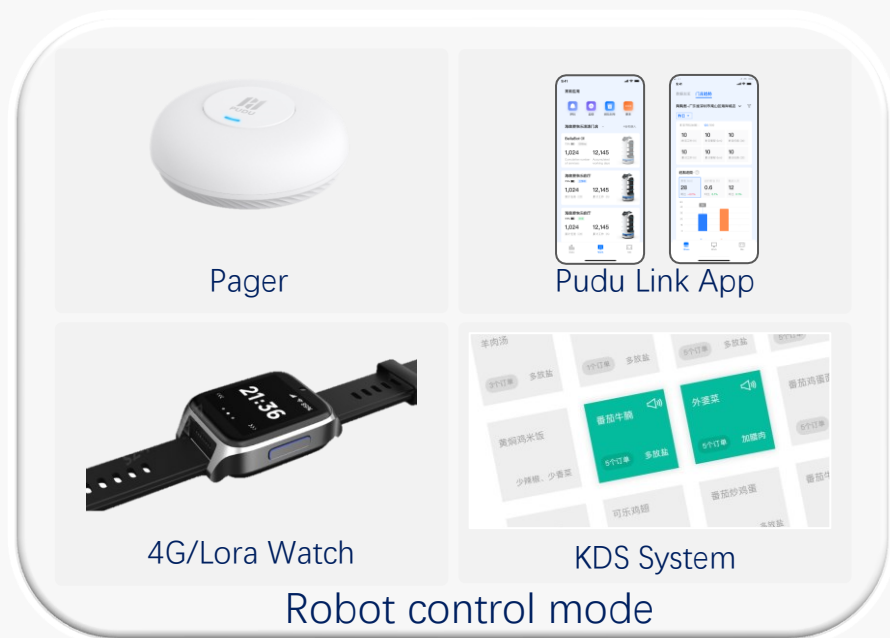
# Dining: Delivery

Human-Robot Collaboration: Driving Quality and Efficiency in Service



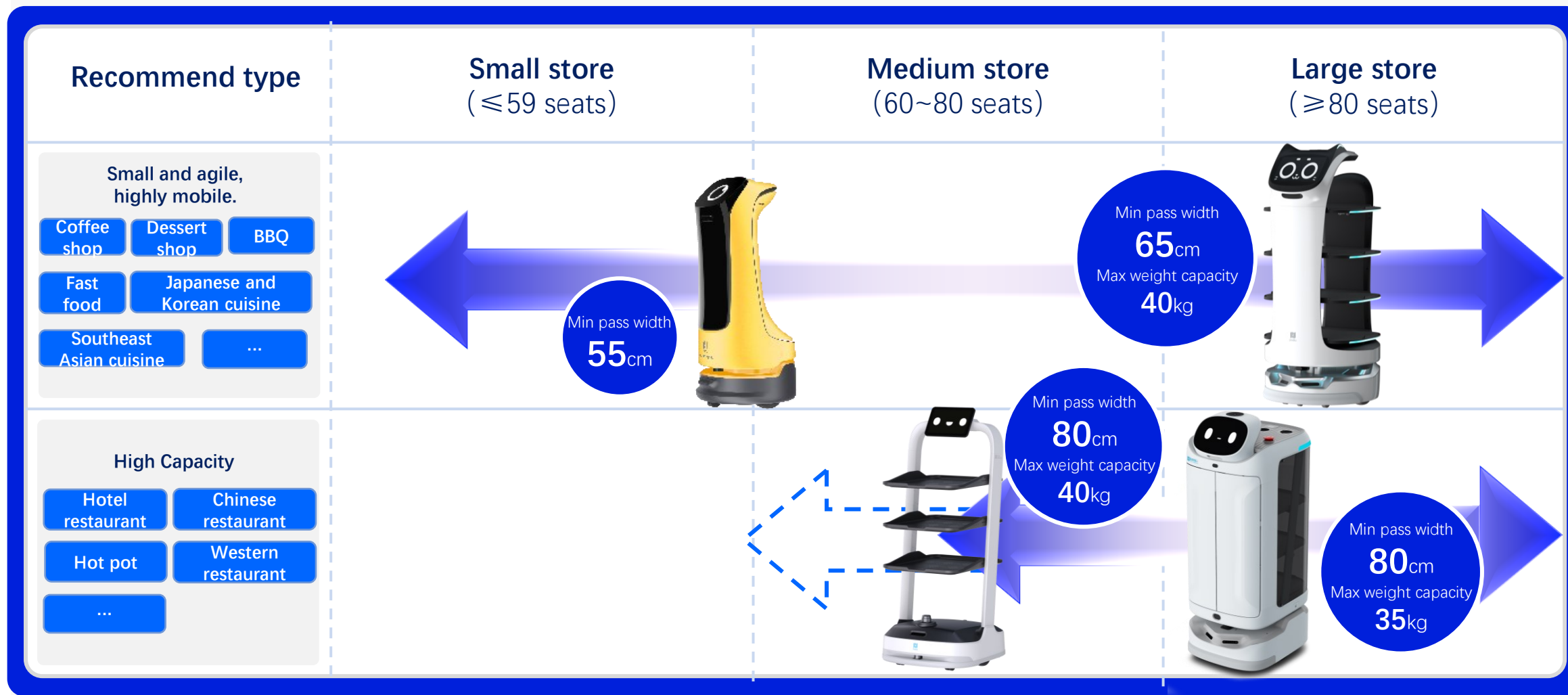


# Dining: Delivery



# Dining: Delivery

Meets Almost all Types of Catering



# After-meal : Cashier & Pay the bill

Type	Description	Robot Model
SDK	Through SDK can call the robot to move from point A to point B remotely	Pudu、Bella、Ketty、Hola
Pudu OS	Support to re-customize the whole process of the robot APP	Pudu2、Bella

Support users with development capabilities for interconnection





# Dish recycling present situation

## High labor cost

Labor costs account for over **50%** of the overall operating costs while dish recycling occupies over **20%** of the labor costs and showing an increasing trend

## Working intensity

Manual delivery with long time and high working intensity. According to statistics, the load of single recycling delivery can reach **15kg**, and everyday delivery exceeds **200** of recycling boxes with the cumulative weight exceeds **1000kg**

## Oil pollution

High oil pollution scenario ,recycling process hard to avoid **secondary pollution**, which affects the dining experience

## Response speed

Pursuing the ultimate service experience poses higher challenges to recycling efficiency. The task of recycling **starts at random locations** which requires a very short response time that is extremely difficult





# Whole meal : Dish Recycle



## Multi-functional: 5 Modes Switchable with One Click

In order to adapt to different scenarios robot provides a variety of modes to choose from.

### Mode.1:

#### Manual mode

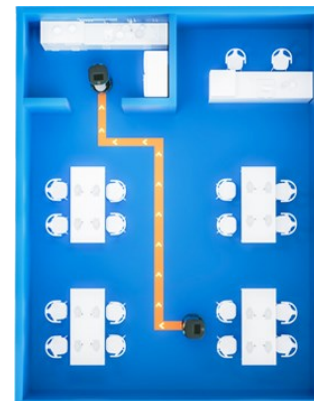
Manually edit the tasks, can click the screen, or press the pause button to modify the tasks at any time.



### Mode.2:

#### Go Dishwashing

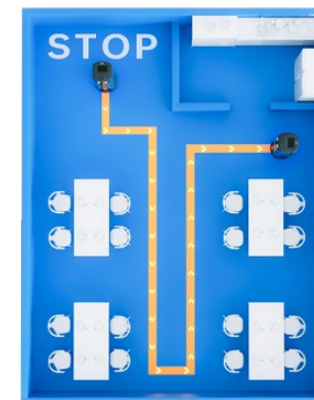
Go back to the dishwashing area



### Mode.3:

#### Go standby point

Go back to standby point



### Mode.4:

#### Dish-return Mode

Go back to standby point



### Mode.5:

#### Scheduled Return

Select an automatic return time, and the robot will go back





# Whole meal : Dish Recycle

## Dish recycle during cruise mode

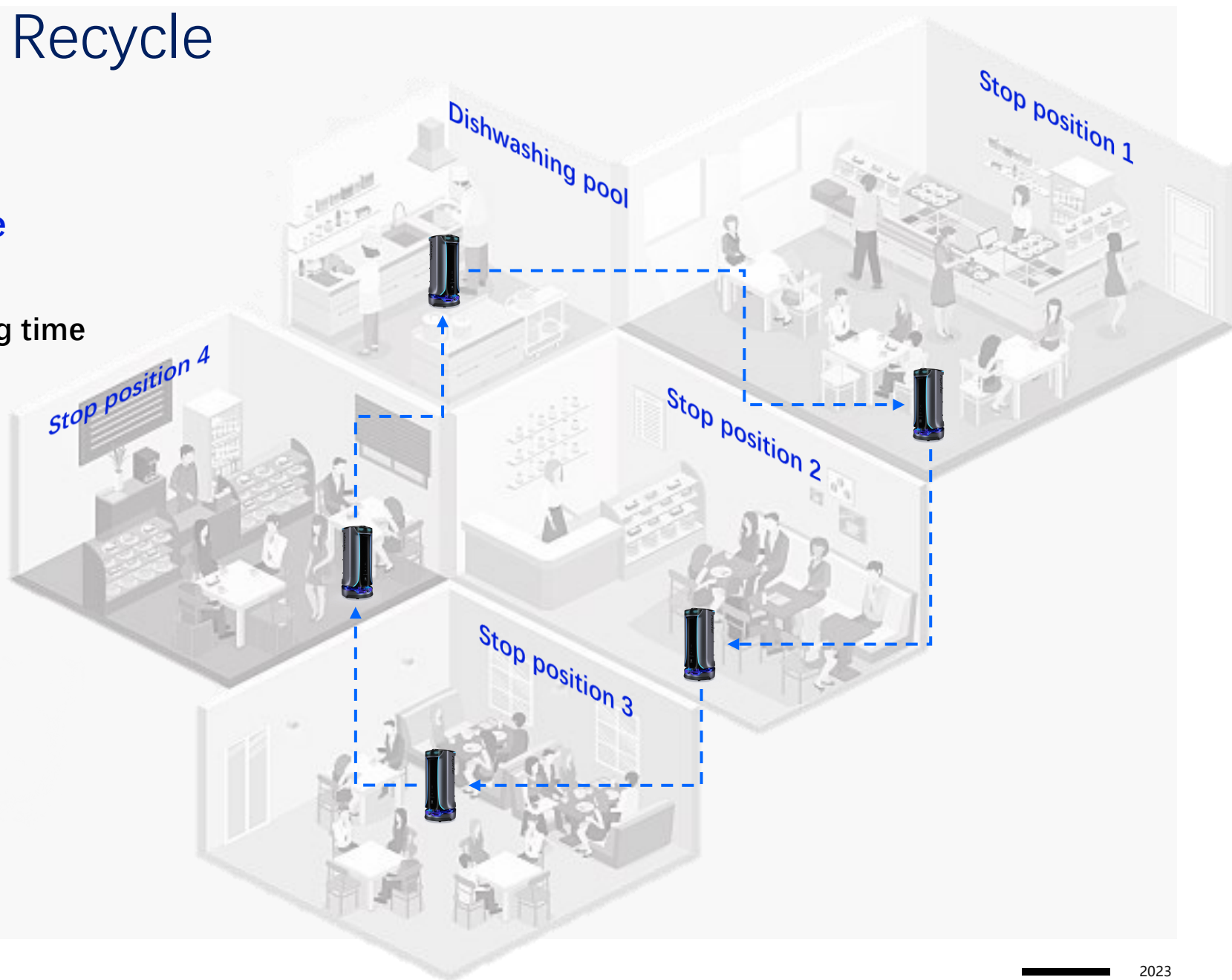
### Customized stop position & docking time

Customer spend less time on recycle dishes , robots will waiting for them at fixed position regularly .

### More efficiency

### More convenient

IPX5 water and oil proof , so that HolaBot can be used for long .



# After meal : Cleaning



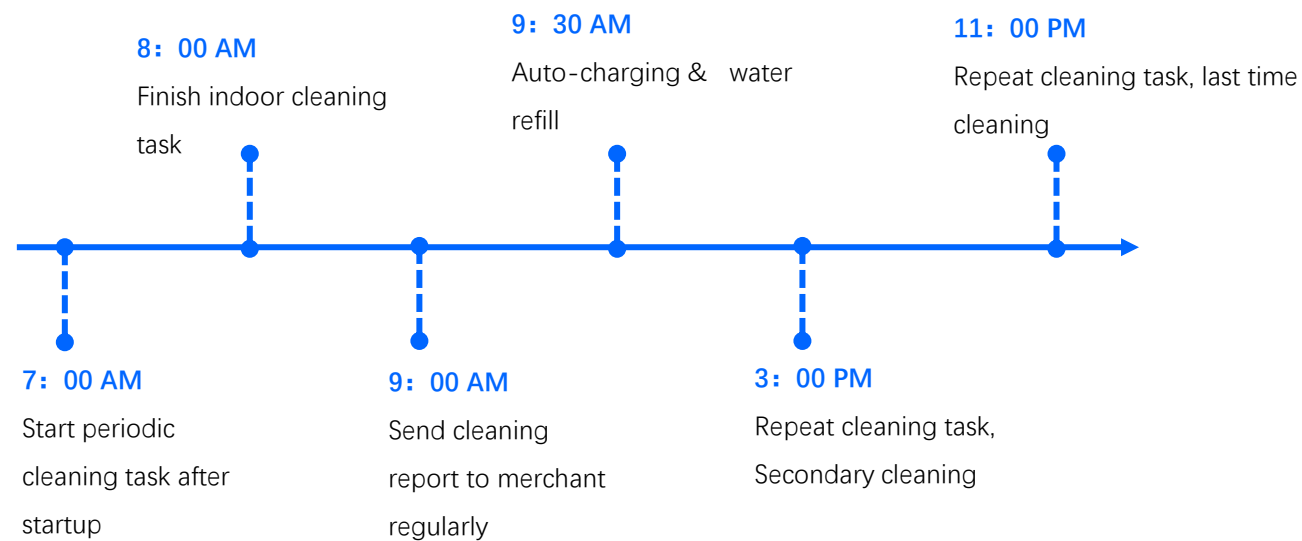
**Simply** Remote monitoring, easy to use

**Digitally** Digital cleaning report

**Multiply** One robot for multiple scenarios

**Automatically** 7×24H automatic work cycle

## Customized task schedule of CC1



**1/2**

Daily cost

**3times**

Clean effect

**3times**

Working frequency

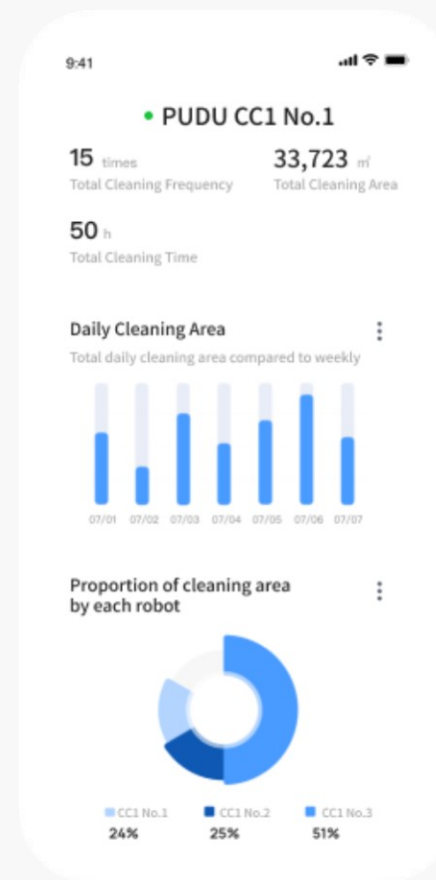
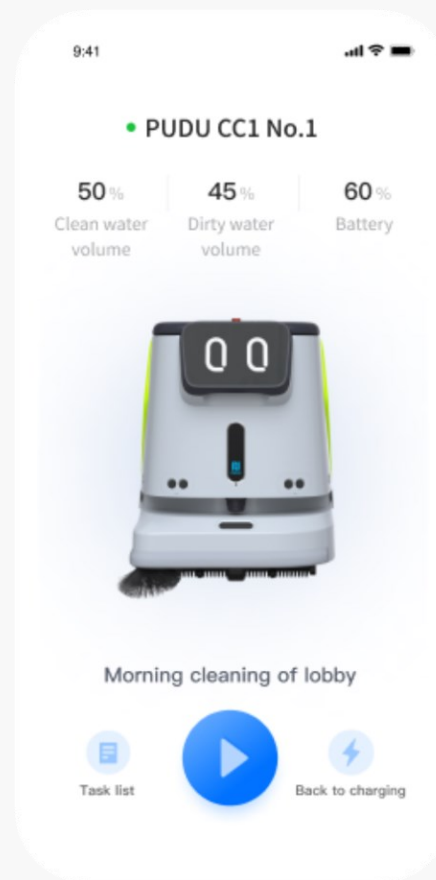
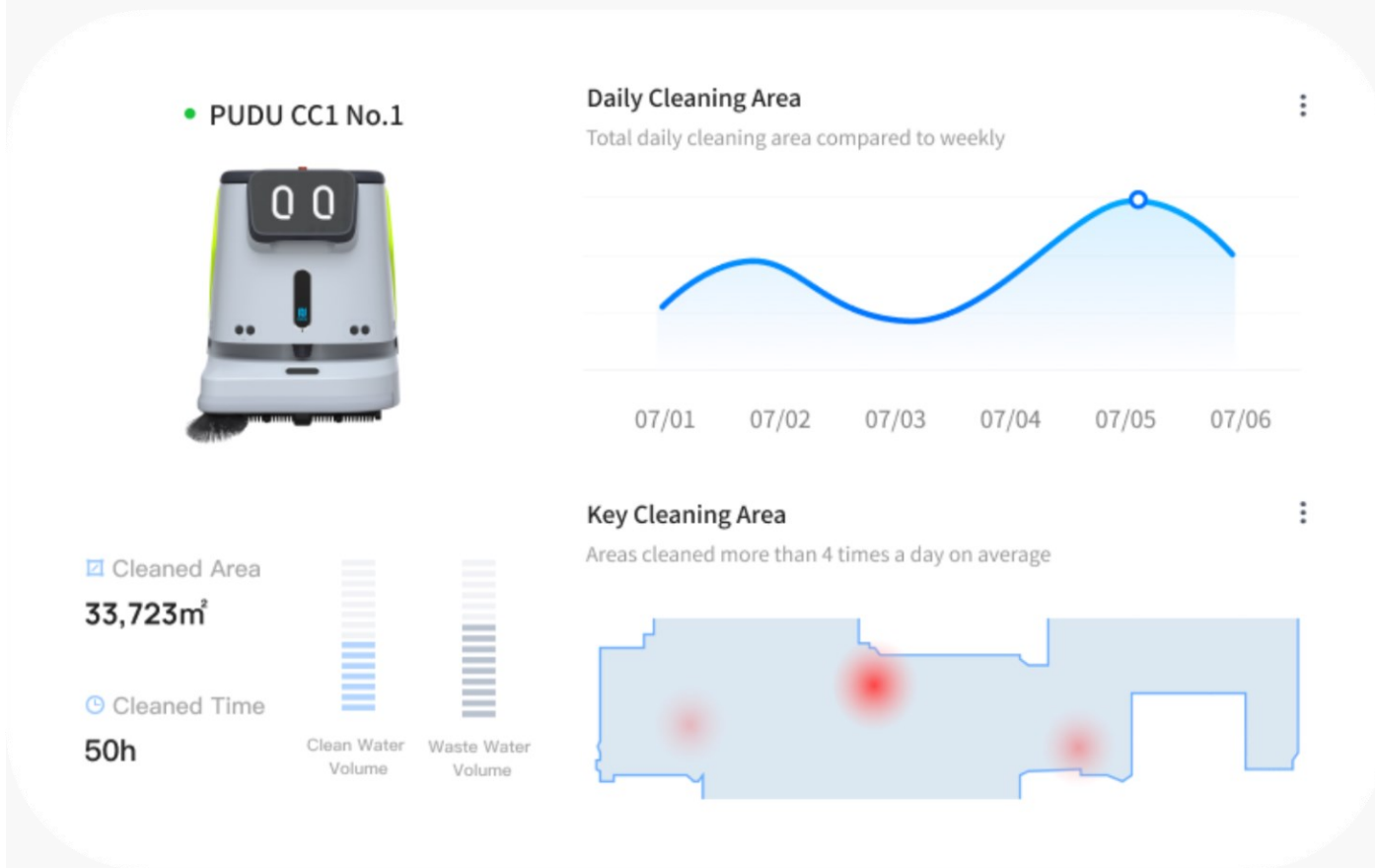
**100%**

Digital operation

# After meal: Cleaning

## Digital platform

Real-time synchronization of cleaning data, flexible display of cleaning time, area, etc., self-generated cleaning report, cleaning effect at a glance.



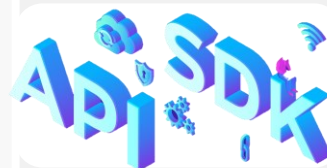
# Other scenarios : IoT


Vending machine system




Integration mode

 Scan QR code to order, robot receipt signals wirelessly.



 Connect with all restaurant system and enclose catering work process automatically.

android   
PUDU OS

 Through various technologies such as API, SDK, and Android, make all-online a reality.

 Bluetooth

 LoRaWAN®



Interconnection ,  
More than imagine  
.....



Online order system



KDS system

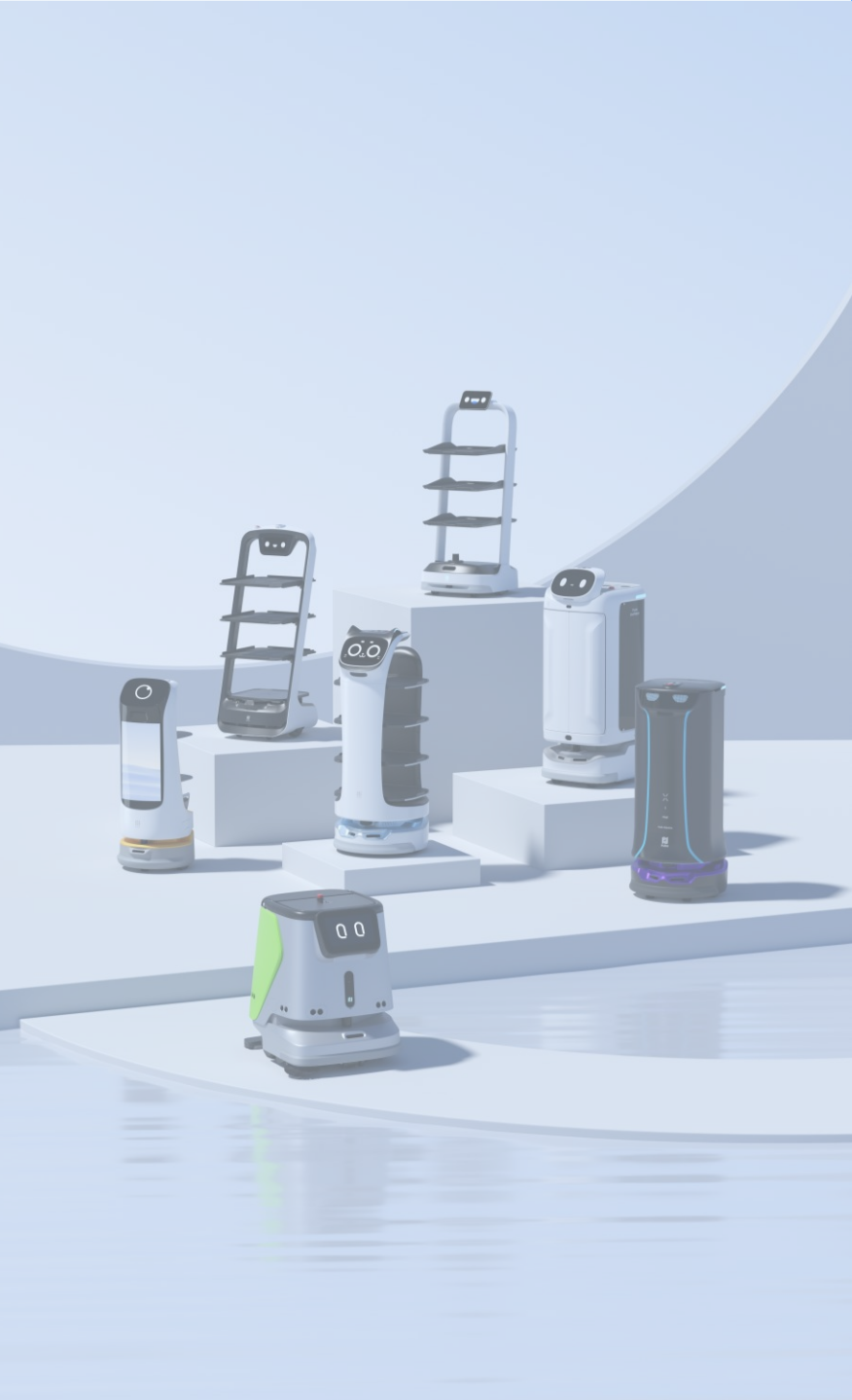


Cashier system



Restaurant system





03

## Successful Cases

# Successful case : O3 Restaurant & Bar

## **O<sup>3</sup>EAT** O3 Restaurant & Bar

**Location:** Warsaw, Poland

**Acreage:** The total area is close to 1000m<sup>2</sup>, dining area & bar area totaling about 500m<sup>2</sup>

**Staff Qty:**

Dining area: reception staff about 4-8

Table QTY: 50+

Maximum capacity:  
Up to 200 guests

Kitchen: Closed  
kitchen

Aisle: Minimum width  
1.2m

PUDU

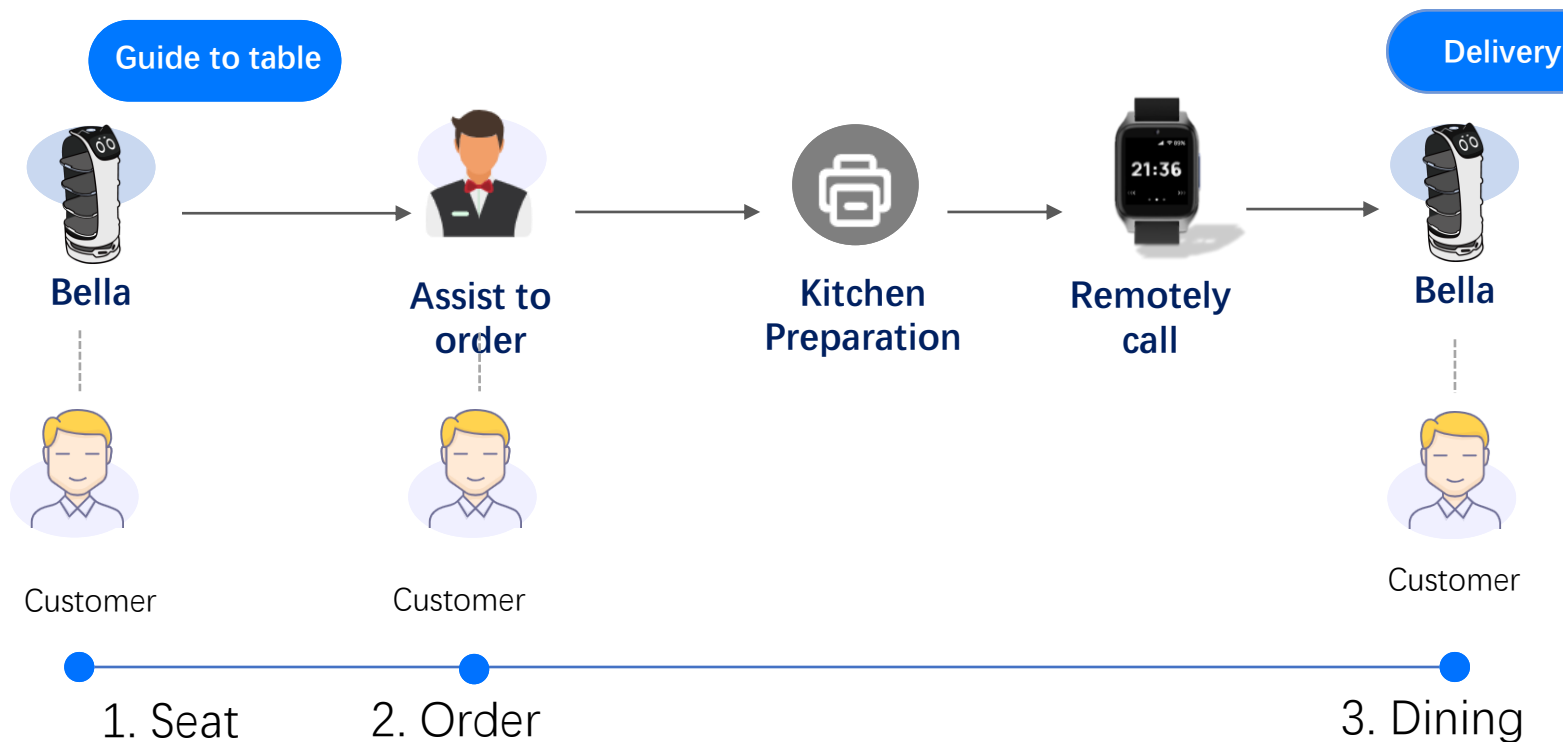
## BellaBot & HolaBot

Serving at Hotelu O3 in Poland

Video URL: <https://www.youtube.com/watch?v=KZ644p7VAg8>

# Successful case : O3 Restaurant & Bar

## Process



## Configuration

Item	QTY
Bella (Food)	1
Hola (Beverage)	1
Lora watch	4
Auto-door	1



# Successful case : O3 Restaurant & Bar

Human-robot  
collaboration form



VS

Traditional manual form



**7\*24**

Work duration  
(hour/day)

**120+**

Number of service  
tables (per  
day/table)

**275.25**

Robot cost  
(USD/month/table)

**80%**

Time efficiency  
(dining,  
turnaround)

**8.0**

Work duration  
(hour/day)

**70+**

Number of service  
tables (per  
day/table)

**905.2**

Labor cost  
(USD/month/table)

**45%**

Time efficiency  
(dining,  
turnaround)



# Successful case : JingGe Hotpot



## JingGe Hotpot (Xi Zhi Men)

**Introduction:** Located in a shopping area, which has 5 floors of restaurant area with 100+ food brand, surrounded by office buildings, communities, universities, and zoos

130

ATV (RMB)

5.6

Turnover rate per day

Turnover rate = (number of table uses - total number of tables) ÷ total number of tables × 100%.

42

DART (Thousand RMB)

Acreage: 350m<sup>2</sup>

Floor height: 3.5m

Aisle: 1.2-1.5 m

Table QTY: 35

level ground

Kitchen: Open kitchen

8 tables for two、19 tables for four、6 tables for six、2 tables for eight

\* Relevant statistics as of December 2022



# Successful case : JingGe Hotpot

**Traditional  
manual form**

**VS**

**Human-robot  
collaboration form**

The store has added 2 PUDU2 to the food serving process, which has reduced the waiters from 2 to 1. The original waiter's responsibility has shifted from being the food runner to the food preparer. This change has also led to a reduction in the frequency and number of temporary staff used.

**1/7**

Delivery Cost

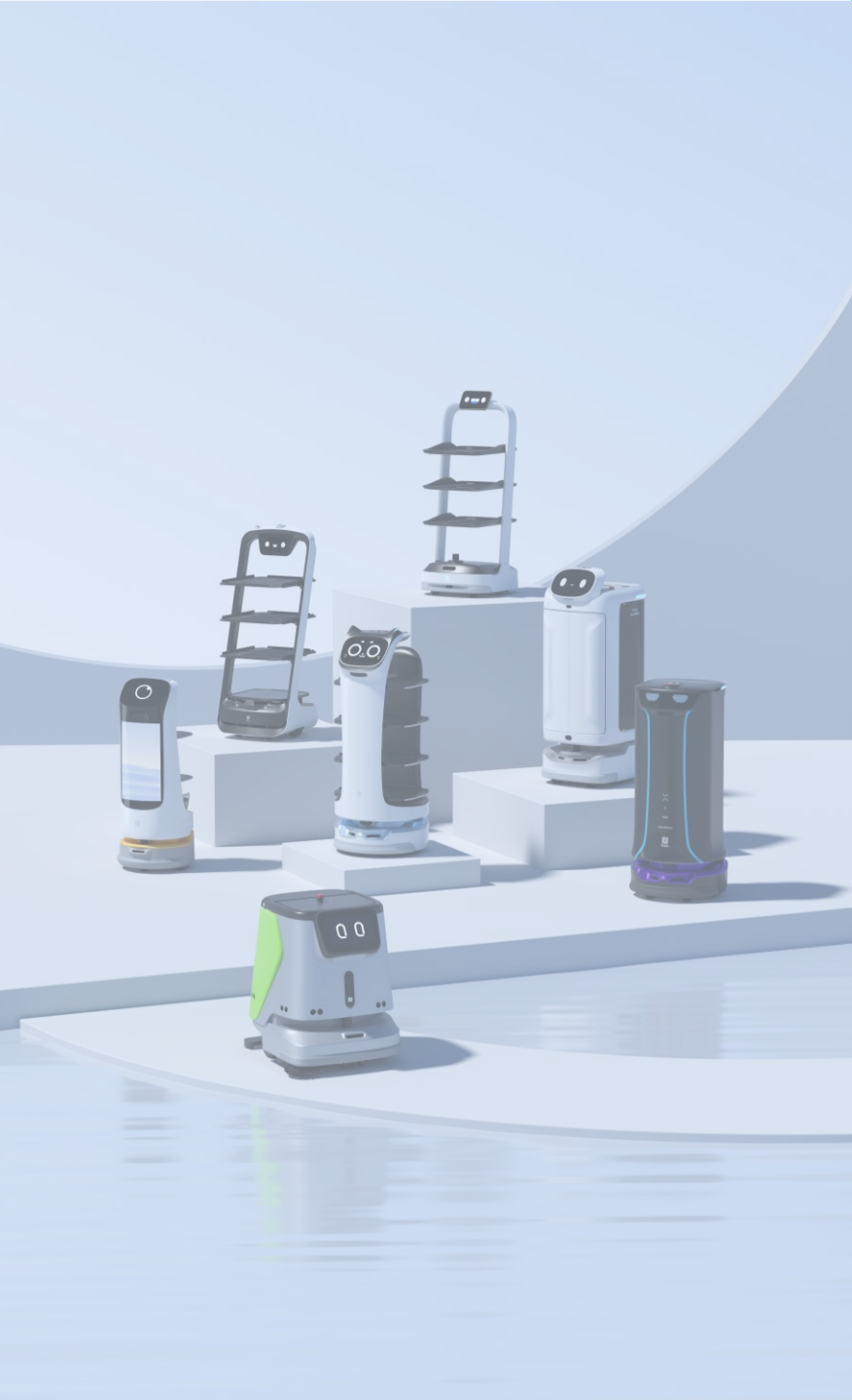
Save **11000** RMB

Operation Cost

Increase **1.2** times

Delivery Efficiency

Type	Delivery Cost	No. of Dishes/day	Working Hours	Structure of human resources
Manual	7000RMB/ppl/month	100 dishes /workday 180 dishes/holiday	10 Hours	2waiter+temporary staff
Robot	1200RMB/robot/month	120 dishes /workday 220dishes/holiday	10 – 24 Hours	1 waiter+2 robot



04

# Product Family Matrix



Creating truly useful robot to improve human productivity and quality of life





# Product Family

## Delivery Robots

Bellabot

Pudubot 2

Pudubot

Kettybot

Swiftbot

Holabot

Flashbot

## Cleaning Robots

CC1

SH1

## IOT Solutions

Pager

Autodoor

Elevator

4G/lora  
Watch

Table  
Tracker

Bluetooth  
Speaker

...

## Accessories Solutions

Cup  
holder

Food  
cover

Tray

Display  
shelf

Self-  
charging  
station

...

## Pudu Cloud

PUDU Merchant  
Management Platform

PuduLink App

PUDU Cloud Platform

## Technology

PUDU OS

Positioning and  
navigation algorithm

Perceptual obstacle  
avoidance algorithm

Motion control  
algorithm

Multi-machine  
scheduling algorithm

AI interactive  
algorithm

Cloud platform  
algorithm

Simulation testing  
platform

## 1-N Customized Solutions

Voice

Emoji

Skin

SDK

...

# Delivery Robots



GOOD DESIGN  
AWARD 2022

## BellaBot

Novelty、cute、fully-perceptive food delivery robot



Contactless delivery



Multiple located



Tray Sensor



Flexibility



Personalized  
Presentation



Multi-interaction



Changeable  
battery



Safety



Service



## PuduBot2

Latest、high-performance、extendable、adaptable、  
intelligent delivery robot for multiple scenarios



Delivery mode



Shipping mode



Cruise mode



Direct mode



Dish-recycle mode



Birthday mode



## KettyBot

With Ad screen, serving as both a delivery and  
receptionist



Minimum passability



AD



Reception



Navigation



Voice interaction



Work plan



Delivery



Self-charging



Feature settings

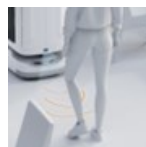


# Delivery Robots

## SwiftBot



Delivery Robot for Smooth Peak Hour Operations, Redefining Social Interaction between Humans and Robots



Avoidance Reminder



Operating Status Projection



Atmosphere Projection

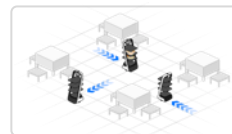


Foot-activated Door Projection

## PuduBot



Classic Intelligent Food Delivery Robot, Pioneering the Industry of Trackless Delivery Robots



Scheduling



3D avoidance



Independent Suspension



Ultra-long Endurance



Optimal Path Planning



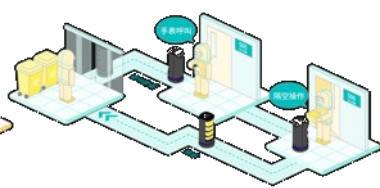
Sun-resistant

## HolaBot

First Delivery Robot with Remote Call Notification Function for Multiple Delivery Scenarios



Dish-recycle



medical waste recycle

## FlashBot

Full-Scenario Delivery for Hotels, Offices, Apartments, and Residential Buildings



APP call



Independent cabin door



Customized disinfection time



Take elevator



Auto-door



Arrival notification

# Cleaning Robots



  
reddot winner 2023

## PUDU CC1

All-Purpose Cleaning Monster: Four-in-One Scrubbing, Sweeping, Mopping, Vacuuming

A machine that integrates sweeping, mopping, vacuuming, and dusting, easily meeting all cleaning needs with just one device



dusting



mopping



sweeping



vacuuming



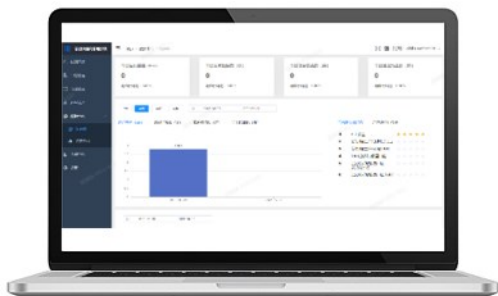
## PUDU SH1

Professional Mini Digital Floor Scrubber: A More Professional and Thorough Cleaning Solution

The compact and flexible design allows for easy transition between tasks on multiple floors and surfaces



# PUDU Cloud



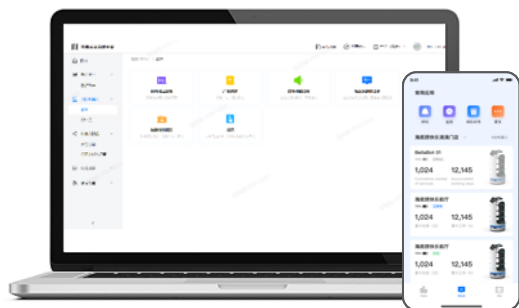
## PUDU Cloud Platform

### For distributors

Management platform for managing business opportunities, clues, sub-distributors, merchant customers, and selling robots.

PC – Web

- 1) Singapore Group: <https://css.pudutech.com>
- 2) Germany Group: <https://csg.pudutech.com>
- 3) China Group: <https://cs-internal.pudutech.com>



## PUDU Merchant Management Platform

### For end-store

A platform for robot configuration, remotely controlling, managing stores and viewing robot operation data.

PC – Web

- 1) Singapore Group: <https://businesss.pudutech.com>
- 2) Germany Group: <https://businessg.pudutech.com>
- 3) China Group: <https://business.pudutech.com>



PuduLink App 【iOS】



PuduLink App 【Android】

# IOT Solutions

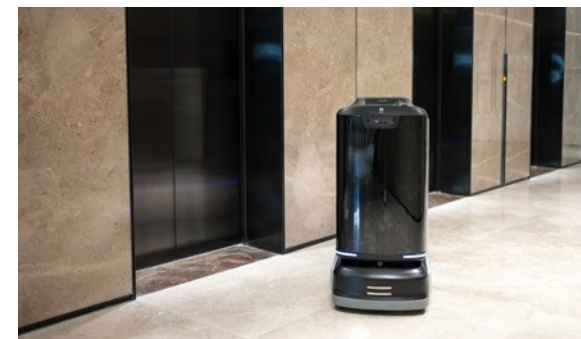
Pager



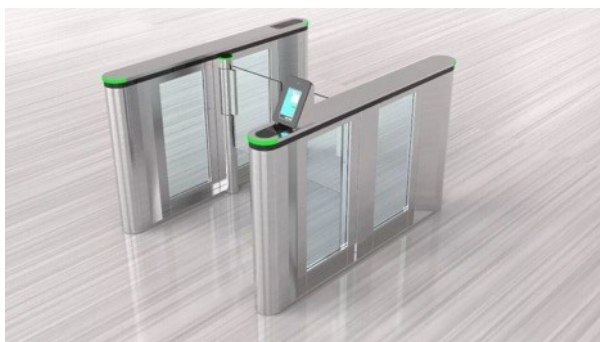
4G/Lora Watch



Elevator



Auto-door



Bluetooth Speaker



Table Tracker





# Accessories Solutions

## Ketty's Accessories



## Enclosed Protective Cover



## Bearing tray (Bella)



## Cup holder (Bella)



# 1-N Customized Solutions

android 

PUDU OS



Robot SDK



Skin



Customized Emoji



Customized Voice

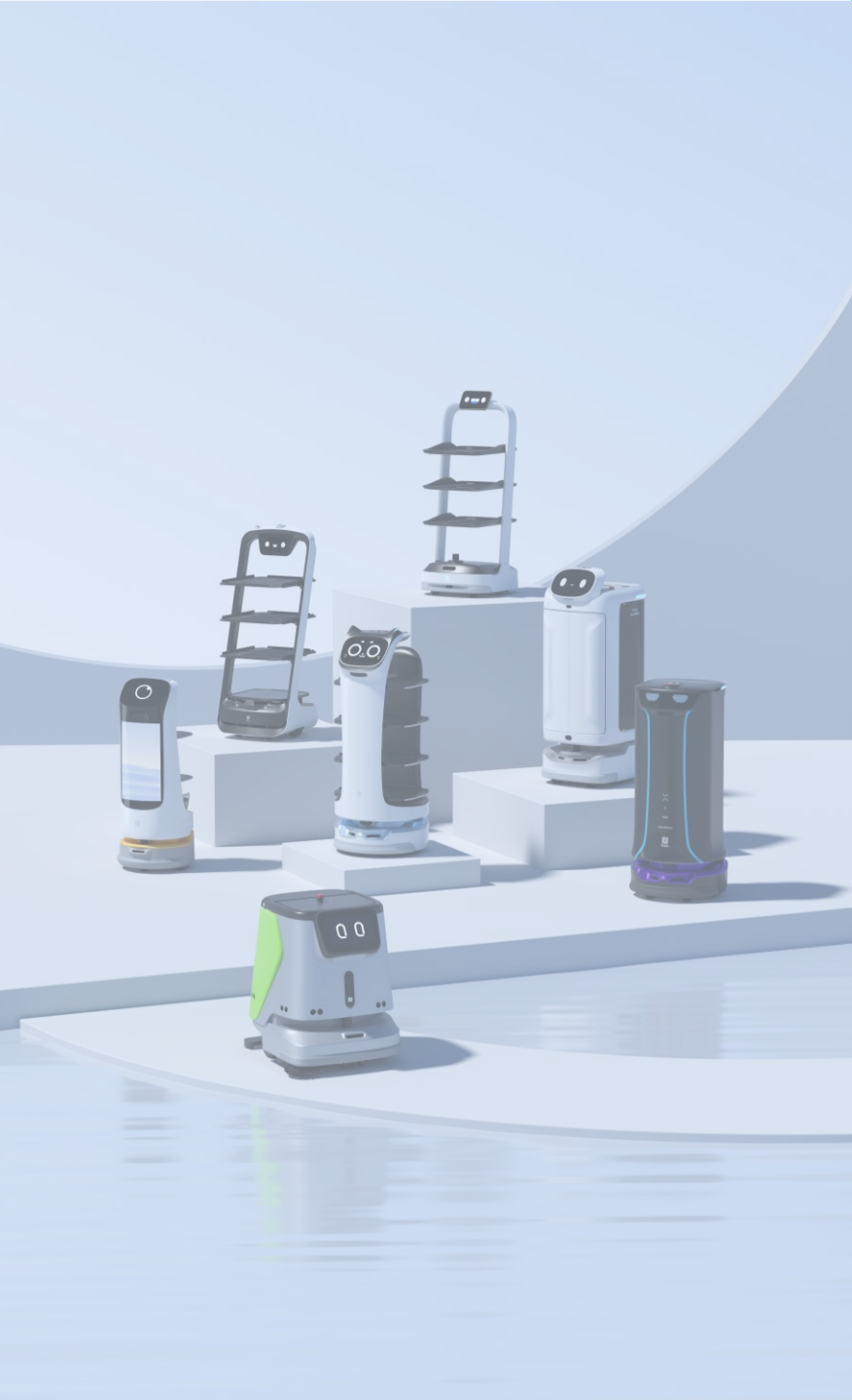


Customized Software



Combined with 3<sup>rd</sup> party hardware

More options to come soon



05

# PUDU Introduction

# Pudu Robotics

Shenzhen-based and founded in 2016, Pudu Robotics is a world-leading tech-focused enterprise dedicated to the design, R&D, production and sales of commercial service robots on a mission to use robots to improve the efficiency of human production and living.

Since its inception, Pudu Robotics has heavily invested in R&D, obtained multiple awards such as Red Dot and applied hundreds of core patents to lead the development of the robotics category and provide high technology products that would appeal to targeted markets. Pudu Robotics has been rapidly growing in recent years to become a “leader” in the global markets with coverage of over 60 countries and regions worldwide. The robots are widely applied in restaurants, hospitals, schools, office buildings, government halls, subway stations, waiting rooms, etc.





# Culture

## Mission

Use robots to improve the efficiency of human production and living

## Vision

To become the world's strongest commercial service robot company



BE INVENTIVE



BE CUSTOMER  
CENTRIC



THINKING IN THE LIGHT OF  
FIRST PRINCIPLES



BE ENTERPRISING  
& ACCOUNTABLE



PURSUING FOR  
THE ULTIMATE



MOVING FAST



BE OPEN-  
UP



EMBRACING  
CHANGE

# Pudu Robotics: The world largest commercial service robot manufacturer

Total Sales Quantity

## 60,000+

60,000+ \* units have been sold worldwide

Market Share in All Scenarios

## TOP1

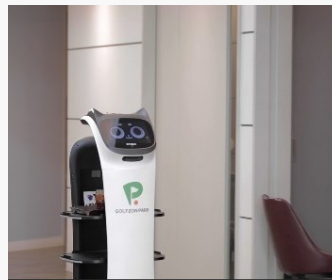
The market share in the full range of commercial service robots is No.1  
(Exceeds the sum of the 2nd, 3rd, 4th, and 5th places on the market)

Market Share of the Overseas Catering Industry

## >80%

Overseas catering industry's market share > 80%

\* Relevant statistics as of May 2023



South Korea



Australia



USA



Jordan



Switzerland



Poland



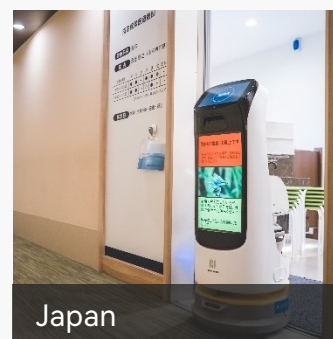
Philippines



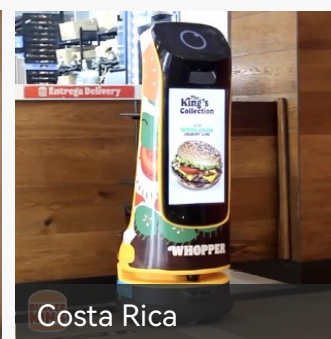
Nederland



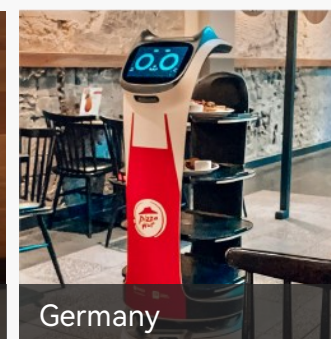
Malaysia



Japan



Costa Rica



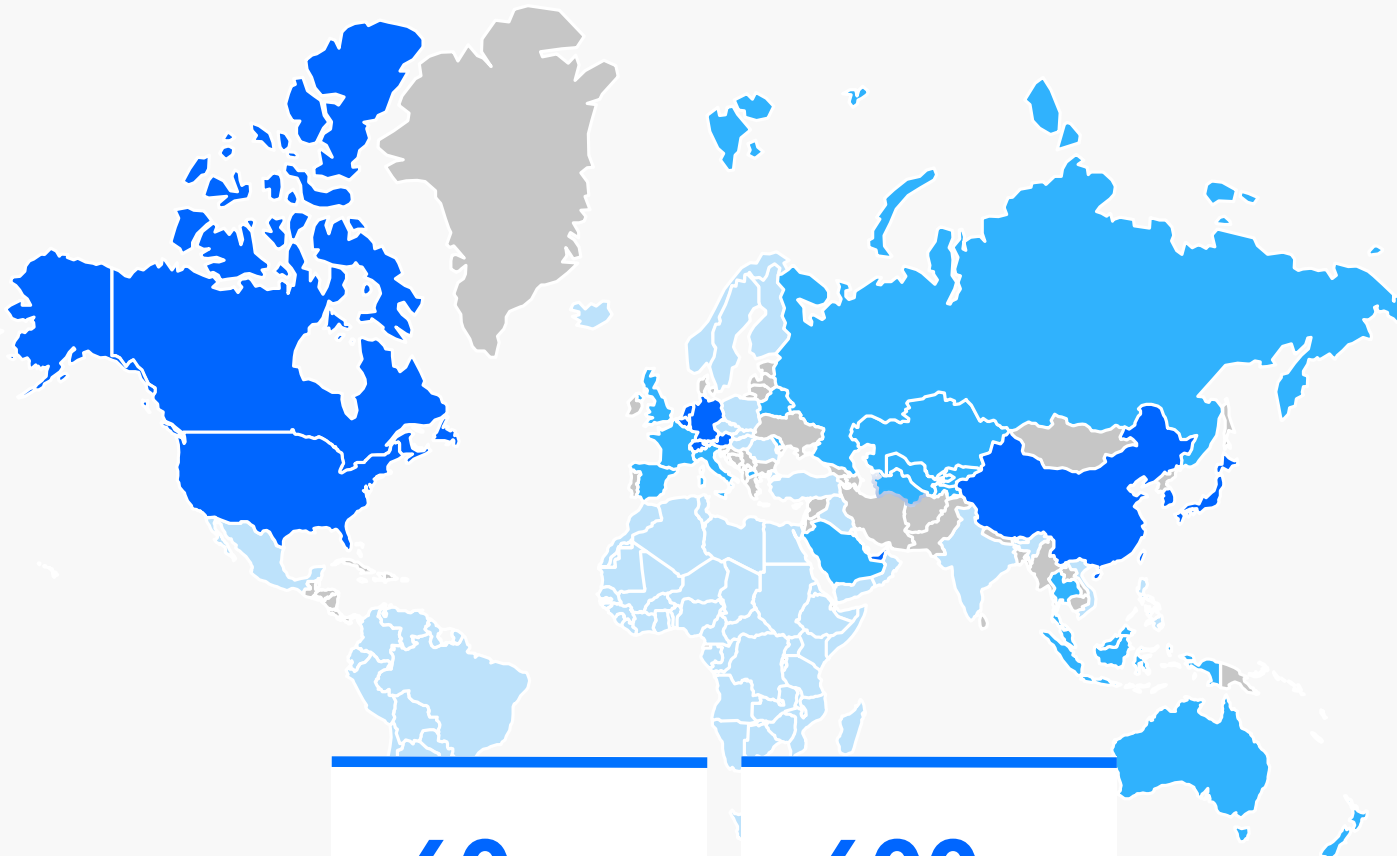
Germany

# Scale Advantage

## Globalization

Pudu Robotics has established a business presence in North America, Europe, East Asia, Asia-Pacific, the Middle East and Latin America. The products have been exported to more than 60 countries and regions around the world, covering more than 600\* cities worldwide. Pudu Robotics has established a trustworthy international brand image and become one of the representative enterprises of China's "intelligent" manufacturing abroad.

\* Relevant statistics as of April 2023



**60** +

- Cover more than 60 countries and regions

**600** +

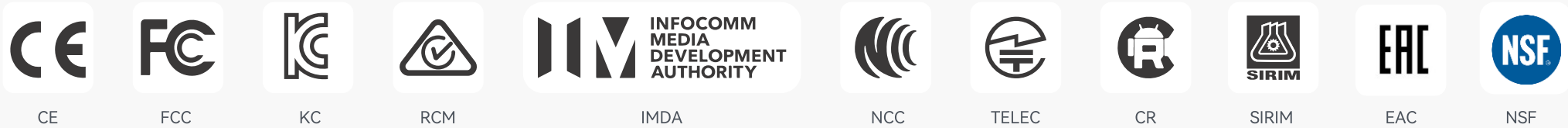
- Over 600 cities

Level 1 Level 2 Level 3



# Global Certification

The full range of Pudu Robotics robots have the following certifications worldwide



\* Relevant statistics as of April 2023





# Patent Advantages

Pudu Robotics has submitted a total of 1,439 patent applications worldwide.



\* Relevant statistics as of April 2023

# Cooperation

**80%** The market share of the **Top 100** restaurant clients

**40,000+** Deployed Store



m&m's

Coca-Cola



海底捞



Jollibee.

鼎泰豐

Denny's



DUNKIN'



Catering Partners

Walmart



accenture



万豪酒店

Hilton  
Garden Inn

MediaMarkt



Royal Dutch Airlines



Sheraton

TOTTUS



orange



Shell



FOUR SEASONS  
HOTEL  
PUDONG SHANGHAI



La meilleure façon de Jouer



Carrefour

Panasonic



Hilton



TOPGOLF

Non-Catering Partners

KONE



Qualcomm



TEXAS  
INSTRUMENTS

Amphenol



life.augmented

سابك  
sabic

Software and Hardware Partners

# Thank you!



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