

Who makes what around Shenzhen

The Pearl River Delta builds most of the world's service robots and a growing share of its humanoids. This is our map of who makes which part, by city and district, with Chinese names, so that a buyer in Singapore and a supplier in Bao'an are talking about the same company.

Published **2 Oct 2026** **14** min read **30** linked sources Sheet **GC-R-004**

A humanoid is a few hundred parts from a few dozen firms, and in the Pearl River Delta most of those firms sit within two hours of each other. Shenzhen's Nanshan district holds the robot makers and the sensor makers along one road. Bao'an, to its west, holds the motor and drive makers. Longhua and Dongguan hold the contract manufacturers. Huizhou makes the cells, Foshan makes the industrial arms, Guangzhou is building humanoid lines inside car plants, and Hong Kong supplies the contracts and the banking. This note puts names on that map.

We built it for our own use before the Robotech Asia fair in October 2026, and we publish it because a buyer who can name a maker's reducer supplier gets a different conversation from one who cannot. Every firm carries its Chinese name, because the name on the WeChat card is the one that matters. Rows marked ● **UNVERIFIED** come from industry lists we have read but not confirmed with the firm; rows marked ● **VERIFIED** rest on the firm's own filings, a government page or a major outlet.

01 The delta on one map

Guangzhou

广州 · humanoid lines in car plants

● Huangpu · GSK CNC, Haozhi

● Tianhe · Xpeng IRON line

● Panyu · GAC GoMate

Dongguan

东莞 · contract manufacturing

● Luxshare, Topstar

Huizhou

惠州 · cells and packs

● EVE, Desay

Foshan

佛山 顺德 · Midea, KUKA, die casting

● Shunde · Midea KUKA park

Shenzhen

深圳 · makers, sensors, motors

Zhuhai

珠海 · Gree, motor-control chips

Hong Kong

香港 · contracts, banking, InnoHK



FIG 1 1 Robot Valley, Liuxian Avenue, Nanshan 留仙大道 (makers, LiDAR, depth cameras, tactile). 2 Nanshan Science Park, Yuehai 南山科技园. 3 Qianhai, Huawei embodied AI centre 前海. 4 Shenzhen World, Robotech Asia venue 深圳国际会展中心. 5 Bao'an, the motor and drive base 宝安 (blue). 6 Futian and Huaqiangbei 福田 · 华强北. 7 Songshan Lake, XbotPark 松山湖. 8 Longgang Bantian, Huawei HQ 龙岗 坂田. 9 Longhua, Foxconn 龙华. 10 Pingshan, BYD 坪山. Positions are schematic, accurate to a few kilometres. ● **ESTIMATE**

The geography explains the sourcing pattern. Shenzhen is a strip about 80 km long. Nanshan and Qianhai sit at its west end, Futian in the centre, Luohu to the east, and Bao'an runs up the western coast past the exhibition centre to the Dongguan border. Dongguan is directly north, with Songshan Lake 45 to 60 km from Nanshan by road. Guangzhou is 100 to 140 km north-west, Foshan just south-west of it, Huizhou east of Dongguan. The industry report we read puts the core supplier corridor, Shenzhen, Dongguan and Huizhou, inside a 200 km radius.¹ ● **ESTIMATE**

02 Shenzhen by district

DISTRICT	WHAT IT DOES FOR A ROBOT	FIRMS NAMED THERE	SOURCE
Nanshan 南山	Research, headquarters and most of the humanoid makers. Robot Valley runs along Liuxian Avenue from Xili Lake to Nanshan iPark with 30 or more robotics firms; a district official claims about 70% of a product's manufacturing can be handled along the road. The district counts over 6,000 national high-tech enterprises and sent more than 100 of Shenzhen's roughly 380 CES 2026 exhibitors.	UBTech, RoboSense, Orbbec, DJI, Pudu, EngineAI, LimX, Leju, Dobot, Paxini, Daimon, AI² Robotics, Leadshine, Tencent	People's Daily, Feb 2026; KrASIA, Sep 2026; CMRA ^{2 1 3} ● VERIFIED
Bao'an 宝安	The component and actuator base, with more humanoid supply-chain firms than any other district: a 2025 count gives 628 actuator firms, 842 sensing-device firms, 559 control and interaction firms, 192 power-system firms. Brand headquarters near Qianhai, factories north in Shiyan. Hosts the Shenzhen World exhibition centre.	Inovance (registered HQ), Zhaowei, Sunwoda, Everwin	Qianzhan, Apr 2025; KrASIA ^{4 1} ● VERIFIED counts, 18 months old
Qianhai 前海	The Shenzhen and Hong Kong cooperation zone. Huawei's Global Embodied AI Industry Innovation Center opened here in November 2024 with 16 launch partners, Leju and Topstar among them. LimX runs a test facility.	Huawei, LimX	TechNode, Nov 2024; EyeShenzhen, Mar 2025 ^{5 6} ● VERIFIED
Longgang 龙岗	Huawei's Bantian headquarters and, by one count, more than 12,700 companies across the AI and robotics supply chain. The Robot 6S Store at Xinghe WORLD sells and demonstrates Leju, Unitree, LimX and EngineAI units.	Huawei	KrASIA ¹ ● VERIFIED, store ● REPORTED
Longhua 龙华	Mass production. Guanlan and Yousong hold the Foxconn complex, which validated UBTech's Walker humanoid for logistics work in January 2025.	Foxconn, Creality	KrASIA ¹ ● VERIFIED
Guangming 光明	Future industries. Guangming Laboratory hosts the Ascend computing centre named in the city's revised embodied AI plan.	Guangming Lab	Shenzhen STIC, Jun 2026 ⁸ ● VERIFIED
Futian 福田	Government, finance and Huaqiangbei, the electronics market where every board-level part has a counter. Futian Laboratory is named in the	Honor, the Huaqiangbei traders	KrASIA; STIC ¹ ● VERIFIED

DISTRICT	WHAT IT DOES FOR A ROBOT	FIRMS NAMED THERE	SOURCE
	revised plan. The high-speed rail station is one stop from Hong Kong West Kowloon.		
Pingshan 坪山	High-end automated manufacturing. BYD, which builds its own collaborative and mobile robots and sits in Morgan Stanley's Humanoid 100, is here.	BYD, Honor	KrASIA; EyeShenzhen ⁶ ● REPORTED for the HQ location

Citywide, the figures the city quoted in March 2025 were more than 57,000 robotics-related enterprises, 34 listed robotics companies and nine robotics unicorns. Seven Shenzhen firms sit in Morgan Stanley's Humanoid 100 list: BYD, Tencent, UBTech, RoboSense, Leadshine, Zhaowei and Inovance.⁶ ● VERIFIED, 18 months old.

03 Who makes what: 45 component firms

Grouped by what goes into the joint, the sense organs, the pack and the shell. District is given where we have it; "unverified" on a row means we have the firm from an industry list and have not confirmed the product claim with the firm itself.

Motors, drives and motion control

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Inovance Technology	汇川技术	Shenzhen, Bao'an (registered HQ)	Servo motors and drives, PLCs, industrial robots; about 8.8% of China's industrial robot market in 2024	● VERIFIED share, HQ
Leadshine	雷赛智能	Shenzhen, Nanshan	Frameless torque motors (about 120,000 in 2025, a plan for two million in 2026), steppers, drives, motion controllers ²⁰	● REPORTED
Zhaowei Machinery and Electronics	兆威机电	Shenzhen, Bao'an	Micro drive systems, coreless-motor gear modules for hands	● UNVERIFIED
Han's Motor	大族电机	Shenzhen, Nanshan	Frameless, linear and direct-drive motors	● UNVERIFIED
Googol Technology	固高科技	Shenzhen, Nanshan	Motion controllers, servo drives	● UNVERIFIED
INVT	英威腾	Shenzhen	Servo drives, inverters	● UNVERIFIED
Topband	拓邦股份	Shenzhen	Brushless motors, motor controllers, battery packs	● UNVERIFIED
Direct Drive Tech	本末科技	Shenzhen	Direct-drive motors and joint modules for legged robots	● UNVERIFIED
ZeroErr	零差云控	Shenzhen	eRob integrated joint modules; the eRob 80T retails from about US\$1,440 ²¹	● REPORTED price
Fortior Tech	峰昭科技	Shenzhen, Nanshan	Brushless motor-control chips with field-oriented control	● UNVERIFIED
Geehy Semiconductor	极海半导体	Zhuhai	Motor-control microcontrollers	● UNVERIFIED

Reducers and screws

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Tongchuan Technology	同川科技	Shenzhen	Harmonic reducers; reported supplier to Xpeng's IRON	● UNVERIFIED
Shanchuan Harmonic	杉川谐波	Shenzhen	Harmonic reducers	● UNVERIFIED
Kemeng Innovation Robotics	科盟创新	Shenzhen	Harmonic and planetary reducers, joint modules	● UNVERIFIED
Haozhi Mechanical and Electrical	昊志机电	Guangzhou, Huangpu	Spindles, harmonic reducers, torque motors, joint modules	● UNVERIFIED
Keyi Precision	科益精密	Guangzhou	Harmonic reducers with C-shaped teeth	● UNVERIFIED
Jiya Precision (Midea)	广东极亚精机	Foshan	Harmonic reducers for humanoids	● UNVERIFIED
Jijia Precision	广东吉嘉精密	Guangdong	Hollow rotary platforms, harmonic reducers	● UNVERIFIED
Tengzhan Precision	誉展精密	Shenzhen	Micro ball screws down to 1.8 mm, roller screws	● UNVERIFIED
Nuoshi Robotics	诺仕机器人	Shenzhen	Planetary roller screws	● UNVERIFIED
Weiyuan Precision	威远精密	Shenzhen	Ball screws, roller screws, linear units	● UNVERIFIED

Sensors and perception

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
PaXini	帕西尼	Shenzhen, Nanshan	Hall-array tactile sensors, the DexH13 hand, a TORA humanoid; more than CNY 4 billion raised ¹⁸	● VERIFIED HQ and funding
Orbbec	奥比中光	Shenzhen, Nanshan	Depth cameras (Gemini 330, 435Le) and time-of-flight cameras used on many humanoids ¹⁹	● VERIFIED
RoboSense	速腾聚创	Shenzhen, Nanshan	LiDAR for cars and robots, robot vision, dexterous hands	● VERIFIED location
Livox (DJI)	览沃	Shenzhen, Nanshan	MID-360 LiDAR, the unit on Unitree's G1	● ESTIMATE
Hypersen	海伯森	Shenzhen	Six-axis force sensors, 3D sensors	● UNVERIFIED
Ampron	安培龙	Shenzhen	Pressure and force sensors	● UNVERIFIED
OPT Machine Vision	奥普特	Dongguan	Machine-vision lighting, cameras, software	● UNVERIFIED
Daimon Robotics	戴盟机器人	Shenzhen, Nanshan	Visuotactile sensing and hands	● REPORTED

Batteries

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Sunwoda	欣旺达	Shenzhen, Bao'an	Cells and packs	● UNVERIFIED district
EVE Energy	亿纬锂能	Huizhou	Cylindrical and prismatic cells	● UNVERIFIED district
Desay Battery	德赛电池	Huizhou	Packs and battery management systems	● UNVERIFIED
BYD, FinDreams	比亚迪 · 弗迪	Shenzhen, Pingshan	Blade cells, packs	● VERIFIED HQ

Contract manufacturing, structure and machines

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Foxconn, FII	富士康 · 工业富联	Shenzhen, Longhua	Electronics assembly; validated UBTech's Walker for its own logistics	● REPORTED
Luxshare Precision	立讯精密	Dongguan and Shenzhen	Electronics assembly, connectors, cables; its robot work is not public	● UNVERIFIED
BYD Electronics	比亚迪电子	Shenzhen	Electronics assembly, structural parts	● UNVERIFIED
Everwin Precision	长盈精密	Shenzhen, Bao'an	Precision metal structural parts	● UNVERIFIED
Lingyi iTech	领益智造	Jiangmen and Shenzhen	Precision parts and modules	● UNVERIFIED
JLC (JLCPCB, JLCCNC)	嘉立创	Shenzhen	Quick-turn circuit boards and assembly, CNC, 3D printing	● VERIFIED services
LK Technology	力劲科技	Shenzhen factory, Hong Kong listed	Die-casting machines, including the largest presses	● UNVERIFIED
Yizumi	伊之密	Foshan, Shunde	Die-casting and injection-moulding machines	● UNVERIFIED
Wencan	文灿股份	Foshan, Nanhai	Aluminium die castings	● UNVERIFIED
Guangdong Hongtu	广东鸿图	Zhaoqing	Die castings	● UNVERIFIED
Topstar	拓斯达	Dongguan	Industrial robots, automation lines, injection machines; a Huawei centre partner	● REPORTED
GSK CNC	广州数控	Guangzhou, Huangpu	CNC controllers, servo drives, industrial robots	● UNVERIFIED
XbotPark Songshan	松山湖国际机器人产业基地	Dongguan, Songshan	Hardware incubator founded by Li Zexiang, the HKUST professor	● VERIFIED

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Lake		Lake	behind DJI; more than 280 firms incubated, 12 unicorns or near-unicorns, alumni Narwal, EcoFlow, Hai Robotics and Mammotion ¹²	

NAMES THAT WILL COME UP AND ARE NOT IN THE DELTA

Unitree 宇树 and Deep Robotics 云深处 are in Hangzhou; AgiBot 智元, Fourier 傅利叶 and Keenon 擎朗 are in Shanghai; Galbot 银河通用 is in Beijing. The reducer leaders Leaderdrive 绿的谐波 (Suzhou) and Laifual 来福 (Zhejiang), the screw makers Beite 贝斯特 (Wuxi) and Wuzhou Xinchun 五洲新春, the LiDAR maker Hesai 禾赛 (Shanghai) and the cell maker CATL 宁德时代 (Ningde) are all outside it too. In Shenzhen you meet their distributors and showrooms, or you plan a Hangzhou and Shanghai leg.

04 The robot makers who buy from them

MAKER	中文	WHERE	WHAT WE KNOW
UBTech Robotics	优必选	Nanshan iPark, Shenzhen	Walker S2 industrial humanoid with an autonomous battery swap; Hong Kong listed (9880); the largest deployed industrial humanoid fleet in China by its own count; the corpus we read gives 1,079 Walker units and CNY 820 million of humanoid revenue in 2025. ● REPORTED
EngineAI	众擎机器人	Honghualing, Nanshan	A 12,000 m ² base that rolled its first T800 humanoids off the line on 29 May 2026, with a claimed cycle of one unit every 15 minutes. ¹³ ● VERIFIED
Pudu Robotics	普渡科技	Robot Valley, Nanshan	Delivery and cleaning robots for restaurants, hotels and malls, the fleets most often found in our tracker ; the D9 biped. ● REPORTED
Dobot	越疆科技	Robot Valley, Nanshan	Collaborative arms and the Atom humanoid. ● REPORTED
LimX Dynamics	逐际动力	Nanshan, test site in Qianhai	TRON 1 biped and Oli humanoid, sold mainly to researchers. ⁶ ● VERIFIED
Leju Robotics	乐聚机器人	Yuehai, Nanshan	Kuavo 夸父 humanoid, a launch partner of Huawei's embodied AI centre. ⁵ ● VERIFIED
Xpeng	小鹏	Tianhe, Guangzhou	IRON humanoid lines commissioned on 8 September 2026 inside a 110,000 m ² base, more than 80% of core processes automated, mass production targeted by end 2026. ¹⁴ ● VERIFIED
GAC	广汽	Panyu, Guangzhou	GoMate, a wheeled humanoid with 38 degrees of freedom, unveiled December 2024 with small-scale production planned for 2026; current status unconfirmed. ¹⁵ ● REPORTED
Midea and KUKA	美的 · 库卡	Shunde, Foshan	China's largest industrial robot base; Midea's components arm Welling is building a 55,000 m ² precision factory in Beijiao with phase one due 2027, and Midea put its own humanoid into washing-machine plants in 2025. ^{16 17} ● VERIFIED
DJI	大疆创新	Nanshan	Drones and a robot vacuum; the model every Shenzhen hardware firm cites for vertical integration. ● REPORTED

05 What the parts cost, and why the cluster wins

- **The joint is the robot.** Actuation plus hands is roughly half to two thirds of a humanoid's bill of materials. Inside a rotary joint the reducer (about 36%) and the torque sensor (about 30%) each cost more than the motor (about 13.5%); in a linear joint the planetary roller screw is about 64%.^{22 21} ● ESTIMATE
- **Chinese bills of materials are an order of magnitude below Western ones.** A teardown by China Post Securities puts a Unitree G1 base unit at about CNY 41,600, around US\$5,900, with a small joint at about CNY 1,000 all in; Morgan Stanley's variants put an Optimus Gen 2 at US\$46,000 to 55,000.²³ ● REPORTED
- **The margin is real.** Unitree's listing prospectus shows a 2025 gross margin of 60.4% and a humanoid average selling price near CNY 166,000, with bought-in parts only 14 to 18% of cost because it makes its own joints, drivers and battery management.²⁴ ● VERIFIED
- **Local suppliers are taking the home market.** Harmonic Drive Systems held 4.4% of China's harmonic reducer market in 2025 against Leaderdrive's 27.5% and Laifual's 21.4%, and domestic makers hold about 93% of China's humanoid six-axis force sensor market.^{25 26} ● ESTIMATE
- **Compute is the part that got dearer.** NVIDIA raised Jetson module and kit prices by up to 101% on 22 July 2026, the T5000 module from US\$2,999 to US\$4,999 at 1,000 units.²⁷ ● VERIFIED
- **Capacity is running ahead of demand.** Leadshine's plan for two million frameless motors in 2026, after 120,000 in 2025, and the screw makers' new lines sit against a UBS forecast of about 30,000 humanoids shipped worldwide in 2026, which is why component price wars follow.^{20 28} ● ESTIMATE
- **Rare earths are the lever the cluster does not control.** China's April 2025 licensing of seven heavy rare earths and the magnets made from them is in force; the October 2025 expansion is suspended until 10 November 2026.^{29 30} ● VERIFIED Ask every actuator supplier what an end to the suspension does to their lead times.

06 The public money behind it

PROGRAMME	ISSUER AND DATES	KEY NUMBERS
Shenzhen embodied AI robot action plan, "18 measures"	Shenzhen Science, Technology and Innovation Commission, 3 March 2025, revised 18 June 2026 ^{7 8} ● VERIFIED	By 2027: 10 or more new firms valued over CNY 10 billion, 20 or more with revenue over CNY 1 billion, 50 or more billion-yuan application scenarios, an industry above CNY 100 billion, 1,200 or more firms in the cluster. Priorities: core components, robot AI chips, multi-finger hands.
Shenzhen AI and robotics fund	Shenzhen, February 2025 ⁹ ● REPORTED	CNY 10 billion, about US\$1.4 billion.
Huawei Global Embodied AI Industry Innovation Center	Huawei with the Qianhai administration, November 2024 ⁵ ● VERIFIED	16 launch partners, Leju and Topstar among them.
Guangzhou embodied robot measures	Guangzhou industry bureau, 2 July 2026 to 1 July 2029 ¹⁰ ● VERIFIED	Up to CNY 1 million per application-scenario project, 10 a year; by 2029 about 10 whole-robot makers clustered, 40 or more demonstration scenarios.
Dongguan intelligent robot measures	Dongguan, 24 April 2025 to 31 December 2027 ¹¹ ● VERIFIED	Joint research consortia up to CNY 30 million; manufacturing innovation centres up to CNY 50 million national; smart factories up to CNY 5 million; loan interest subsidy up to CNY 5 million per firm per year.

What the subsidies mean for a foreign buyer: the money flows to firms registered and producing locally, mostly as reimbursement after spending. The effect on us is indirect and useful. Subsidised makers need overseas channels and application scenarios, and overseas deployment counts toward the targets their city set them. ● ESTIMATE

SOURCES

- | | | | |
|---|---|---|--|
| 1 | Mapping Shenzhen's 50-kilometre hardware belt, KrASIA 24 Sep 2026 | 4 | Shenzhen humanoid robot industry by district, Qianzhan Apr 2025 |
| 2 | Robot Valley on Liuxian Avenue, People's Daily 5 Feb 2026 | 5 | Huawei launches an embodied intelligence innovation centre in Shenzhen, TechNode 18 Nov 2024 |
| 3 | A look at 18 humanoid robotics companies in Shenzhen, CMRA | 6 | Shenzhen's AI and robotics industry in numbers, EyeShenzhen 10 Mar 2025 |

7

[Shenzhen embodied AI robot action plan 2025 to 2027, Shenzhen STIC](#) 3 Mar 2025

8

[Revised embodied AI robot action plan, Shenzhen STIC](#) 18 Jun 2026

9

[China's humanoid robot market, China Briefing](#) 2025

10

[Measures to promote the embodied robot industry, Guangzhou Bureau of Industry and Information Technology](#) 2 Jul 2026

11

[Measures to promote the intelligent robot industry, Dongguan](#) 24 Apr 2025

12

[XbotPark Songshan Lake, 36Kr](#)

13

[EngineAI launches its Shenzhen manufacturing base, PR Newswire](#) 29 May 2026

14

[Xpeng IRON humanoid production line, Electrek](#) 7 Sep 2026

15

[GAC unveils the GoMate humanoid, CnEVPost](#) 26 Dec 2024

16

[Midea Welling Robotics lands in Foshan Shunde, Gasgoo](#)

17

[Midea unveils a six-arm robot for factory work, South China Morning Post](#)

18

[PaXini funding round, Caixin](#) 6 Mar 2026

19

[Orbbec product pages](#)

20

[Leadshine frameless motor capacity, Eastmoney](#) 19 Feb 2026

21

[The US\\$202 humanoid joint: actuator cost analysis, Corematter](#) 11 Sep 2026

22

[The humanoid robot value chain, 36Kr](#)

23

[Unitree G1 teardown, China Biz Insider](#) 29 Apr 2026

24

[Unitree prospectus and listing, 21st Century Business Herald](#) 19 Aug 2026

25

[Harmonic reducer market shares and price war, 163.com](#)

26

[CCID report on China's six-axis force sensor market, OFweek](#)

27

[NVIDIA increases Jetson prices by up to 101%, CNX Software](#) 22 Jul 2026

28

[Leaderdrive results and the humanoid shipment outlook, Huxiu](#) 23 Apr 2026

29

[China temporarily suspends export controls on rare earths and other materials, CIRS](#) 12 Nov 2025

30

[China's rare earth export licensing in 2026, CMGM](#) 24 Jul 2026

BY

Groundcrew Robotics

PUBLISHED

2 Oct 2026

LICENCE

CC BY 4.0