

Robotics Application in Construction



FulltimeRobotics

Hangzhou Fulltime Robotics Co., Ltd.

A Leading Provider of Construction Robotics Solutions

Company Profile

Hangzhou Fulltime Robotics Co., Ltd. is headquartered in Hangzhou, China, and is a professional provider of intelligent construction products and solutions. Fulltime Robotics is supported by a highly qualified team composed of master's and doctoral graduates with interdisciplinary expertise in construction engineering, construction informatization, and robotics technology. The company was founded by senior executives from a listed construction informatization enterprise and brings together experienced robotics experts from leading organizations such as Bozhilin, Lanxin, and Wahaha.

Fulltime Robotics' product portfolio includes:

Interior finishing robots, such as putty and latex paint spraying robots, as well as putty scraping and sanding robots;

Structural and flooring construction robots, including concrete floor leveling robots, concrete floor screeding and Troweling Robot;



The company's products have been successfully deployed at scale in numerous landmark projects, including the Zhejiang Construction Engineering Yingwang New Energy Project, Zhongyifeng Yangtze River Delta International R&D Community, Shanghai Construction Group Zhangjiang "Science Gate" Project, Beijing Construction Engineering Yisheng Xiangming Project, China Construction Eighth Engineering Division Jiuxing City Project, Singapore public housing (HDB) projects, Singapore Pei Li Road Nursing Home Project, and Hong Kong CPPS FS Tank A&A work. The cumulative construction area completed with Fulltime Robotics' solutions exceeds 5 million square meters.

Fulltime Robotics' business footprint spans Mainland China, Hong Kong, Singapore, Hungary, and other countries and regions. The company has completed a Pre-A round financing led by Kunzhong Capital and has also received strategic investment from Shiji Jinyuan Group.

As a key supported enterprise of China's Artificial Intelligence Town initiative, Fulltime Robotics holds more than 30 authorized patents and has been recognized with numerous honors, including:

National High-Tech Enterprise of China

Zhejiang Province Innovative Small and Medium-Sized Enterprise

Top 50 Hard Technology Companies in China 2024

Top 100 Emerging Globalization Enterprises of China 2025

"Quality Star" Award of the China Association of Automation for Building Robotics Applications

"Best Innovation Award" at the First Intelligent Construction Competition organized by the Chief Engineers Committee of the China Civil Engineering Society (2025)

"Best Efficiency Award" at the 2025 Guangdong-Hong Kong-Macao Greater Bay Area Construction Robotics Competition organized by the Hong Kong Construction Industry Council

Fulltime Robotics is committed to integrating artificial intelligence, robotics, and other advanced technologies into the construction process, with the vision of becoming a globally influential provider of construction robotics solutions.

Fulltime Robotics Product Portfolio

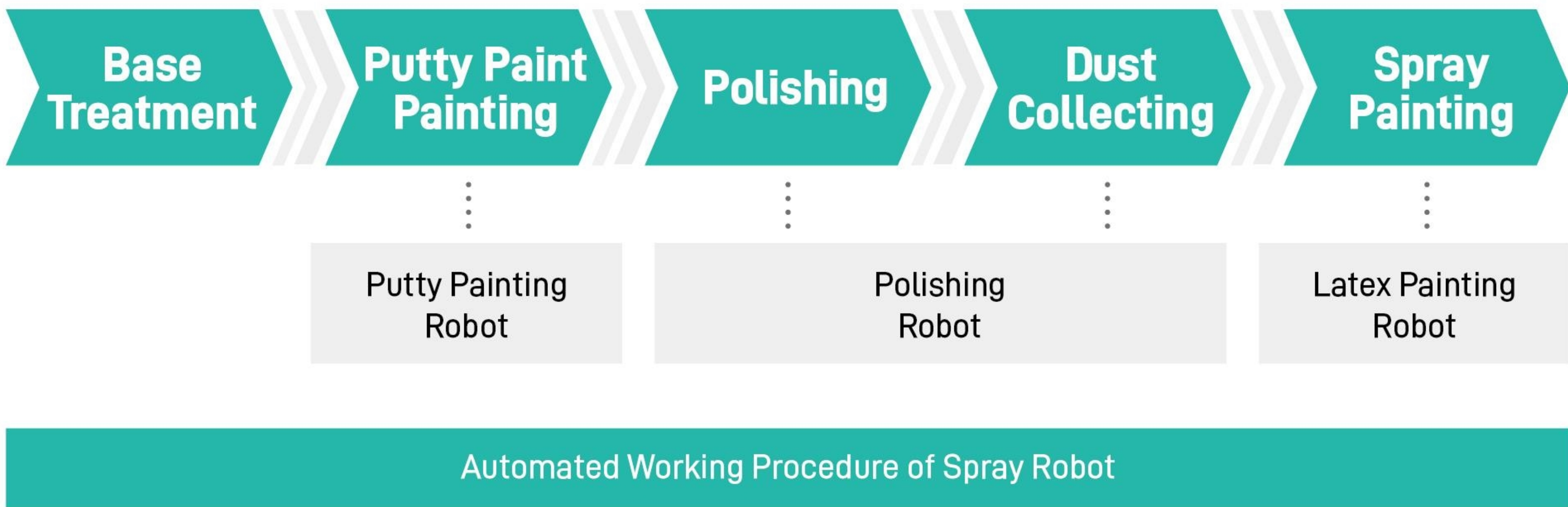
With Interior Painting Construction Robots at the Core, Offering Comprehensive Robotic Solutions for Building Structures and Construction Works.



Interior Putty & Latex Paint Robots	Putty & Latex Spray-Painting Robot_3.2-meter height (P320)
	Putty & Latex Spray-Painting Robot_4.6-meter height (P460)
	Putty & Latex Spray-Painting Robot_6.0-meter height (P600)
	Putty Polishing Robot (D320)
Concrete Structures & Flooring Construction Robots	Concrete Floor Leveling Robot (Z200)
	Concrete Floor Screeding and Troweling Robot (M100)

Product Introduction

Fulltime Indoor Painting Robot is an automated construction robot mainly serves for housing construction projects, using technologies such as 3D cloud, high precision laser positioning, servo control, motion control and AI. It can assist and replace traditional labor workers in painting and polishing. It is capable of putty and latex painting, polishing, and dust-collecting through route planning, automated navigation, barrier avoidance and high-quality spraying. The robot boasts an advantage in efficiency, stability and material conservation.



The Advantages of Construction Robots

1. Hassle-Free: Three versatile models that meet all the building types and interior coating tasks

Fulltime robots are designed to cover all the stages of interior wall coating for all kinds of buildings:

- **3.2m model** - Ideal for residential projects.
- **4.6m model** - Perfect for office buildings, industrial parks, schools, hospitals, shopping centres, and all types of basements.
- **6m model** - Built for large-scale and high-ceiling projects such as factories, chemical plants, nuclear facilities, transport hubs, and stadiums.

From **skim coating, painting to sanding**, our robots can handle the **entire coating procedures**. It provides the full-scope, full-process solutions that meet all your needs in one go.

2. Labour-Saving: End-to-end delivery and on-site support

We offer more than just machines – we deliver a **complete solution** from equipment handover to project execution:

- On-site delivery and commissioning
- Tailored construction planning
- Workflow design and quality control
- Team structuring, skill training, and certification
- Hands-on support during the first project implementation

This all-in-one service package helps your team build up **robotic construction capabilities**, stay ahead with cutting-edge smart building tech, and boost your overall competitiveness in the market.

3. Cost-Effective: Higher efficiency, lower costs, more value

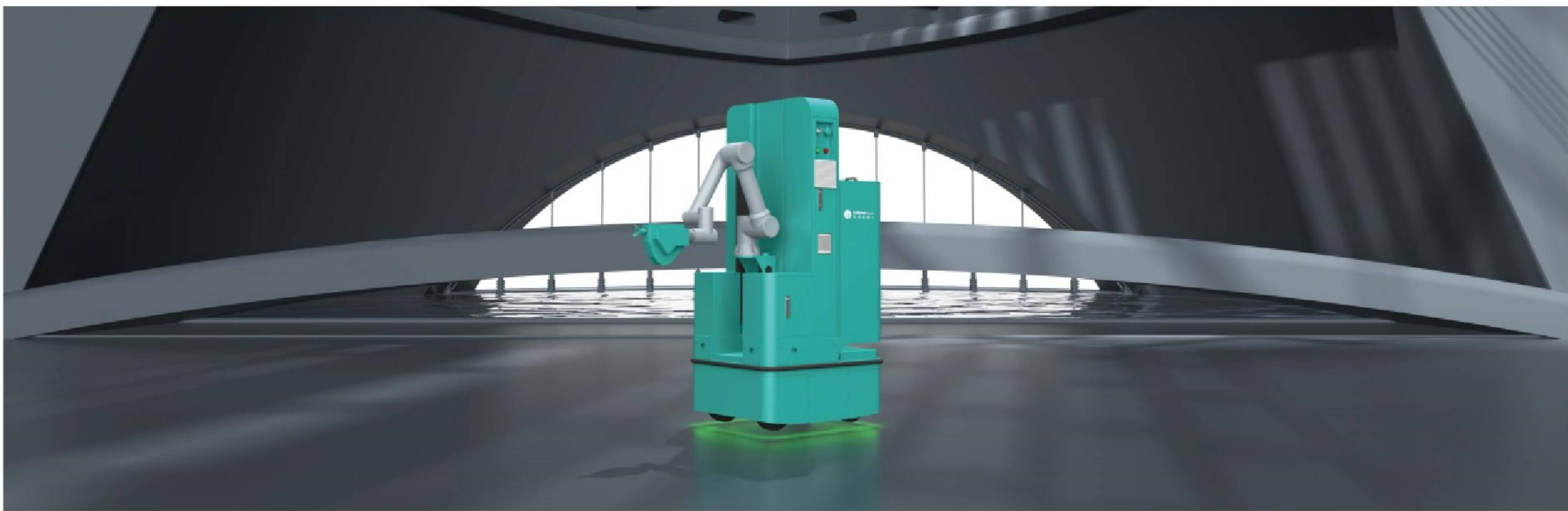
- Boost productivity by 3-5x per worker
- Cut labour costs by 15-20%
- Save 10-20% on materials
- Reduce total project costs by 20-30%

The multi-functional 6 meters version can cover the full procedures – from skim coating, painting to sanding – simply by **swapping out the end tools to** save both the equipment and operational costs.

Putty & Latex Spray-Painting Robot _3.2-meter height (P320)

Application Scenarios

Ideal for standard rooms and tight corridors under 3.2m and available for emulsion& Skim coat spray painting on walls, ceilings, hallways, windows & external corners.



Product Advantages

Cost-effective with high productivity	Up to 600-800 m ² /day for Skim coat – 6-8 times faster than manual work, with 3× higher labour efficiency.Over 270 m ² /hour for emulsion painting – 2× faster than handheld spraying guns.Saves up to 10% in material usage.
Easy to use	One-click import of CAD drawings and BIM models.Automatical generation of spatial data and uses AI to plan optimal spray paths.10 minutes for mapping. Perfect for full-house automation in standardised residential layouts.
High stability	AGV Chassis & Mobility System Engineered for construction-grade environments, the chassis features four omni-directional steering wheels for 360° agile movement and real-time directional control.Optimised for high-dust, high-pollution job sites, the unit offers strong environmental resilience and IP54-rated protection.Backed by practical application across over 1,000,000m ² , it ensures long-term durability in complex and demanding site conditions.
Versatile Material Handling & Surface Flexibility	Widely compatible with various materials such as putty, latex paint, and volcanic mud, the robotic spraying process package makes production more flexible and efficient. With high coverage, it can easily handle the spraying of surfaces like walls, ceilings, bay windows, and crossbeams.

 Product Specifications

Item	Parameter
Body Dimension	850mm×760mm×1780mm
Weight	500kg
Working Height	3.2m
Movement	Driven by 4 omni-directional wheels equipped with laser positioning
Duration	4h
Maximum Speed	0.5m/s
Position Precision	±30mm
Brake Stopping Distance	≤ 0.1m
Turn Radius	0
Maximum Crossing Slope	10°
Maximum Crossing Gap	30mm
Body Material	Metal Plate
Protection Level	IP54
Charger	48V 173AH DC Lithium Iron Phosphate Battery
Charging Mode	Manual
Communication Method	Wifi 2.4GHz/5GHz
Executive End	6-axis Robotic Arm with maximum precision ±0.05mm

Putty & Latex Spray-Painting Robot _4.6-meter height (P460)

Application Scenarios

The robot is suitable for floors with a height of less than 4.6 meters in commercial complexes, office buildings, industrial parks, hospitals, schools, hotels, venues, basements, etc. It can complete the putty and latex paint construction on walls, beams, columns, internal and external corners.



Product Advantages

Cost reduction and efficiency improvement	The putty spraying efficiency reaches 800-1000 m²/day. The efficiency of a single robot is increased by 8-10 times, and the per capita work efficiency of putty construction is increased by 4-5 times. The latex paint spraying efficiency reaches 2500-3000 m²/day, which is about 2 times higher than manual work, and the material is saved by 15%-20%.
Easy to use	The world's first real-time automated construction without drawings. With AI model training + point cloud semantic segmentation + AI real-time path planning, it is suitable for one-click rapid construction in non-standard scenarios.
High stability	AGV Chassis & Mobility System Engineered for construction-grade environments, the chassis features four omni-directional steering wheels for 360° agile movement and real-time directional control.Optimised for high-dust, high-pollution job sites, the unit offers strong environmental resilience and IP54-rated protection.Backed by practical application across over 1,000,000m², it ensures long-term durability in complex and demanding site conditions.
Versatile Material Handling & Surface Flexibility	Widely compatible with various materials such as putty, latex paint, and volcanic mud, the robotic spraying process package makes production more flexible and efficient. With high coverage, it can easily handle the spraying of surfaces like walls, ceilings, bay windows, and crossbeams.

 Product Specifications

Item	Parameter
Body Dimension	1250mm×830mm×1780mm
Weight	600kg
Working Height	4.6m
Movement	Driven by 4 omni-directional wheels equipped with laser positioning
Duration	4h
Maximum Speed	0.5m/s
Position Precision	±30mm
Brake Stopping Distance	≤ 0.1m
Turn Radius	0
Maximum Crossing Slope	10°
Maximum Crossing Gap	50mm
Body Material	Metal Plate
Protection Level	IP54
Charger	48V 173AH DC Lithium Iron Phosphate Battery
Charging Mode	Manual
Communication Method	Wifi 2.4GHz/5GHz
Executive End	6-axis Robotic Arm with maximum precision ±0.05mm

Putty & Latex Spray-Painting Robot_6-meter height (P600)

Application Scenario

The robot is suitable for floors with a height of less than 6 meters in factories, venues, and transportation hubs. It can complete the putty and latex paint application on walls, beams, columns, and internal and external corners.



Product Advantages

Cost reduction and efficiency improvement	The putty spraying efficiency reaches 1000-1200 m ² /day, which is 10-12 times higher than manual work. The latex paint spraying efficiency is increased by 3 times, and materials are saved by 10%.
One machine, multiple functions	covering the entire process of putty spraying + latex paint spraying.
Easy to use	The world's first real-time automated construction without drawings. With AI model training + point cloud semantic segmentation + AI real-time path planning, it is suitable for one-click rapid construction in non-standard scenarios.
High stability	AGV Chassis & Mobility System Engineered for construction-grade environments, the chassis features four omni-directional steering wheels for 360° agile movement and real-time directional control.Optimised for high-dust, high-pollution job sites, the unit offers strong environmental resilience and IP54-rated protection.Backed by practical application across over 1,000,000m ² , it ensures long-term durability in complex and demanding site conditions.

 Product Specifications

Item	Parameter
Body Dimension	1400mm×1080mm×1780mm
Weight	950kg
Working Height	6m
Movement	Driven by 4 omni-directional wheels equipped with laser positioning
Duration	4h
Maximum Speed	0.5m/s
Position Precision	±30mm
Brake Stopping Distance	≤ 0.1m
Turn Radius	0
Maximum Crossing Slope	10°
Maximum Crossing Gap	50mm
Body Material	Metal Plate
Protection Level	IP54
Charger	48V 173AH DC Lithium Iron Phosphate Battery
Charging Mode	Manual
Communication Method	Wifi 2.4GHz/5GHz
Executive End	6-axis Robotic Arm with maximum precision ±0.05mm

Putty Polishing Robot (D320)

Application Scenario

This model is suitable for floors with a height of less than 3.2 meters in residences, basements, etc. It can complete putty sanding, dust suction and cleaning work on walls, beams and columns.



Product Advantages

Green construction	Integrated with high-power dust suction function, it reduces dust pollution, improves the working environment for workers, and enables high-precision identification and operation in sanding dust scenarios with high pollution and low visibility.
Quality improvement	Fully automatic sanding, with a 6-degree-of-freedom robotic arm (positioning accuracy up to $\pm 0.05\text{mm}$). The sanding flatness is better than manual standards, and errors caused by manual fatigue are reduced.
Efficiency improvement	The single-machine efficiency is $600\text{-}800\text{ m}^2/\text{day}$, and the per capita work efficiency is increased by 1.5-2 times.
Convenience in use	Full-process collaboration, reusable spatial data models, and seamless connection with spraying robots, realizing the automation of the "spraying - sanding - dust suction" process.

 Product Specifications

Item	Parameter
Body Dimension	850mm×760mm×1780mm
Weight	500kg
Working Height	3.2m
Movement	Driven by 4 omni-directional wheels equipped with laser positioning
Duration	4h
Maximum Speed	0.5m/s
Position Precision	±30mm
Brake Stopping Distance	≤ 0.1m
Turn Radius	0
Maximum Crossing Slope	10°
Maximum Crossing Gap	30mm
Body Material	Metal Plate
Protection Level	IP54
Charger	48V 173AH DC Lithium Iron Phosphate Battery
Charging Mode	Manual
Communication Method	Wifi 2.4GHz/5GHz
Executive End	6-axis Robotic Arm with maximum precision ±0.05mm

Concrete Leveling Robot (Z200)

Application Scenario

This robot is designed for high-precision leveling of concrete surfaces after pouring, suitable for construction scenarios such as parking lots, industrial floors, commercial building floors, and ceiling surfaces. By integrating advanced technologies including high-precision LiDAR, SLAM navigation and positioning, visual recognition, and robotics, it automates the process of concrete floor leveling with exceptional accuracy and efficiency.



Product Advantages

User-Friendly Operation	Empowered by a sophisticated laser leveling system, it performs vibrating, leveling, and finishing in a single, automated workflow for ultimate simplicity.
High Precision	Achieves leveling accuracy within $\pm 3\text{mm}$, significantly enhancing construction precision and surface flatness.
Cost Efficiency & Productivity	Significantly reduces labor intensity and construction costs while boosting efficiency by 40-60%.

 Product Specifications

Item	Parameter
Weight	350kg
Body Dimension	2300mm*2000mm*1600mm
Duration	6h
Charging time	2h
Construction speed	≤0.5m/s
Leveling width	2m
Construction efficiency	400-600m ² /h
Maximum Crossing Slope	≤10°
Laser leveling accuracy	2mm
Chassis drive mode	Four-wheel drive
Turn Radius	Turn on the spot
Tire parameters	Diameter greater than 600mm, width greater than 200mm
Maximum Crossing Gap	100mm
Ditch width	100mm
Control method	Remote control, autonomous movement

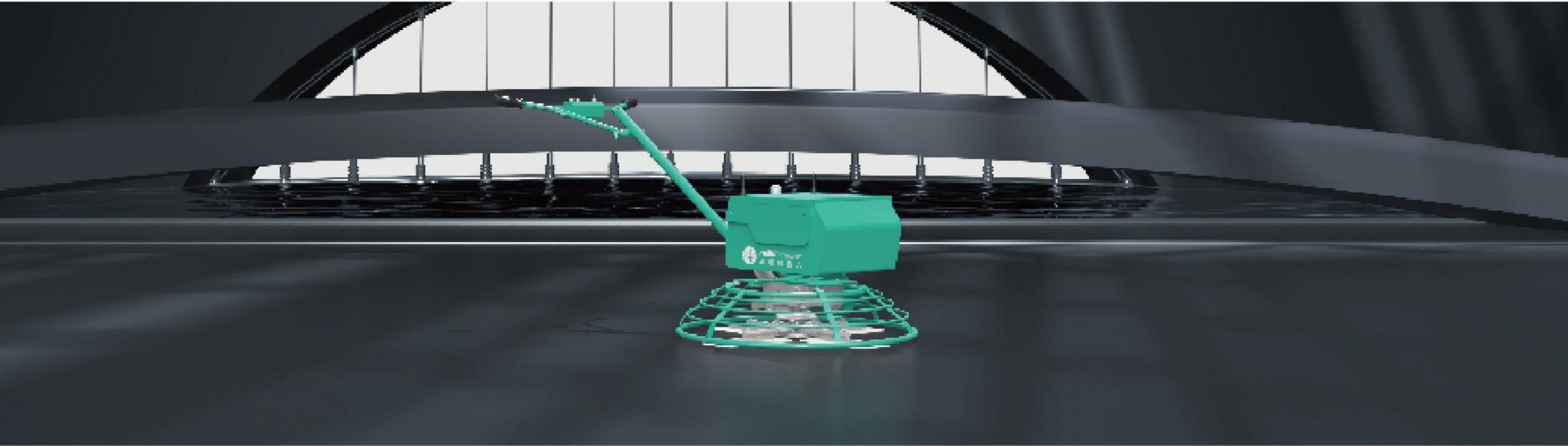
 Manual comparison

Traditional Manual Operation		Robot Operation
Working Area	1,500 m ² floor slab	
Working Conditions	Before initial setting of concrete	(1) Before initial setting of concrete (2) After concrete placement, manual vibration and preliminary leveling are required before robotic operation (3) Equipment must be lifted to the floor by tower crane
Manpower Configuration	6 traditional masons + 3 assistants	3 traditional masons + 1 industrial worker + 1 assistant + 1 robot
Productivity	180m ² /h	≥220m ² /h
Construction Accuracy	±5mm/3m	±3mm/3m

Concrete Floor Screeding and Troweling Robot(M100)

🔄 Application Scenario

The product integrates multi-system technologies, including motor drive algorithms for dynamic friction environments, effectively addressing key pain points of traditional gasoline-powered troweling machines such as high operating costs, short service life, pollution, and excessive noise. It is widely applicable to concrete floor finishing in industrial plants, parking garages, and municipal roads, among other scenarios.



🔄 Product Advantages

Cost Efficiency Upgrade	Maintenance costs reduced by 99% and operating costs reduced by 90% compared with traditional gasoline-powered troweling machines.
Enhanced Efficiency	Reduced vibration combined with algorithm optimization enables a daily construction capacity exceeding 250 m².
Intelligent Operation	Integrated IoT and expert systems with digital visual display and voice prompts, minimizing dependence on operator expertise.
Sustainable & Long-Lasting	Emission-free operation with low noise output, combined with a highly stable electrical system to ensure extended service life.

 Product Specifications

Item	Parameter
Overall Machine Design	Modular Design, featuring a machine frame, integrated control cabinet, and quick-swap battery compartment, with robust industrial design and user-friendly human-machine interface (HMI)
Weight	100±10kg
Center of Gravity Distance	Rotation Center ≤ 10 cm
Swing Speed	0~120rpm
Swing Diameter	90±10cm
Total Machine Power	≤ 4kW
Duration	1.5h
Charging	Charging Time: 1 hour (with quick-swap battery design); Battery Cycle Life: ≥ 1,000 charging cycles
Function Buttons	Power on/off, start/stop, speed adjustment, emergency stop, and battery level display
Protection Level	Rain-resistant design
Operating Temperature Range	0℃~50℃
Communication Method	Supports wireless communication with 4G network connectivity
Safety Protection Measures	Equipped with an emergency stop button and hands-free safety protection function
Cloud Dashboard System	Features a cloud-based dashboard for real-time data visualization and monitoring
Battery Management System	Supports Battery Management System (BMS)
Device Connectivity	Supports device connection via 4G and other wireless communication methods
Data Transmission	Enables real-time data transmission, including battery status, motor performance, and other operational data

 Comparison with Gasoline-Powered Machines

Walk-Behind Gasoline Trowel	VS	Electrified Walk-Behind Trowel
¥1,000 / year	Maintenance Cost—99% reduction	¥10 / year
¥187 / 100 m ²	Operating Cost—90% reduction	¥19 / 100 m ²
Physical Limit Up to 200 m ² /day	Productivity —Increase 25%+	Low vibration Over 250 m ² /day
None	Intelligent Features—significantly enhanced user experience	Digital display + voice guidance

Application Cases



HDB Bishan Ridges, Singapore



Tengah Prac Residences, Singapore



HDB Kallang-Whampoa C74, Singapore



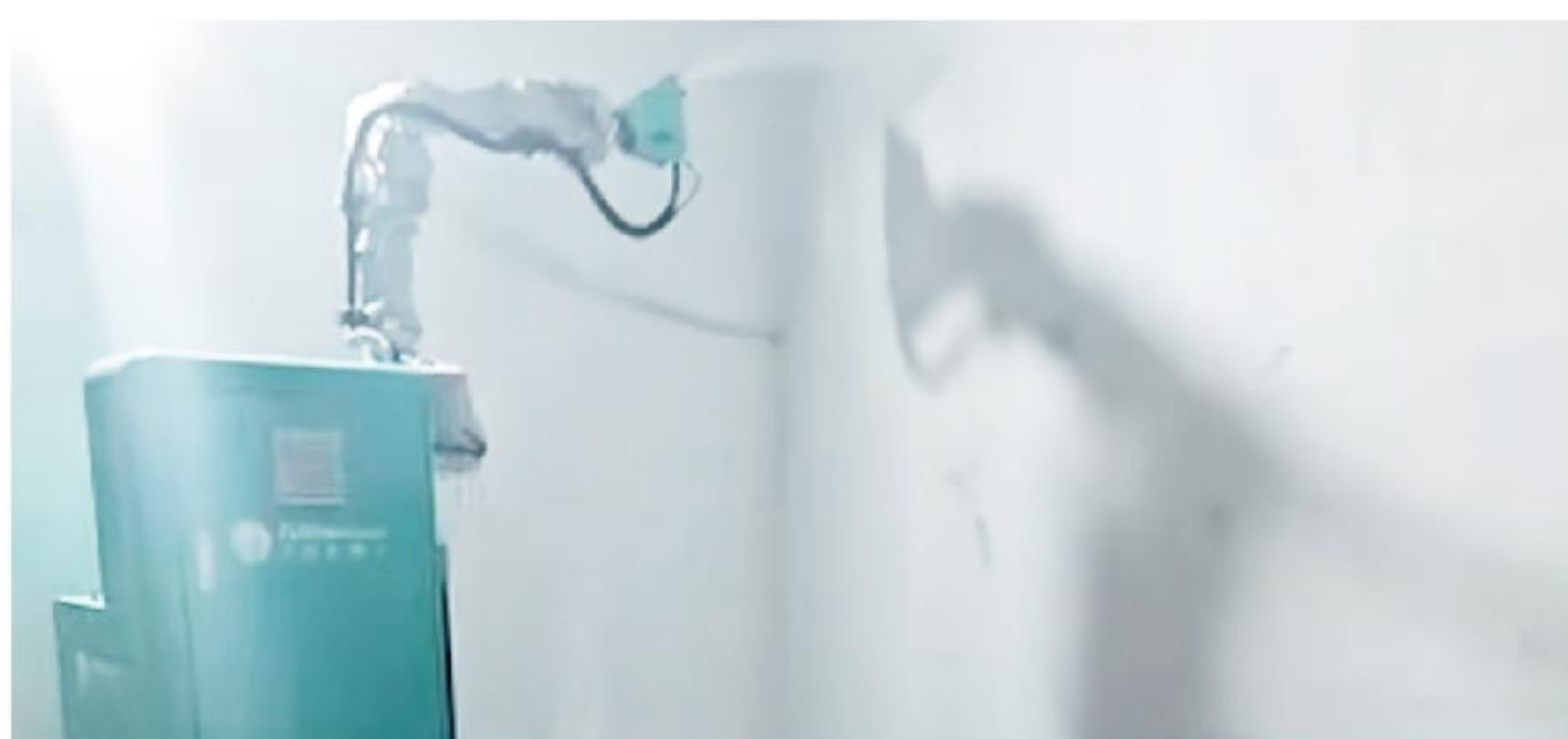
CPPS FS Tank A&A work, Hong Kong



Keat Hong Grange, Singapore



Tengah C8, Singapore



Pelita Road Care Centre, Singapore



Sanxiang Kowloon Freight Centre Warehouse, Hong Kong

 Email: product@fulltimerobotics.com

 Tel: 0571-88172708

 **Hangzhou Fulltime Robotics Co., Ltd (China Headquartered Company)**

 Website: www.fulltimerobotics.com

 **FONGTAM PTE. LTD. (Singapore Regional Company)**

 Website: www.fongtam.com