

PuduBot

An Intelligent Delivery Robot

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PuduBot

An Intelligent Delivery Robot

The PuduBot Series is Pudu Robotics' classic delivery robot, which launched the industry's first trackless delivery robot. PuduBot's simple and effective industrial design earned it German Red Dot Award for best design, and spearheaded a new trend of indoor delivery robot designs. Since its release, PuduBot has been sold in more than 50 countries and regions to serve local consumers in restaurants, hotels, office spaces, etc.





Product Overview · PuduBot Series

PuduBot



PuduBot Box



Note:

- We currently offer two versions of PuduBot for you to choose from: tray version and enclosed box version.
- Both versions of PuduBot feature a modular design, quick release structure, and support kits switching.
- We offer a rich selection of accessories for the PuduBot series. You can purchase different accessories to upgrade your robot according to specific delivery needs.



Product Overview · PuduBot Series

All-Aluminum Frame

Aviation-grade aluminum alloy that is structurally stable, antioxidant and corrosion resistant

Adjustable Trays

3* metal trays (42×50cm)

7 levels of adjustment

Easily meets high carrying capacity needs

3D Obstacle Avoidance Sensor

2*RGBD depth cameras

Lidar

Customized lidar that doubles the accuracy of obstacle avoidance



Visual Camera Positioning

Top infrared camera for real-time positioning, set up the complete visual positioning solution

Enclosed Box

Large 100L capacity

press button for opening

Modular design and 3-minute quick disassembly

Independent Linkage Suspension

Auto-level independent linkage suspension system with self-adaptive road detection and highly effective shock filtering to avoid bumps



PuduBot



Machine dimensions	516*500*1288mm
Robot weight	35kg
Machine material	ABS/Aviation-grade aluminum alloy
Charging time	4H
Battery life	10-24H
Battery capacity	15.6Ah
Cruise speed	0.5-1.2m/s (Adjustable)
Load capacity	13kg/tray, Max30kg
Tray size	3* Super-large metal trays (42×50cm) 7 levels of adjustment

PuduBot Box



Machine dimensions	516*500*1288mm
Robot weight	40kg
Machine material	ABS/Aviation-grade aluminum alloy
Charging time	4H
Battery life	10-24H
Battery capacity	15.6Ah
Cruise speed	0.5-1.2m/s (Adjustable)
Load capacity	10kg/tray, Max 30kg



Why Choose PuduBot?

Practical: Large capacity, fast movement, readily usable and efficient.

Affordable: Only \$5 cost per day.

Secure: Not run into others. No spill out.

Easy: Require no extra maintenance except charging.

Durable: 73,000km durability test.

Service: 7/24 support at hundreds of outlets nationwide.





All Scenarios Covered

Pudu has independently developed a robot positioning and navigation technology based on multi-sensor fusion, which allows PuduBot to be used in restaurants, hotels, Bar, cafés, office buildings, and other business scenarios.



Restaurants



Bar



Cafés



Hospitals



Hotels



Government buildings



Office buildings

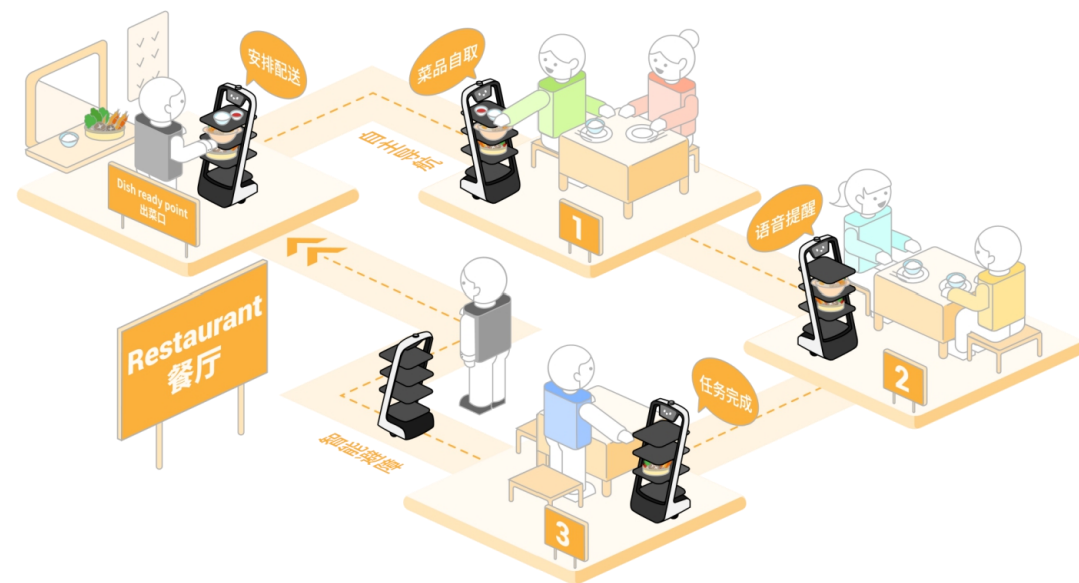


Shopping malls



Restaurant

- Provides table-to-table delivery of dishes, tableware, hand towels and other restaurant items.
- Arrival notification: voice reminder ensures precise delivery.



Hospitality

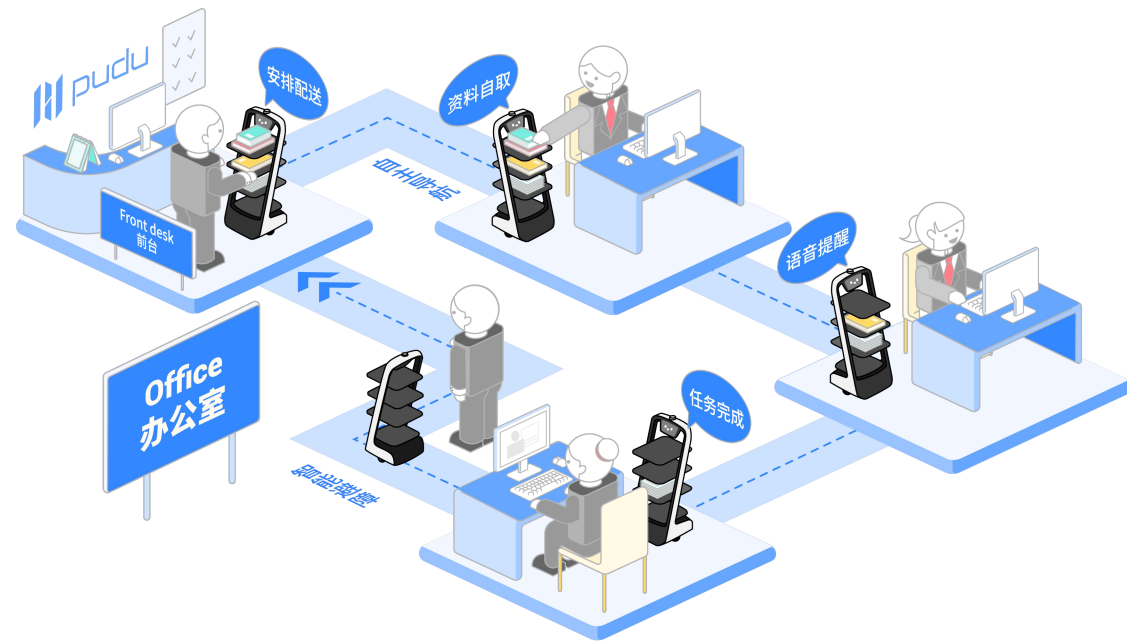
- Provides pre-meal snacks, drinks and other welcome services in the waiting area.
- Intelligent voice announcements to attract customers.





Office

- Delivers documents and other items in the office.



Karaoke

- Delivers drinks, snacks and other food to the booths.





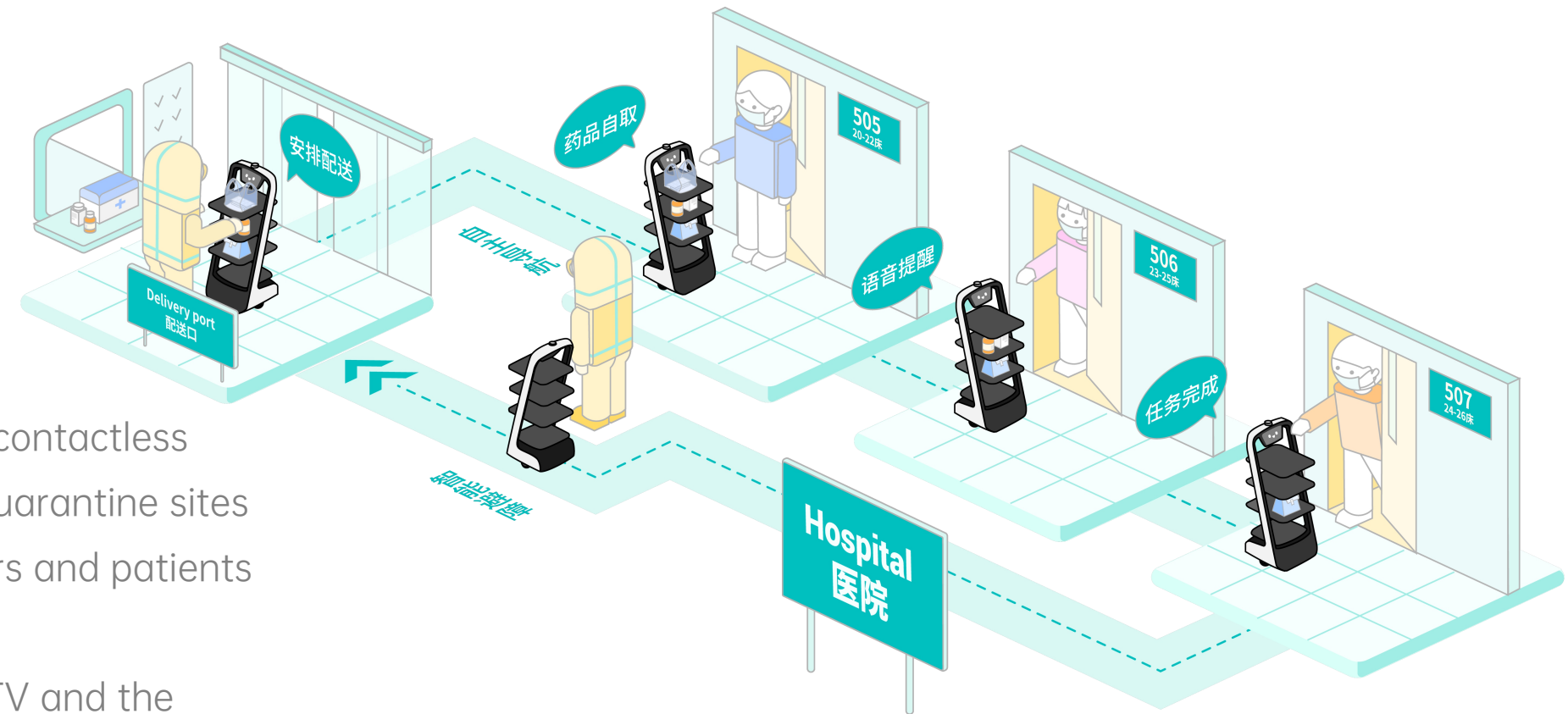
Contactless Delivery in Hospitals

What can PuduBot do?

- Performs contactless delivery of daily necessities, medicine, takeaway meals and other everyday items in hospitals.

Advantages:

- During COVID-2019, PuduBot provided full-process contactless delivery services for more than 100 hospitals and quarantine sites nationwide to avoid cross-infection between doctors and patients and save medical resources.
- For its efforts, it received commendations from CCTV and the Ministry of Industry and Information Technology.





In the post-epidemic era, "Contactless delivery" is becoming increasingly important in the intelligent delivery industry

The COVID-19 has changed many aspects of production and people's lifestyle. As a result, the role of "contactless delivery" has become increasingly prominent. In restaurants, food is distributed to customers by PuduBot robots, which reduces direct people-to-people contact, while ensuring food hygiene and safety.





PuduBot—Intelligent Delivery Expert

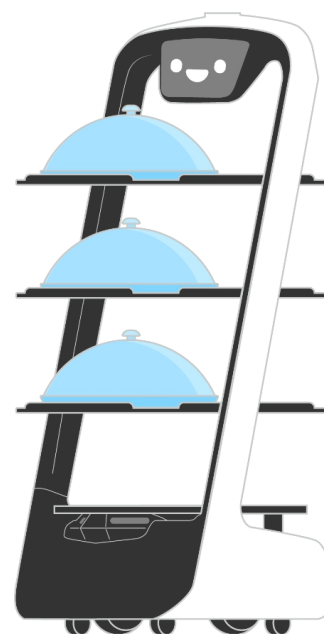
More deliveries

In restaurants, PuduBot can complete roughly 400^[1] food and beverage deliveries every day, which frees waiters from the repetitive and laborious work of delivering dishes, so that they may have more time to focus on serving customers.



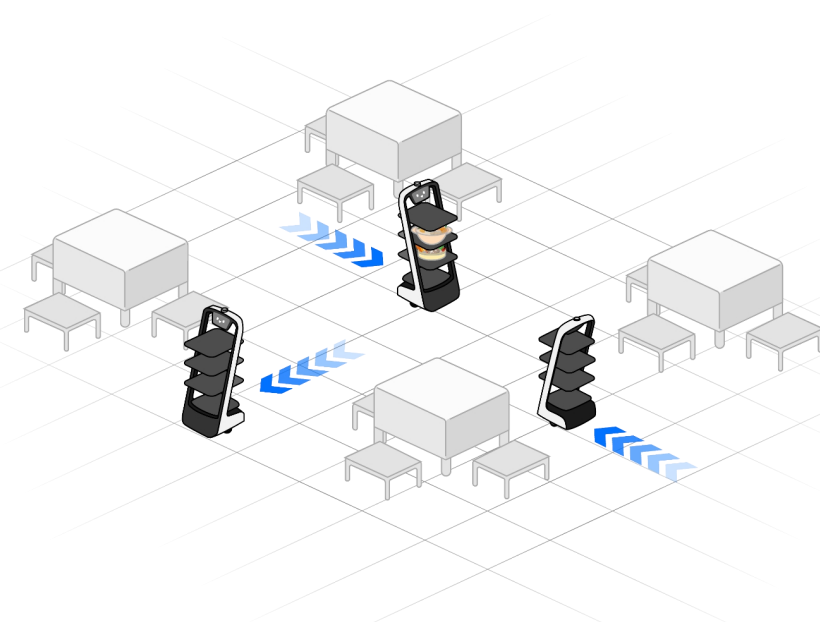
Larger loads

PuduBot features a large tray (42×50cm), which allows for a single tray to provide twice the carrying capacity as a manual delivery.



Coordination among multiple robots

Support collaborative delivery mode and allow 100 PuduBots to work together in a 10,000m² dining space at most.



[1] Data sourced from the Pudu cloud platform backend integrated operations data in more than 30 countries



Core of Extreme Delivery Capacity

<10cm

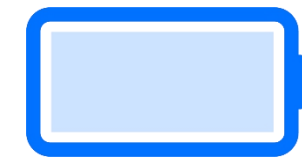
Centimeter-Level

Centimeter-level real-time positioning. Features a multi-sensor fusion solution with a minimum clearance as low as 80cm.
Reliably Accurate



Multiple Maps

Highly precise mapping, optimal path planning, multiple delivery modes, full scenario coverage.



Excellent Endurance

Work for 24 hours after being fully charged in 4 hours.



Safe, to be safer

3D obstacle avoidance technology, is the safety performance guarantee



2*RGBD depth cameras

- 2* RGBD depth cameras
Endows PuduBot with the best 3D perception ability.
- Accurately detect obstacles and stop within **0.5 seconds** in case of any obstacle.
- A front detection angle up to **192.64°**
- Over **10 meters** of front detection distance



Safe, to be safer

Auto-level independent linkage suspension
for stable, non-spill delivery



- Auto-level adaptive variable suspension. Damping can be altered according to different floor conditions and driving requirements.
- The resonance frequency is maintained at an optimal state.
- Be capable of crossing **1cm** obstacles
- Deliver dishes with **no-spill out**
- Improve the moving steadiness ability by **50%**



Product Advantages · Abundant Accessory Packs · Enclosed Box

Worry-Free Delivery



Enclosed box to isolate contamination
Privacy protection

Crafty Open/Close



No external switches,
press to open
Easy opening and closing

Large Capacity (100L)



PuduBot Box Capacity
4 cases of Coca Cola, or 9
regular dishes

Quick Disassembly



Modular design for disassembly
and assembly of the box can be
completed in less than 3 minutes



Enclosed Box Specifications



Box material	ABS/Aviation-grade aluminum alloy
Box weight	16kg
Box dimensions (external)	422*422*710 mm
Box dimensions (internal)	398*396*650 mm
Tray height	238/238/178mm (from top to bottom)
Load capacity	10kg/tray within the box and 5kg atop the box
Door-opening control	Press-type elastic switch



Flexible Dish Covers





Flexible Dish Cover Specifications

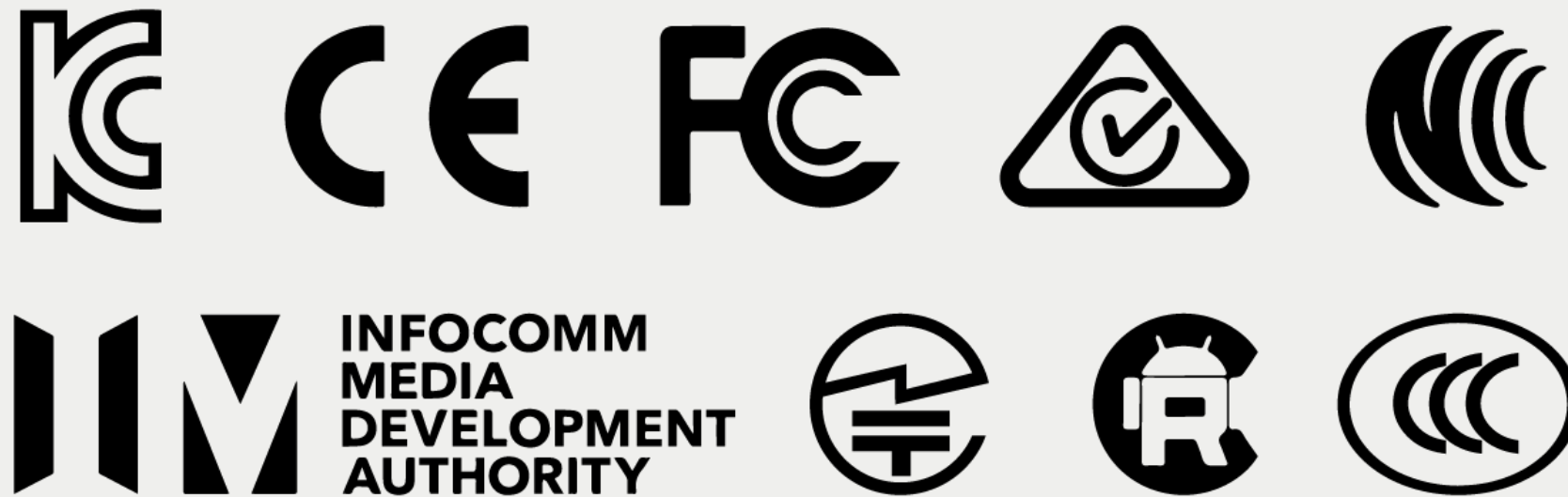


Cover material	Acrylic/Aviation-grade aluminum alloy
Cover weight	8kg
Cover dimensions	422*422*710mm
Door-opening control	Magnetic switch



Product Advantages · Safety Certifications

PuduBot robot has received KC certification from Korea, CE certification from the EU, FCC certification from USA, RCM certification from Australia, and NCC certification from Taiwan, China
IMDA certification from Singapore, MIC/TELEC certification from Japan, CR (China robot certification) and many other certifications both domestically and abroad to ensure the safety and compliance of our robots.








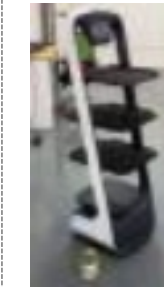
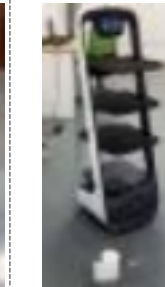

The Comparison of Performance with Others

	PuduBot	T1	T5	T6	Performance comparison
Console	4G+16G	2G+16G	2G+16G	1G+8G	Large memory, with excellent performance in the algorithm control over the highly dynamic scenes.
Communication	Self-built network based on the independent WIFI module	3G	3G	3G	Compared with 3G, the self-built network suffers less disturbances with better bandwidth, faster information transmission and greater scheduling efficiency.






Product Features · Safety Test from Third-party Testing Institution

Fixed Obstacle Avoidance Test

Obstacle	Chair	Backpack	Metal kettle	Plants	Toilet paper	8mm iron net
Test Process						
Test results	Success	Success	Success	Success	Success	Success











Hovering Obstacle Avoidance Test

Hovering Elevation	0.25 m	0.5 m	0.8 m
Test process			
Test results	Success	Success	Success

Steadiness Test

Speed	0.5m/s (No load)	0.9m/s (No load)	0.5m/s (Full load)	0.9m/s (Full load)
Test Process				
Test results	Move steadily. 100ml remains. No spill out	Move steadily. 82ml remains. 18% spill out	Move steadily. 100ml remains. No spill out	Move steadily. 100ml remains. No spill out

Passability Test

Test passage	Straight passage	S passage	Passage with right angle	Passage with obtuse angle	Dead end
Test process (Speed 0.5m/s)					
Test results	Pass in 6s	Pass in 8s	Pass in 8s	Pass in 8s	Fail and keep
Test process (Speed 0.9m/s)					
Test results	Pass in 3s	Pass in 3s	Pass in 3s	Pass in 3s	Fail and keep exploring

Testing institution World Test Time: November 26, 2019 to December 25, 2019 Test report No.: WD1911ST006



More Service Features

MIR system: free online upgrade



App Call

Mobile device call

Real-time control and quick response



Private Room Notification

Punctual notification on robot arrival

More efficient service for the private rooms



Receipt Recognition

QR code recognition and automatic tasking

No need to use the screen



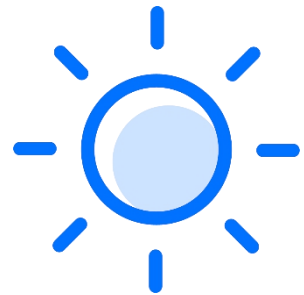
Customized Voice

Online upgrade and real-time sync



More Service Features

MIR system: free online upgrade



Sunlight Resistance

Bright light resistant
Adaptable to different
indoor light conditions



8 Meters Height

Able to work in the indoor
space with a 8m height
at most, such as the hotel
lobby



Support Flexible Table Numbers

Allow to choose and
change the table
numbers as one wishes



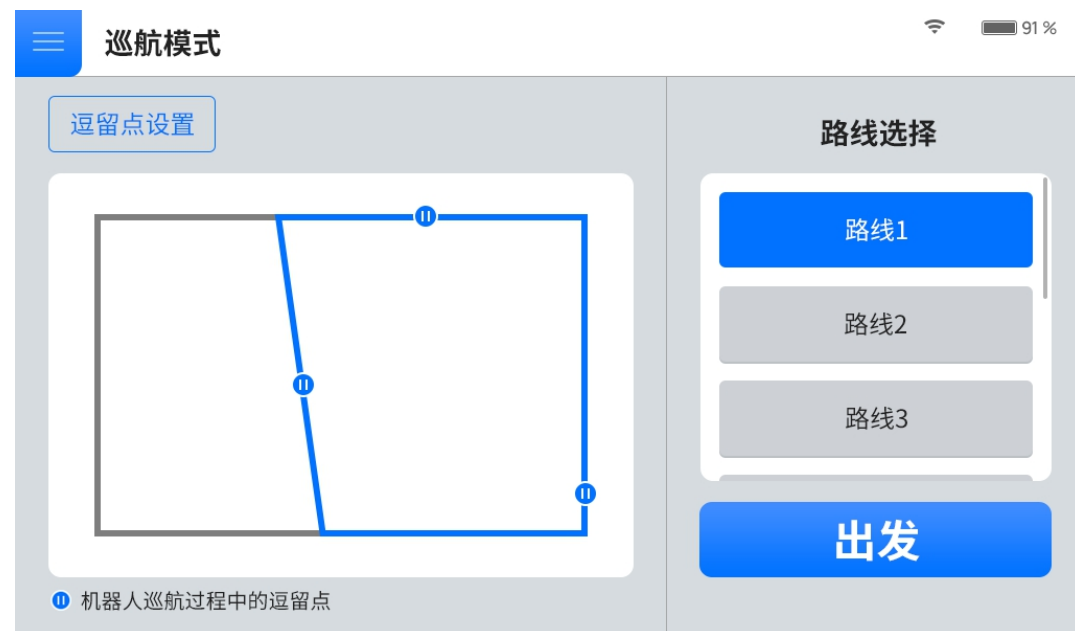
Switch among Several Maps

Switch among several
maps based on the
actual scenes



More Service Features

MIR system: free online upgrade



Pause Points in Cruise Mode

Support the pause points setting in cruise mode, and pause time and voice broadcast customized.



double confirmation function

Double confirm when tasks cancel reduce the chance of human mistake to cancel the tasks.



PUDU Robot Open Source Platform

The Pudu Robot Open Source Platform enables developers to achieve functions such as remote control, task input, status monitoring and much more via different interfaces.



RESTfulSDK



SDK remote control solution

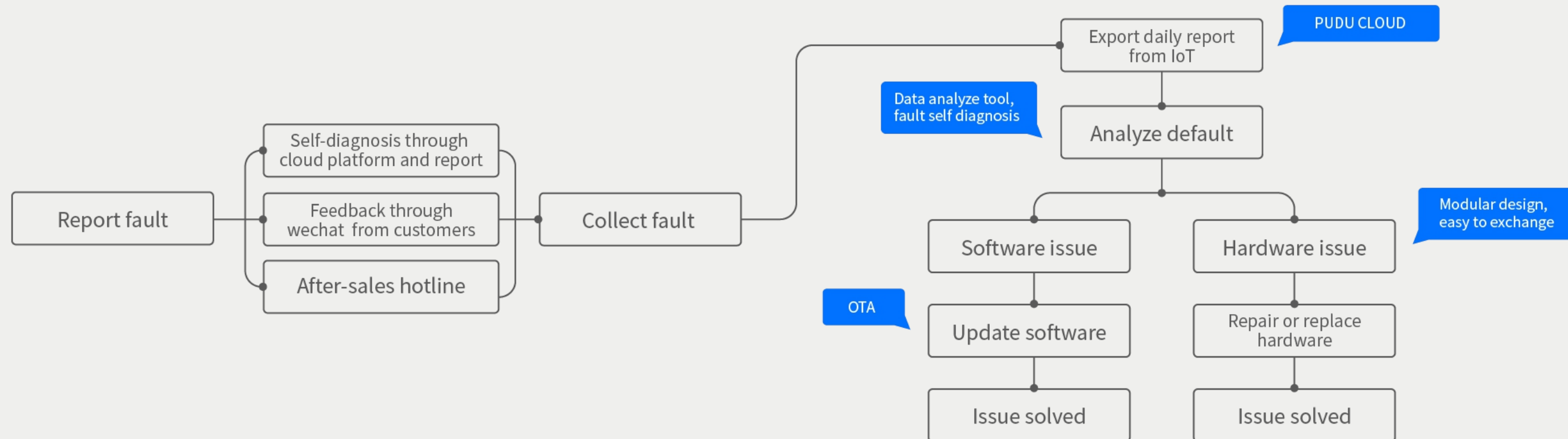


AndroidSDK



PUDU IoT cloud service could solve over 90% of technical faults

- Real-time fault detection and reporting via the cloud platform: Not rely on clients' feedback, timely respond to and handle the faults.
- Analyze and handle faults online: Locate the fault module precisely and handle over 90% of the faults online by IoT.
- Automatic fault diagnostic tools: Improve the fault handling efficiency and lower the after-sales cost.
- Modular design: Make after-sales service easier and professional by streamlining the maintenance steps.





Create Your Exclusive PuduBot

Customized Appearance



Enhanced Promotion

- Go harmony with the vibe of the restaurant
- Greater brand and service exposure

Customized Voice Pack



Cute girls



Cute boys



Sweet girls



Active boys

Multicolor Marker



Notes: The colors are subject to the actual marker



Friendly, Convenient and Professional

Thoughtful After Sales Service

1 year free warranty | Free Training | 7x12 Hours Service
IoT services: Solve over 90% technical issues online

Contact Us:

Email: gobal_sales@pudutech.com

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Pudu Robotics provides diverse training methods and tutorials

With a strong after-sales technical team, Pudu Robotics not only supports online installation training worldwide, but also provides diverse training materials.

NO.2 sale: Robot installation and commissioning

2. Create Map

2.1 Draw a topological map

Check whether the location map path is consistent with the path that the actual robot needs to walk (the road accessible by the restaurant); Avoid missing certain roads; Draw a topological path along the location map path after confirming that the path is correct. Principle of drawing a topological path:

- Try best to along the static map path.
- Pay attention to the connection of the cross paths when drawing. A red circle will automatically appear when the mouse is placed on the path.
- Draw with multiple paths when there is a curved path.
- The length of a single path (between two nodes) needs to be $\geq 1.2m$, and the distance between two adjacent paths is greater than $1.2m$.
- The angle between the paths is $>45^\circ$.
- The distance between the arrival point and path is $<0.5m$; The distance between the arrival point and node is greater than $0.2m$.
- Pay attention to observe whether the robot's positioning has changed when push a robot to draw a topological map, and evaluate whether there is a positioning problem with the static map again.

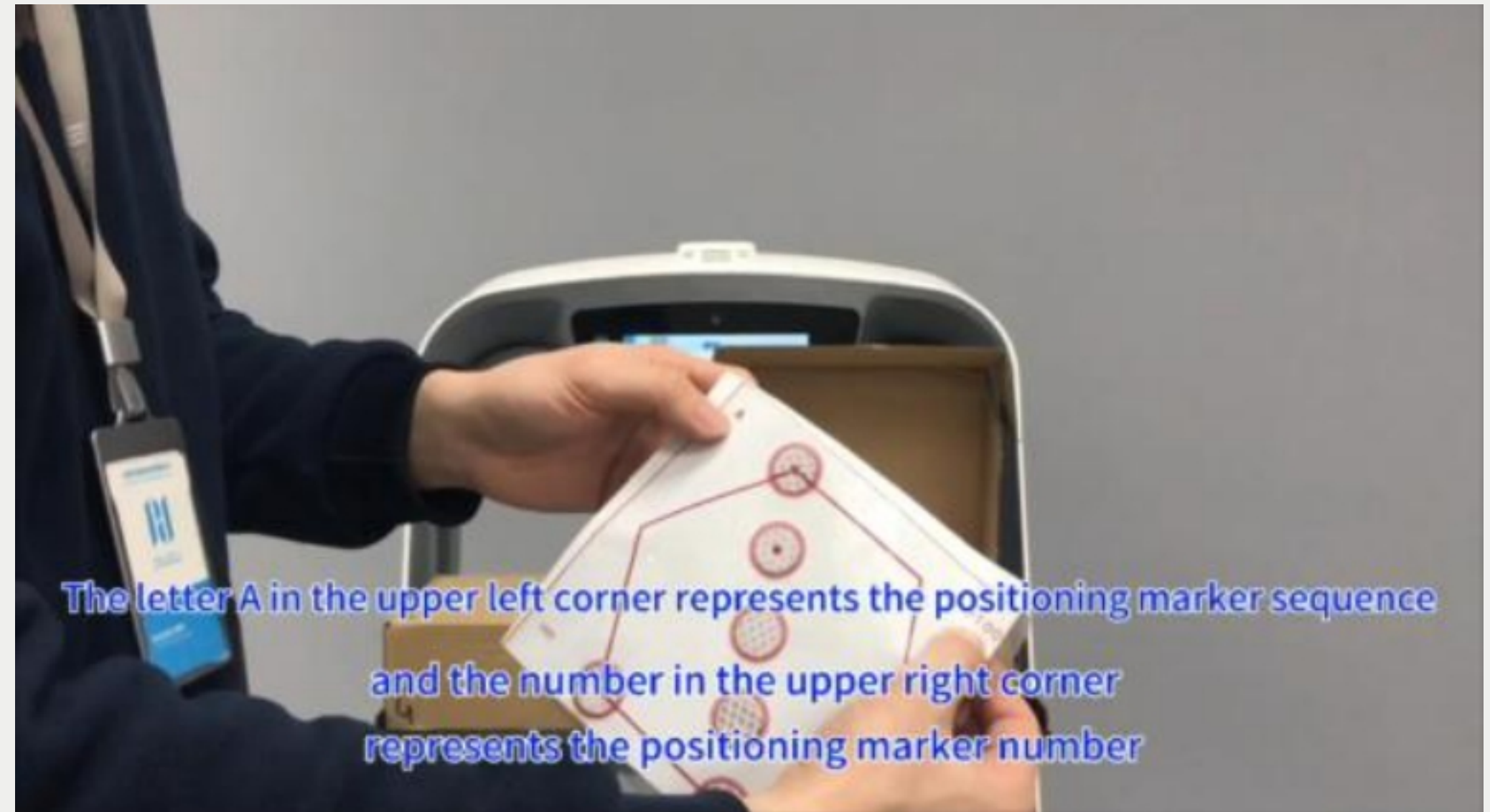
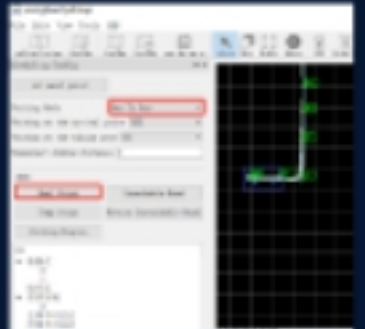
NO.2 sale: Robot installation and commissioning

3. Docking point settings

3.1 Single robot fixed docking

When only one robot is deployed in a restaurant, it is only necessary to set a fixed docking point, and it is also necessary to set up a docking area. The specific operations are as follows:

1. Make sure the installation tool is connected to the machine, click "watcher" in the toolbar, and push the robot to the designated stop.
2. Click "Meal point" button on the installation tool, and enter the "meal point" number in the pop-up dialog box (default starts from 0). At this time, The "meal point" will be showed in the right picture.
3. the docking mode select "One to One Mode".
4. Send map.





Real data, more convincing

A restaurant in Beijing

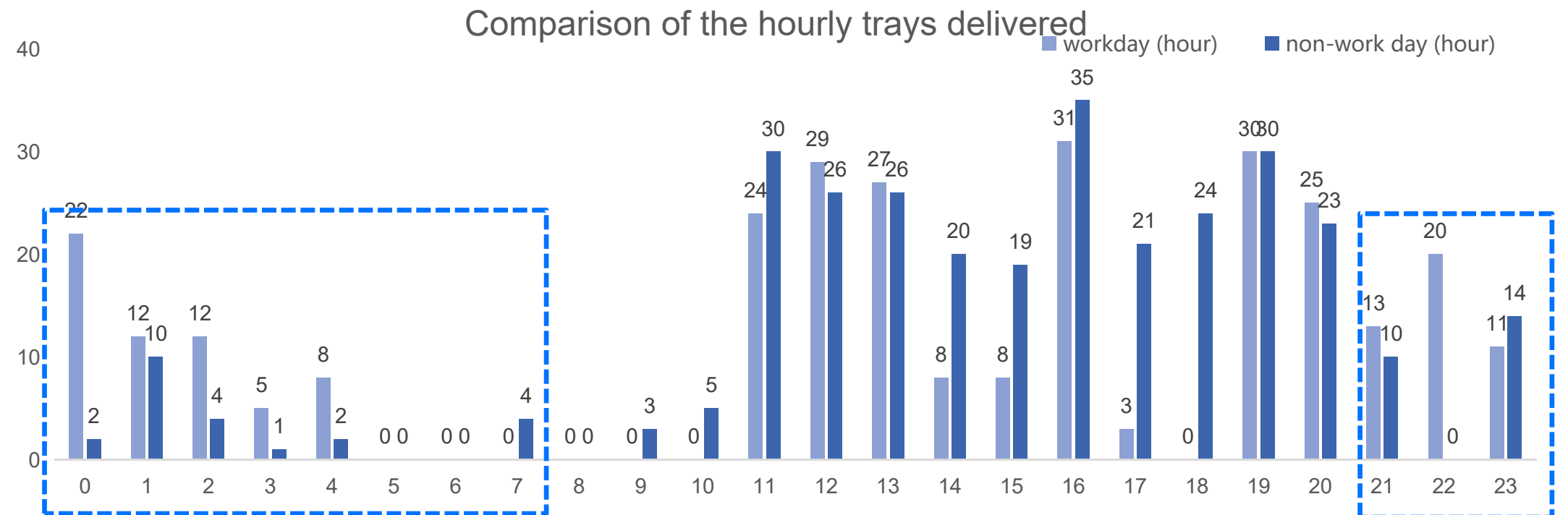
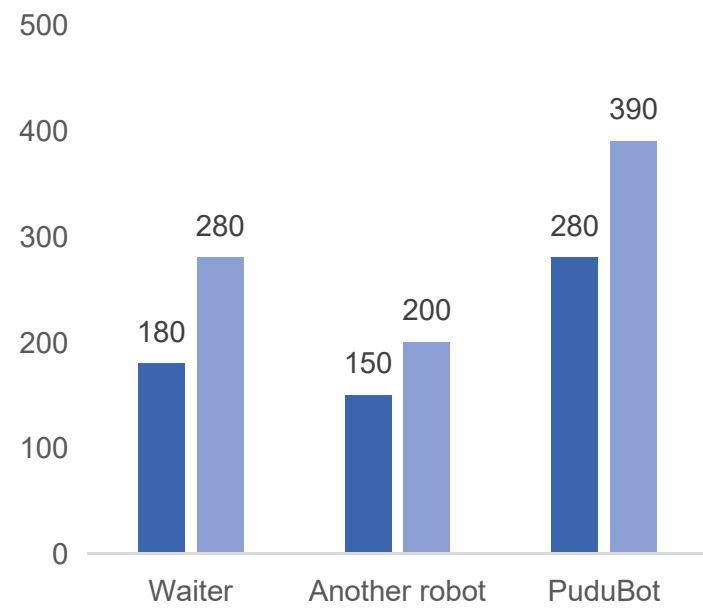
Total area: 1000m²; dining area: 800m²

Daily deliveries: 280 trays (weekdays)

Tables: 99

Daily deliveries: 280 trays (weekdays)

Installed in 2 days



PuduBot could replace the delivery staff from 21:00 to 07:00



Success Stories · Client Case

 深圳市普渡科技有限公司
价值量化跟测确认单

客户名称		403070620108	
门店名称			
门店地址			
机器人情况	共投放两台机器人，用于传菜		
门店价值量化方式	<input type="checkbox"/> 自然减少 1.5人 <input type="checkbox"/> 岗位减少 1.5人 <input type="checkbox"/> 门店减少 1人 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
门店量化指标	日均送 200 以上菜品		
跟踪情况及确认 (日期范围: 2019-04-21 - 2019-04-24)			
日期	1. 人员优化后运行情况 2. 问题点 3. 结论	机器人运行 物料数量	门店确认
4.21	1. 使用机器人后人力优化情况	共配送菜品	
周四	(1) 门店使用机器人积极性高, 看到机器人用	300个, 共计	

Quantified report on the values of delivery robot:

- Highly motivation: The delivery robots are viewed as a part of the waiting staff's performance, encouraging the staff to use the robots as much as possible.
- Higher efficiency: Data suggests that two robots deliver about 400 dishes to 300 tables on weekends and during vacations, and 250 to 300 dishes on weekdays. According to the restaurant manager, a robot is as efficient as a waiter/waitress in dish delivery.
- Highly admitted: The managers think that the robots are awesome because they help reduce the labour cost by a large margin. There is no dedicated waiter/waitress during the day shift. But a robot is as efficient as a waiter/waitress to deliver the dishes. It can even replace the waiter/waitress on duty.

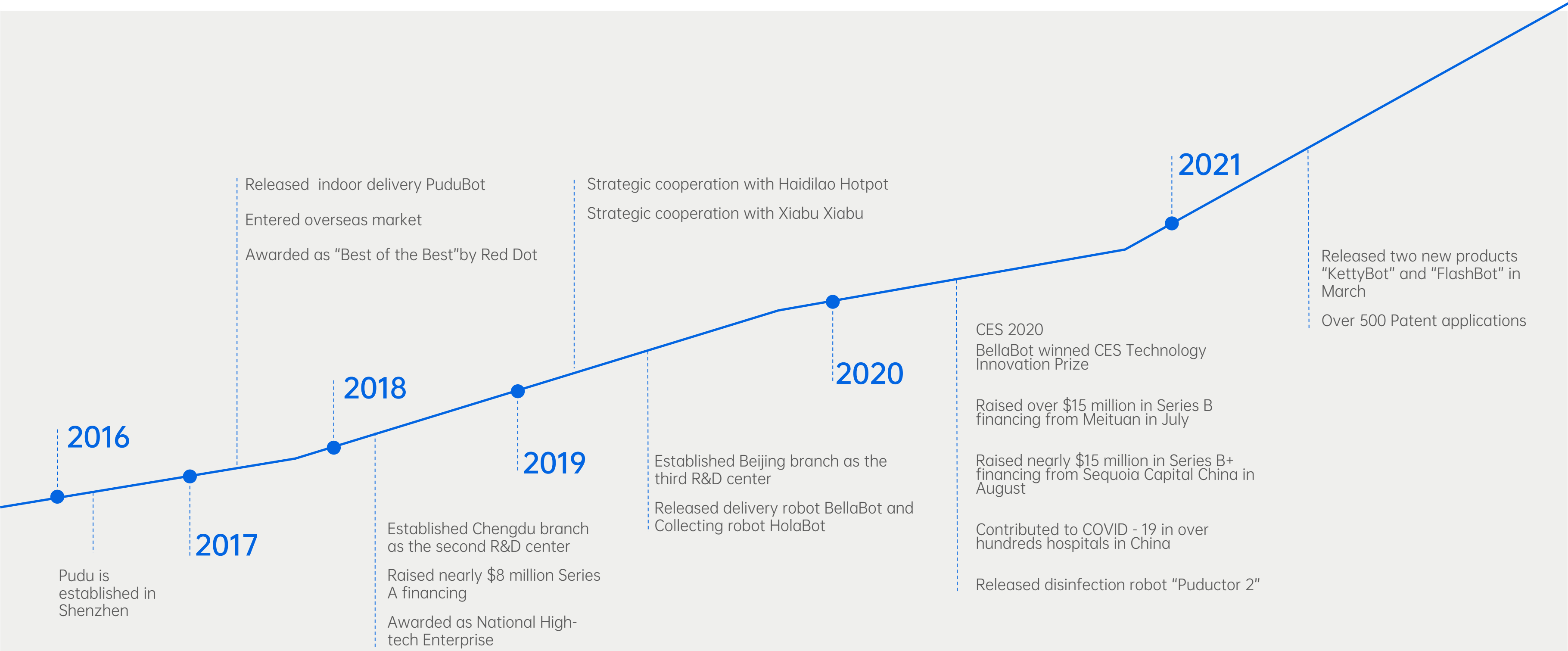


About Pudu · Key Clients





About Pudu · Milestones

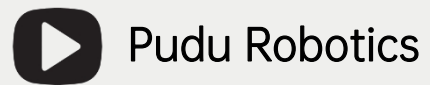
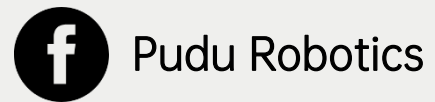




Shenzhen Pudu Technology Co., Ltd.

Founded in 2016 and headquartered in Shenzhen, Pudu Robotics is a national high-tech enterprise dedicated to the design, R&D, production and sales of commercial service robots. The company has set up R&D centers in Shenzhen, Beijing and Chengdu, and hundreds of after-sales service centers across China, with R&D staff accounting for more than 50%. Since establishment, Pudu Robotics has always adhered to the "Spirit of Invention" and practiced "User-Centered" corporate culture, aiming to boost productivity and well-being with the power of robots.

Powered by the core technologies of low-speed autonomous driving, robotics motor and motion control, Pudu Robotics has developed top-notch delivery robots, hospitality robots and disinfection robots that are widely used in restaurants, hospitals, schools, office buildings, government halls, subway stations, waiting rooms, etc. Pudu's products are sold in more than 50 countries. With superior offerings and global footprints, Pudu Robotic has become a world-leading enterprise of commercial service robots.



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