Reject The Useless Cost
Simplify & Better Service

PUDU Tech. – Cafeteria "Intelligent Service" Robot Solution

Company Introduction

PUDU Technology Co., Ltd. was founded in Shenzhen China in 2016 who is a four-dimensional integrated enterprise integrating R&D, design, production and sales.

As a leader in the field of commercial service robots. PUDU has also been favored by capital. At present, it has received more than 1 billion investment from well-known industrial investors and funds such as Meituan, Tencent, Sequoia, Shenzhen Investment Holdings, Greater Bay Area Fund, and Puhua Capital.

Number Of Employees

1000+

The number of employees around the world has exceeded 1000+

Market share of the whole scene

TOP1

The market share of commercial service robot is the first in the whole scene (More than the market 2-5 combined)

Overseas catering market share

>80%

Overseas catering market share>80%

Based in China, Overlooking the world

PUDU

Globalization

Up to now, PUDU Tech. has formed a global development layout based on six major regions including North America, Europe, East Asia, Asia-Pacific, Middle East, and Latin America.

Full scene coverage

Through the in-depth analysis of end-user needs, to create a rich product matrix, to achieve hospital, KTV, catering, factories, hotels and other different scenes full coverage.
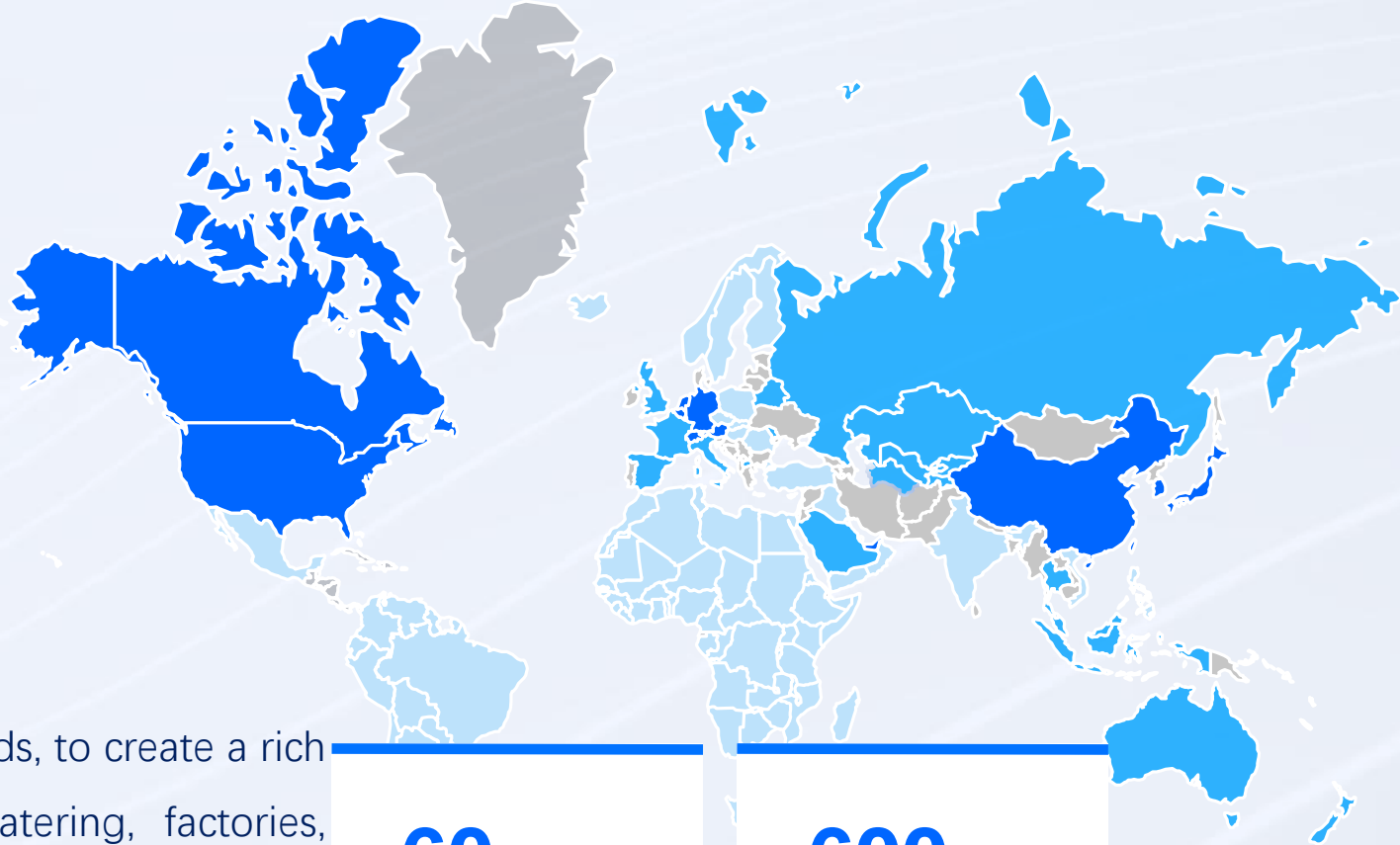
60 +
- Covers more than 60 countries and regions

600 +
- More than 60 cities

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Patent & Certificate

PUDU Robots have passed the following certifications

PUDU Tech. has applied for about **1300+** core patents, covering robot positioning and navigation, motion control, human-computer interaction, mechatronics design, robotic arm, servo motor, computer vision, robot cloud platform and other fields.

*相关数据统计截止至2022年12月

Honorary Award

Pudu Robotics has been recognized by organizations and institutions in various industries.
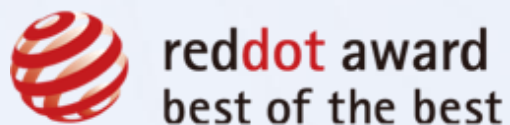
Contents

PUDU

Chapter 1 , Industry Situation

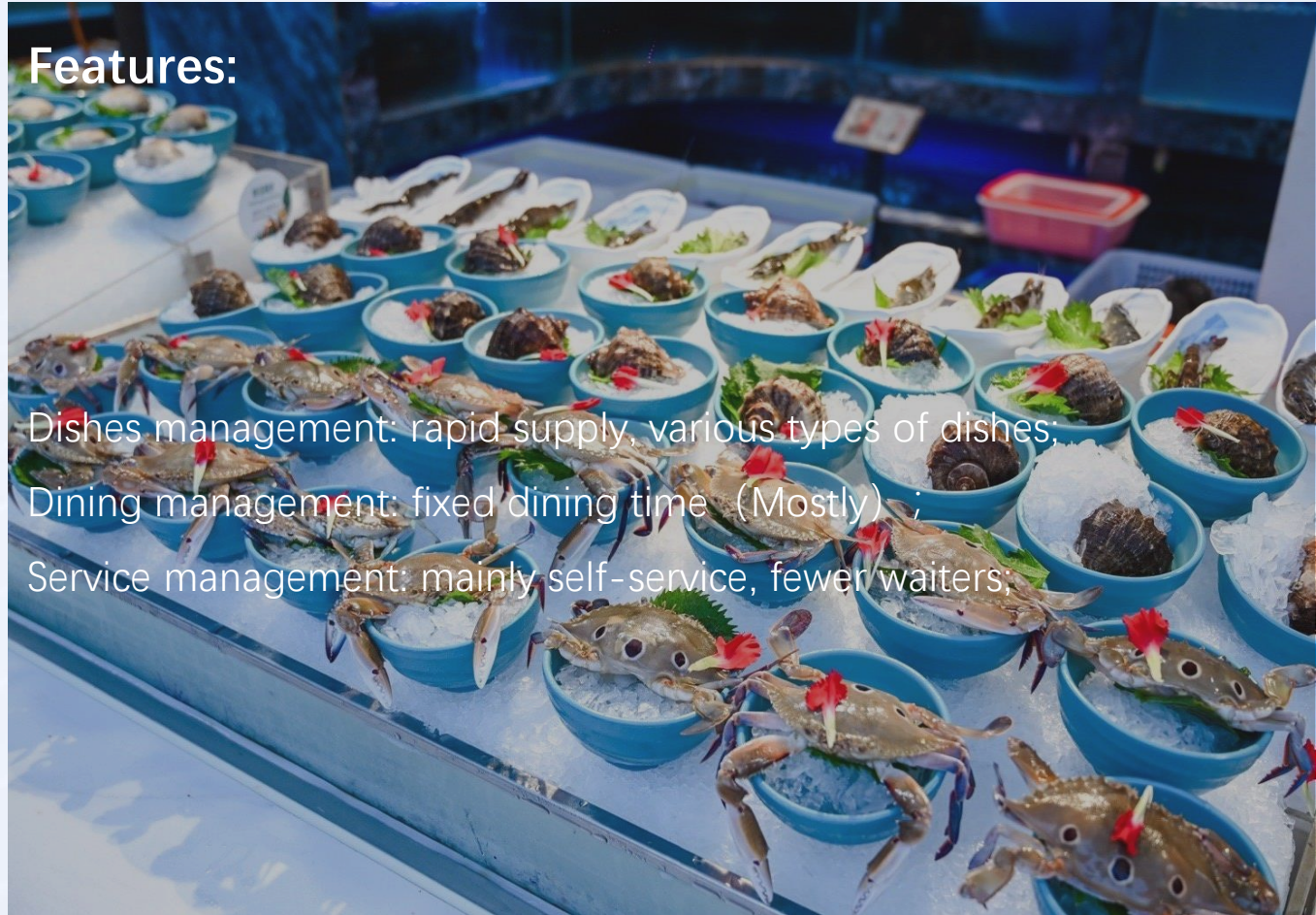# What's the cafeteria?

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;

Staffing Shortage of the cafeteria

Number of Postings vs. Number of Applications

■ Number of Postings ■ Number of Applications
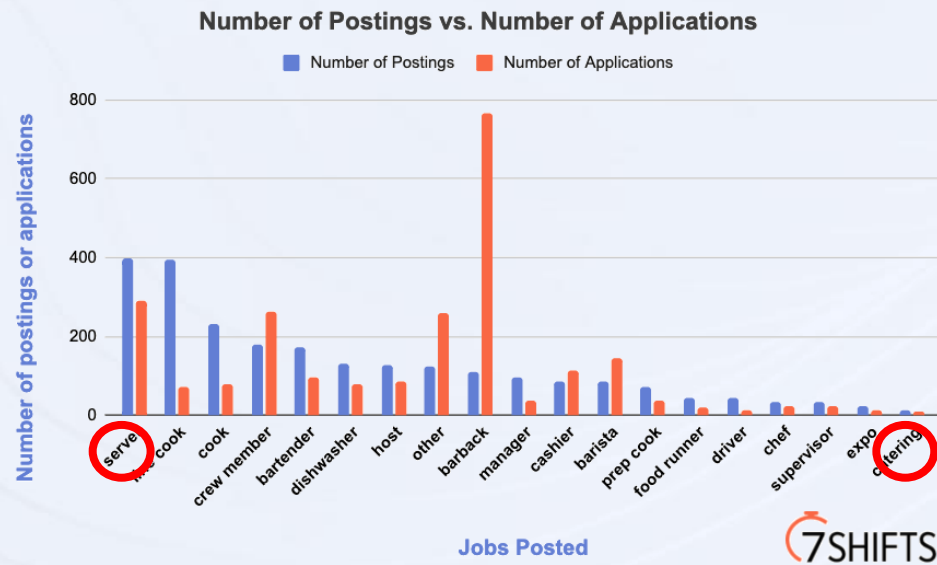
Restaurant jobs data was sourced from over 2,400 job postings from over 1,800 restaurants. | From 7Shifts

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 .

—— back house employee —— Front house employee
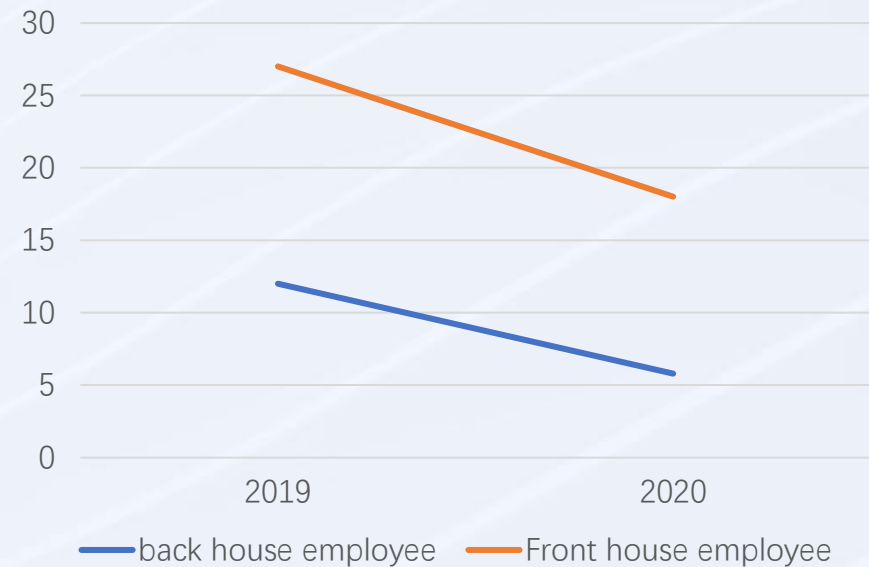
According to a report by Black Box Intelligence and Snagajob that includes survey results from over 4,700 former, current and future hourly restaurant workers.

What makes the staff shortage?

28%
To receive higher pay

Other
Reasons

23%
Access to a
more consistent
schedule/income

17%
Access to
professional
development and promotional
opportunities

emotional
abuse/disrespect
from customers

62%

49%   15%

emotional
abuse from
managers

sexual harassment
from customers or
managers/
co-workers.

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*According to Black Box/Snagajobs'report .
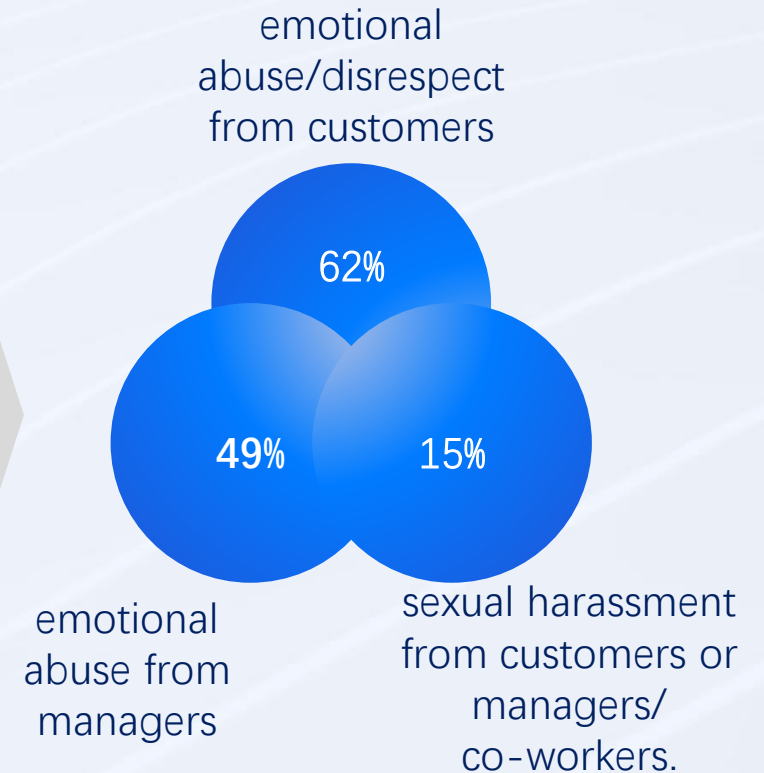
Bad user experience

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
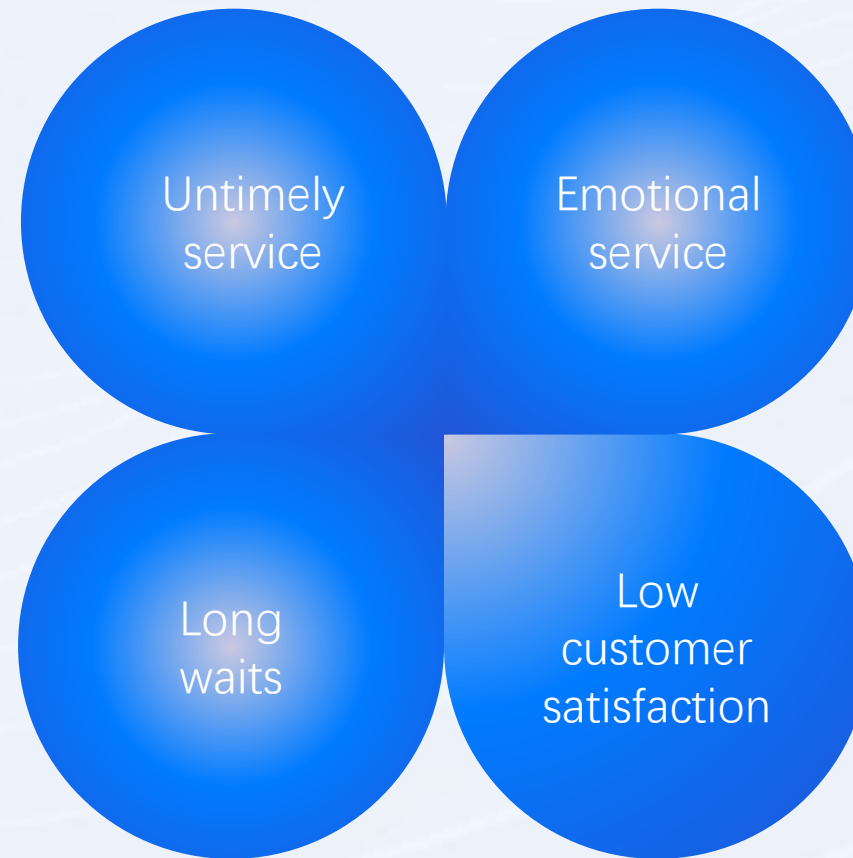
The customer satisfaction scores for independent and small chain restaurants also dropped this year, **to 80 out of 100, from 81.** Consumers were less happy with fast-food chains this year compared with 2021 — the sector's score **slipped to 76 out of 100, from 78.**

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*According to ACSI's annual report/The American Customer Satisfaction Index /Yelp reviews;

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….

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Chapter 2 , Products Introduction

Product matrix

葫芦 / KettyBot
配送迎宾机器人

好啦 / HolaBot
主打呼叫通知功能·配送机器人

贝拉 / BellaBot
高端送餐机器人

PUDU A1
划时代的全自动配送机器人

巧乐送 / SwiftBot
高峰期畅通无阻的配送机器人

欢乐送 / PuduBot
智能送餐机器人

PUDU SH1
专业微型数字洗地机

闪电匣 / FlashBot
楼宇配送机器人

欢乐送2 / PuduBot 2
全场景配送机器人

PUDU D1
四足配送机器人

PUDU CC1
商用清洁机器人

Based on Delivery & Cleaning , applied for all-scenario

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Product matrix

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For all-scenario

IoT Products

- Pager
- Locator
- Ladder control
- Charging point
- Automatic door
- Bluetooth audio
- ...

Mountings

- Tray
- Cup holder
- Display shelf
- Charging point
- ...

Cleaning Robots

| PUDU CC1 | PUDU SH1 |

Delivery Robots

PUDU BOT1	PUDU BOT2
BellaBot	HolaBot
KettyBot	FlashBot
SwiftBot	

| Merchant & Agent management platform | PUDU LINK APP |
| Central Platform | Mobile APP |

1-N Customized

- Voice
- Emoji
- Skin
- Calling SDK
- ...

After-sales Service

- Co-branding
- * Free upgrade
- Free training
- 7*24h service
- On-site service
- Multilevel services
- ...

Technological Base

| PUDU OS | Algorithm | Interaction | Simulation test platform | Software |
| Chassis | Cloud computing | Core components | Multi-source fusion SLAM | Hardware |

Delivery Robots

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PUDU BOT2

reddot award
best of the best

Classic intelligent delivery robot, Creating trackless robot for all delivery scenarios
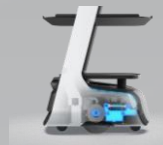
PUDU BOT1

Delivery & Recycle

Multi-robot scheduling

Direct & Cruise

Gauge level Independent suspension

Birthday

3D avoiding obstacle technology

PUDU ROBOTICS

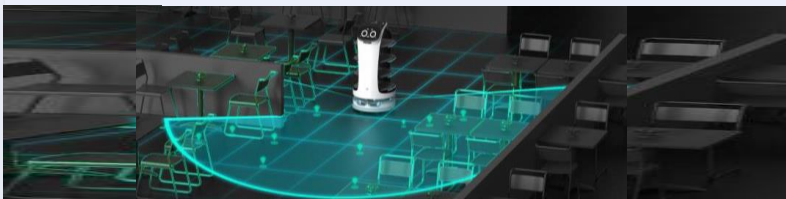# Delivery Robots

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BellaBot

GOOD DESIGN AWARD 2022

The world's first mimicry robot based on a cat that increases the innovative multi-modal interaction.

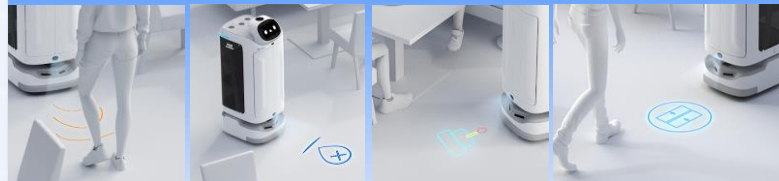| Linkage suspension	Multimodal interaction	Exchangeable technology

SwiftBot

iF DESIGN AWARD 2023

Unimpeded delivery robots at peak times redefine the social relationship between robots and people

Real-time avoidance remind	Running status remind	Ambience projection	Foot door projection

HolaBot

The first water and oil proof robot with remote call notification function for multiple delivery scenarios

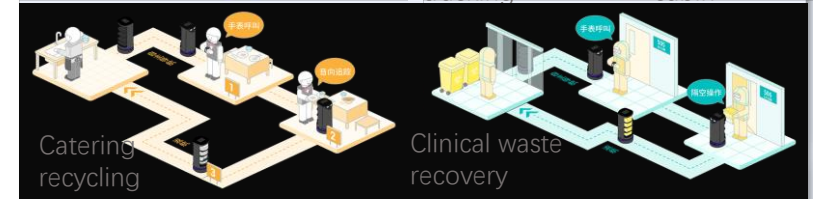| 60KG capacity	Intelligent path	Sound direction tracking	IPX5 class waterproof inner cabin

Catering recycling

Clinical waste recovery

Delivery Robots

PUDU

FlashBot

Full scene distribution robot of high private density buildings

APP remote call

Modular tank body

Customize the disinfection period

Autonomous elevator ride

Autonomous access control

Arrival notice

KettyBot

The robot integrates **man-machine interaction, advertising marketing, indoor distribution and other functions** in one.

55CM Ultimate trafficability

18.5" advertising screen

Attractive & promotion

Navigation

Task schedule

Automatic recharge

Man-robot interaction

Multimode delivery

Cleaning Robots

PUDU SH1

Professional micro digital washing, washing more professional, clean more thoroughly

reddot winner 2023

PUDU CC1

Newborn star , Sweeping, cleaning, vacuuming, dust pushing four in one

PUDU CLOUD

PUDU
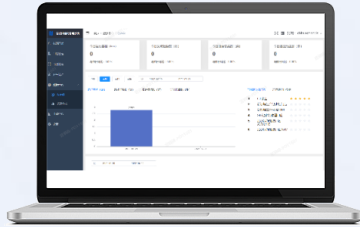
Agent management platform

Manage business leads, subordinate agents, merchant customers, sell and activate the robot.
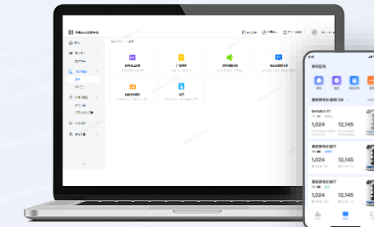
Status Data

Merchant management platform

For using robots, controlling robots remotely, managing stores, and viewing robot operation data.

PC – Web
1) Singapore Group : https://css.pudutech.com
2) Germany Group : https://csg.pudutech.com
3) Chinese Group : https://cs-internal.pudutech.com

PC – Web
1) Singapore Group : https://businesss.pudutech.com
2) Germany Group: https://businessg.pudutech.com
3) Chinese Group : https://business.pudutech.com

PuduLink App 【iOS】   PuduLink App 【Android】

IoT Product

IoT products are aggregate networks of devices that can be connected with robots. Complete the information transfer between different hardware, **Automate the execution of instructions, and create a fully automatic closed-loop business process.**

Pager

4G/Lora Watch

Bluetooth Audio

Turnstile / Auto Gate

Elevator

Locator

Mountings

"Seven brothers" of KettyBot

Enclosed protective cover

Overhead display shelf

Enclosed rear cover

Retractable tray border

3-Axis spill-proof cup holder

Fixed beverage holder

Self-charging station

Enclosure dishes cover

Bearing tray (BellaBot)

Cup tray (BellaBot)

1-N Customized

PUDU OS

Calling SDK

Skin

Emoji

Voice package

Software function customization

Connect more devices

Do as customers' wishes …

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Chapter 3 , Scenario scheme

Intelligent digital cafeteria

Scenario scheme 1: Cafeteria Experience Process

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Pre-meal

Dining

After meal

Customer

1. Enter → 2. Waiting line → 3. Seat → 4. Order → 5. Have a meal → 6. Additional dish → 7. Pay the bill → 8. Leave

Q1：Homogeneous marketing methods with weak appeal

Q2：Long Waiting time

Q3：High customer volume

Q4：Slow service

Q5：Slow food service

Q6：Long queues, low efficiency

Q7：Spends more time clearing tables than attending to customers

Waiter

1. Flyer/Banner → 2. Guide to table → 3. Show the menu → 4. Set up the table → 5. Deliver → 6. Serve → 7. Process the payment → 8. Clean the table

PUDU ROBOTICS

Intelligent end-to-end Business Process

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Buffet table

Place the food

Cashier

Clear the table

Order

Delivery

Semi-outdoor delivery

Pay the bill

Queue calling

Guide to table

Promotion

PUDU ROBOTICS
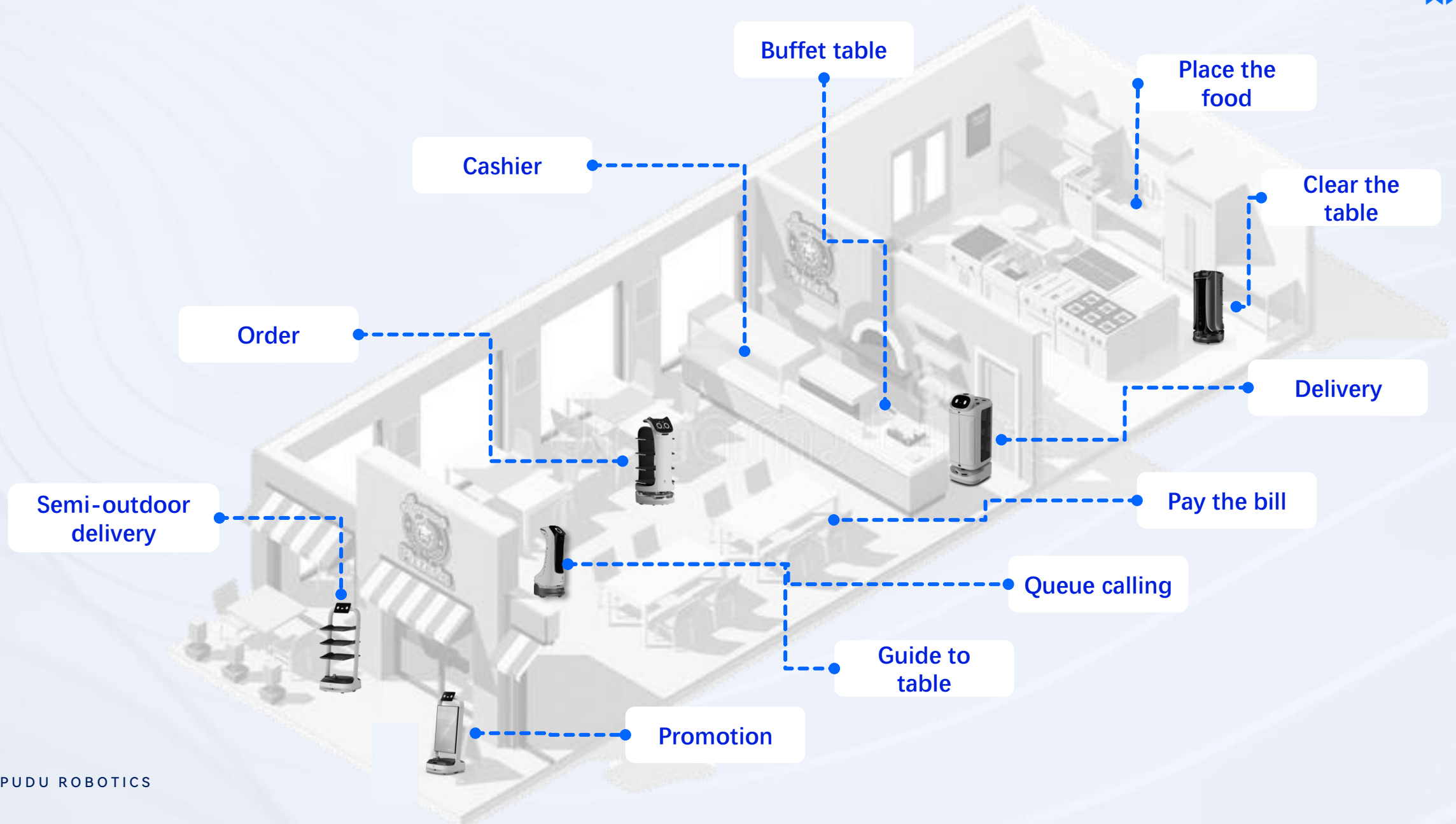
Pre-meal： Promotion

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

KettyBot

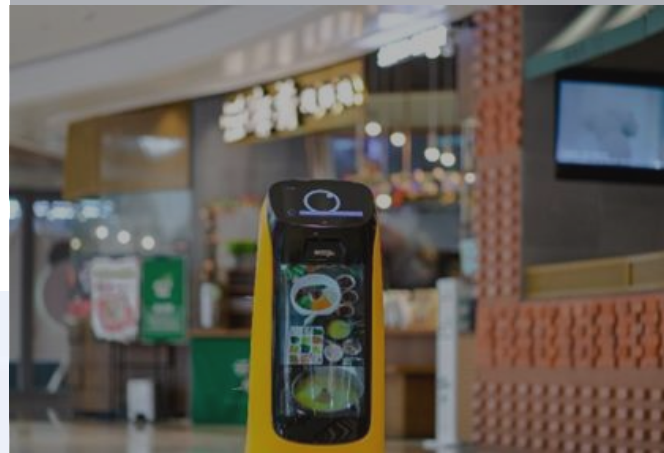**18.5" Ads，LCD screen**

Better sense of watching

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

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

4K Adopt intelligent **screen + power amplifier** to achieve light, sight and sound multi-directional surround attraction.

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

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

PUDU ROBOTICS

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

Pre-meal : Promotion

Unlimited duration,unlimited frequency, single daily fee

5$

15s/180 times/day/point position

32$

Mobile + technology, more eye-catching

Attraction

Display less form, easy to be ignored

Remote advertising via the PUDU Cloud

Usability

Advertising replacement requires manual field operation, time consuming

Mobile AD broadcast, full area coverage

Coverage rate

Fixed display area is about 5㎡

Buy once, use forever

Product cost

A promotion requires a large number of advertising screens

Robot mobile advertising screen

Traditional fixed advertising screen

Pre-meal : Queue calling + Guide to table

PUDU

Step1:Instruction

Step2:Get a number

Go back to attraction

Attraction→Queue calling→Guide to table，

Work in consequence without a break

The KettyBot can be used for the entire process of greeting, queuing, and seating after the table has been configured on the Pudu Link App, and an external Bluetooth printer can be used for printing vouchers such as queue number tickets.

Print

The

Ticket

Step5:Guide to table

Step4:Call the number

Step3:Take a ticket

Follow the robot

A03

Waiting in queue

Dining : Seat and Order

How to integrate ?

On the way to
Table 2

Arrival
Table 2

Finish
(Go back after 20s)   Order meal

Order meals after guiding to the seat

3rd party food-ordering apps

Video URL: https://drive.google.com/file/d/1XgPMc5u3BRxDZTKXXxurgyP-Yc_uGb3x/view?usp=share_link

01 3rd party APP development

02 Install the 3rd party APP in Ketty

03 Configuration

Dining： Delivery

Human-Robot Collaboration: Driving Quality and Efficiency in Service

Dining： Delivery

Pager

Pudu Link App

4G/Lora Watch

KDS System

Robot control mode

Call the robot remotely

Place on the robot

Delivery

Take food

Next task or go back to kitchen

Dining： Delivery

Meets Almost all Types of Catering

Recommend type	Small store (≤59 seats)	Medium store (60~80 seats)	Large store (≥80 seats)

Small and agile, highly mobile.

Coffee shop | Dessert shop | BBQ
Fast food | Japanese and Korean cuisine
Southeast Asian cuisine | ...

Min pass width **55**cm

Min pass width **65**cm Max weight capacity **40**kg

High Capacity

Hotel restaurant | Chinese restaurant
Hot pot | Western restaurant
...

Min pass width **80**cm Max weight capacity **40**kg

Min pass width **80**cm Max weight capacity **35**kg

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PUDU ROBOTICS

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

Via WiFi & 4G connection

Pager

Call the robot　　**Confirm the order**　　**Payment method**

Customer　　BellaBot　　Cashier system　　POS payment　　QR payment　　Pay the bill

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

PUDU

Multi-functional:
5 Modes Switchable with One Click

In order to adapt to different scenarios robot provides a variety of modes to choose from.
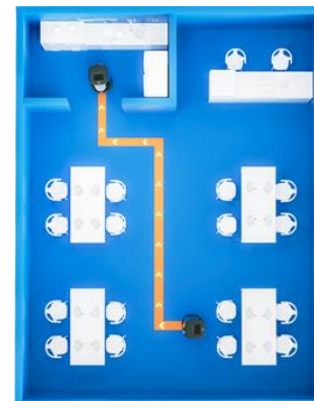
Mode.1：
Manual mode

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

Mode.2：
Go Dishwashing
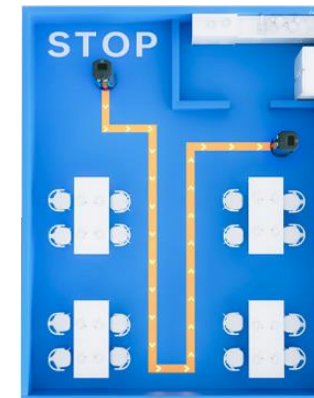
Go back to the dishwashing area
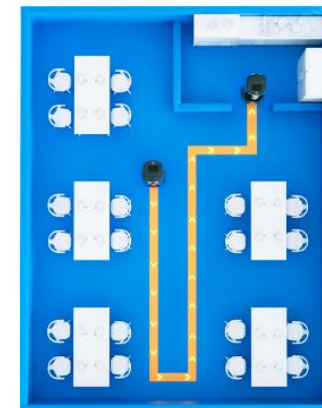

Mode.3：
Go standby point

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

![PUDU]
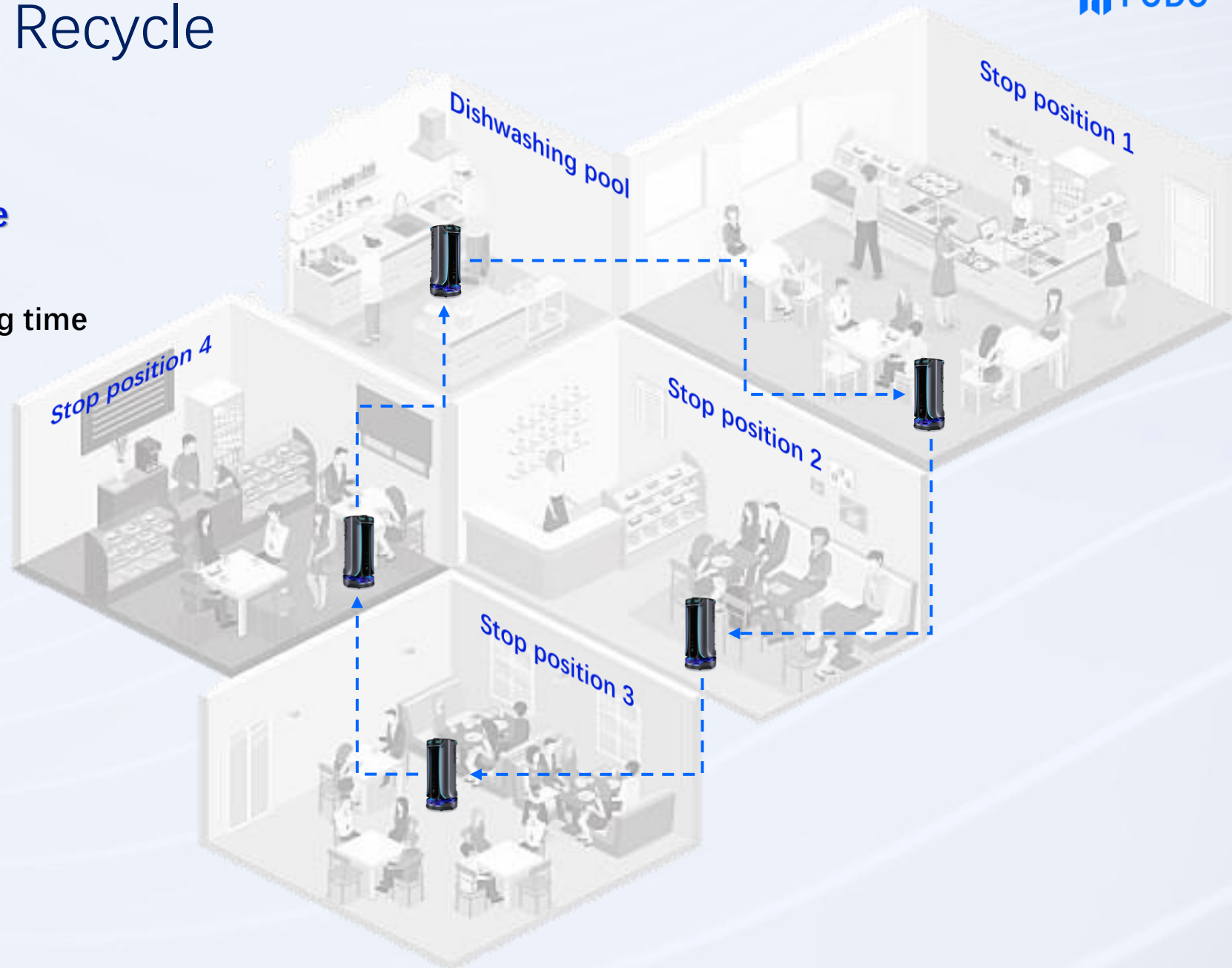
Dish recycle during cruise mode

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 .

Stop position 1

Dishwashing pool

Stop position 4

Stop position 2

Stop position 3

PUDU ROBOTICS

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

8：00 AM
Finish indoor cleaning task

9：30 AM
Auto-charging & water refill

11：00 PM
Repeat cleaning task, last time cleaning

7：00 AM
Start periodic cleaning task after startup

9：00 AM
Send cleaning report to merchant regularly

3：00 PM
Repeat cleaning task, Secondary cleaning
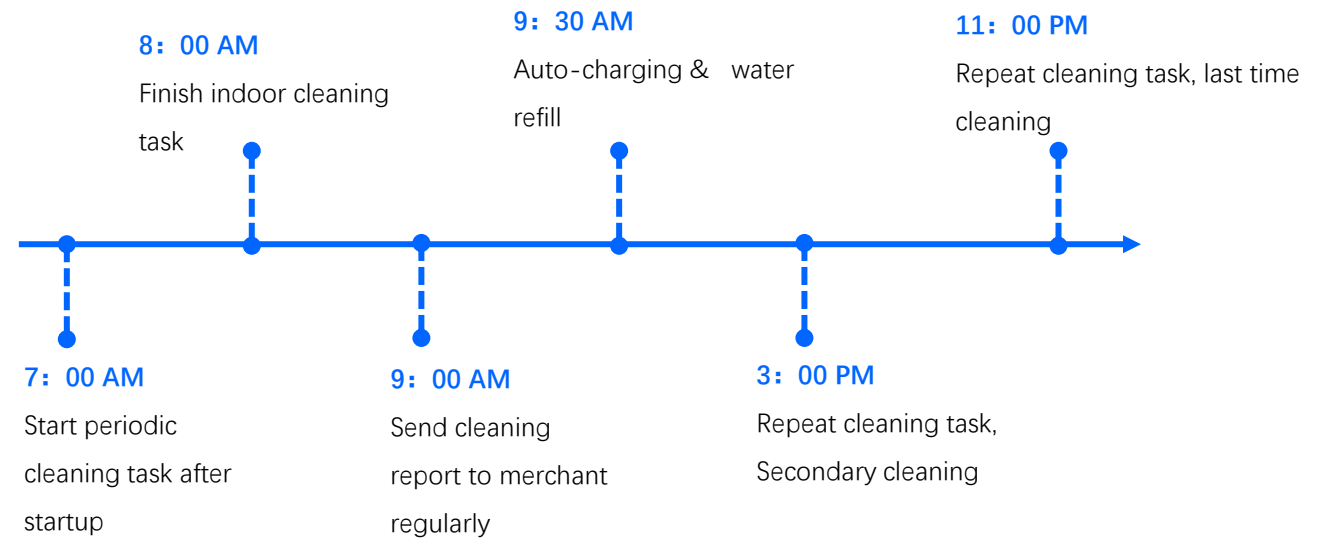
1/2	3times	3times	100%
Daily cost	Clean effect	Working frequency	Digital operation

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.
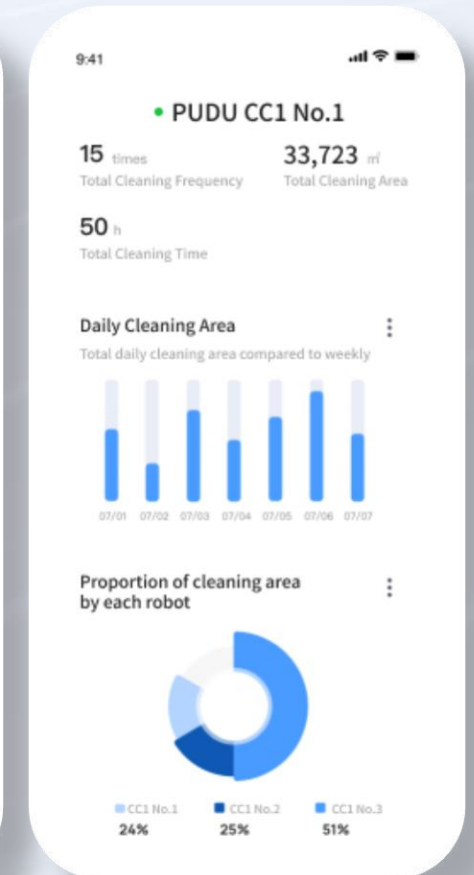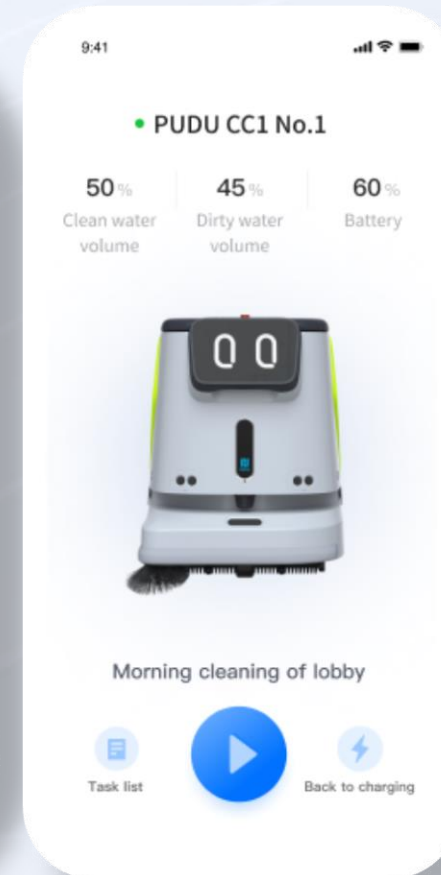
Other scenarios : IoT

Vending machine system

Online order system

KDS system

Cashier system

Restaurant system

Integration mode

API SDK

android
PUDU OS

Bluetooth

LoRaWAN®

Scan QR code to order, robot receipt signals wirelessly.

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

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

Interconnection ,
More than imagine
......

Chapter 4 , Successful Cases

Successful case : O3 Restaurant & Bar

O3 Restaurant & Bar

Location： Warsaw, Poland

Acreage： The total area is close to 1000㎡, dining area & bar area totaling about 500㎡

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

BellaBot & HolaBot

Serving at Hotelu O3 in Poland

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

Successful case : O3 Restaurant & Bar

PUDU

Process

Guide to table

Bella

Assist to order

Kitchen Preparation

Remotely call

Delivery

Bella

Customer

Customer

Customer

1. Seat

2. Order

3. Dining
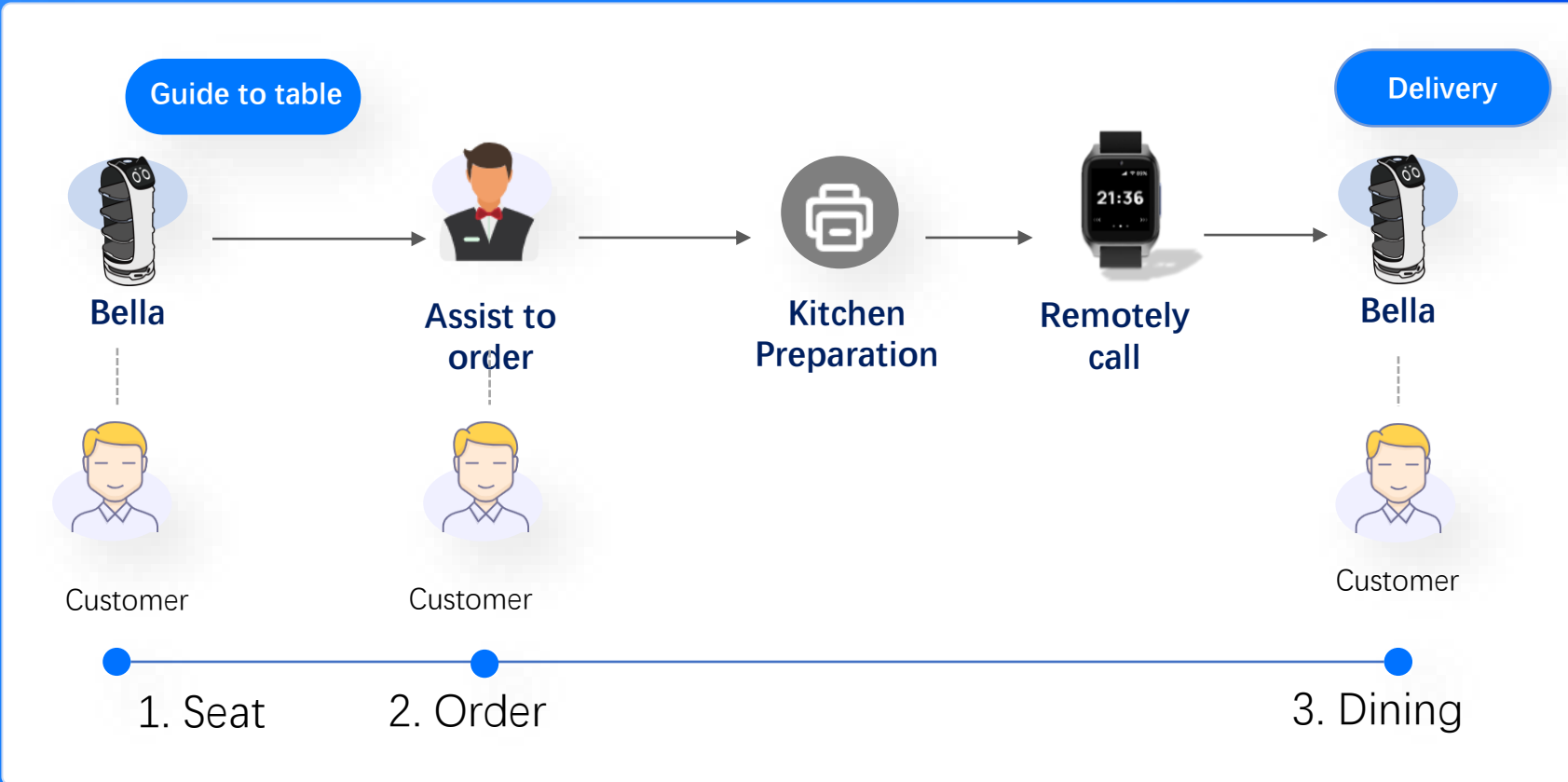
Configuration

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

O³EAT

Successful case : O3 Restaurant & Bar

Human-robot collaboration form 👤 + 🤖 VS Traditional manual form 👤

Human-robot collaboration form		Traditional manual form	
7*24	**120+**	8.0	70+
Work duration (hour/day)	Number of service tables (per day/table)	Work duration (hour/day)	Number of service tables (per day/table)
275.25	**80%**	905.2	45%
Robot cost (USD/month/table)	Time efficiency (dining, turnaround)	Labor cost (USD/month/table)	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：350m²	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

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

PUDU ROBOTICS

Successful case : COCO'S RESTAURANT

600+

KettyBots are working now

Introduction: Located in Japan , which has 568 stores with 5300+ staffs.

Video URL: https://drive.google.com/file/d/1QUTERvcVdm3RAGuYmNJnzixCmOYevo4/view?usp=share_link

Video URL: https://drive.google.com/file/d/1xj8Z1TyNRIQkDMGg3xj5hJqSbCDQ74/view?usp=share_link

1-2	**20**	
Average number of robots	Average number of tables	
70-100CM	**165-210m^2**	
Passage way	Mean area	

20-30 Part-time workers	**9.03$** Hourly wage	
4-8 Full-time workers	**2-4** Waiters	**2-4** Chief

PUDU ROBOTICS

Successful case : COCO'S RESTAURANT

Remote monitoring

PUDU LINK APP

PUDU MERCHANT MANAGEMENT SYSTEM

Kitchen

Delivery with customized emoji

Recycle & Cruise

Guided order

Navigation

Customer

Waiter

KettyBot

KettyBot

Customer

KettyBot

My Commercial

PUDU ROBOTICS

Successful case : COCO'S RESTAURANT

As one of the biggest chain restaurant in Japan , Coco's has their own brand image to increase their brand influence.   Special staff structure & customer composition makes kettybot becomes a single board of Coco's .

60%
Family customer

85%
Part-time worker

Child-friendly

Brand promotion

Video URL :
https://drive.google.com/file/d/1v86kBjM_6iIb1wTnylSgbQ
mbcqFq_iem/view?usp=share_link

Successful case : COCO'S RESTAURANT

To comprehensively address issues .

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Human service

| 200 plates per man day | 50% of the time is spent on delivery & return plate | Working 8h per day | 905.2$/month Additional hourly wage increases | 200 per day |

| Delivery | Service | **VS** | Navigation | Costs | passenger flow volume |

Human & Robot service

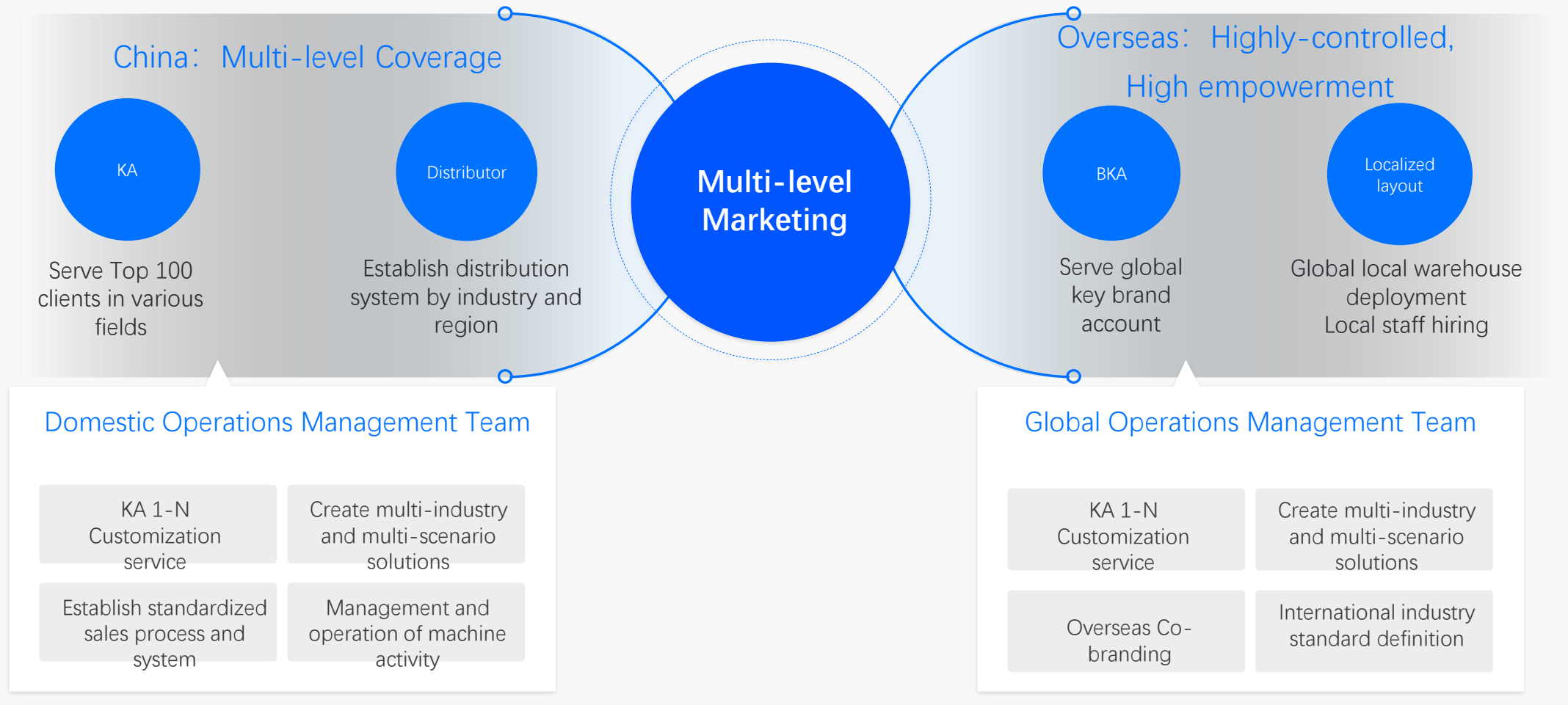| 300 plates per man day | 80% of the time is spent on delivery & return plates | Working 7*24h per day | 275.25$ Robot monthly cost 629.95$ Cost saved | 300 per day |

Chapter 5 , More service

Global multi-level sales system

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Global Multi-level Sales System

China: Multi-level Coverage

KA

Serve Top 100 clients in various fields

Distributor

Establish distribution system by industry and region

Multi-level Marketing

Overseas: Highly-controlled, High empowerment

BKA

Serve global key brand account

Localized layout

Global local warehouse deployment Local staff hiring

Domestic Operations Management Team

KA 1-N Customization service	Create multi-industry and multi-scenario solutions
Establish standardized sales process and system	Management and operation of machine activity

Global Operations Management Team

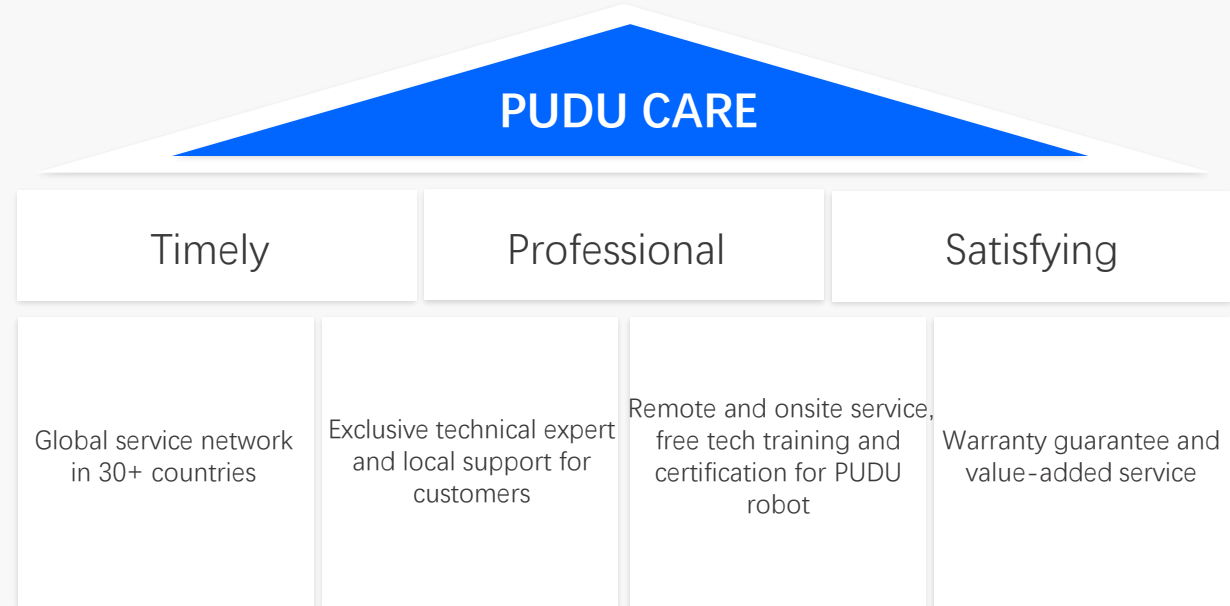| KA 1-N Customization service	Create multi-industry and multi-scenario solutions
Overseas Co-branding	International industry standard definition

After-sales support system

Offline Service:

- 1 Year Free Warranty
- 7 × 24 Hours Service
- Local Service & Support

Pudu 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.

PUDU CARE

Timely	Professional	Satisfying
Global service network in 30+ countries	Exclusive technical expert and local support for customers	Remote and onsite service, free tech training and certification for PUDU robot	Warranty guarantee and value-added service

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Thanks!

Sincerely welcome you to contact us for more information.