

# DUST-E MX



# Basic Specs



DUST-MX		
Basic Specs	size L x W x H	44 x 22.8 x 45.3 in
	weight	553.3 lbs
Performance Specs	cleaning width	20 in
	suction rake width	30 in
	<b>ground pressure</b>	<b>59.5 lbs</b>
	<b>pressure per unit area of brush g/cm<sup>2</sup></b>	<b>13.2</b>
	clean water tank volume	65L
	wastewater tank volume	50L
	<b>circulating water system</b>	<b>N</b>
	speed	auto: 1.2 m/s manual: 1.2 m/s
	work efficiency	2040 m <sup>2</sup> /h
	<b>gradeability</b>	<b>6%</b>
Electronic system	voltage	DC24V
	<b>working hours</b>	<b>3~4h</b>
	<b>battery capacity</b>	<b>DC24V,120Ah</b>
Smart system	<b>navigation scheme</b>	<b>Vision + Laser</b>
	sensor solution	Panoramic monocular camera//lidar/3D depth camera /ultrasonic radar/IMU/electronic bumper
	driving recorder	optional



# Brief Introduction



## Cleaning Components

- |                          |                           |
|--------------------------|---------------------------|
| 01 Wastewater tank cover | 05 Brush                  |
| 02 Waste pipe            | 06 Clean water tank cover |
| 03 Charging interface    | 07 Clear water pipe       |
| 04 Water tank handle     | 08 Lifting suction rake   |

## User interface

- |                      |                        |
|----------------------|------------------------|
| 09 Logo light        | 15 Directional buttons |
| 10 Running lights    | 16 Speed knob          |
| 11 Operation panel   | 17 Confirm button      |
| 12 Working indicator | 18 Safety handle       |
| 13 Steering lever    | 19 Emergency button    |
| 14 Key switch        |                        |

## Smart Sensing

- |   |
|---|
| 20 Lidar (multiple in the whole machine, here is an example)            |
| 21 3D depth camera (multiple in the whole machine, example here)        |
| 22 Electronic bumper  |
| 23 Ultrasonic radar (multiple in the whole machine, here is an example) |
| 24 Panoramic camera   |

1. The cleaning operation module must be regularly maintained and replaced according to the use and wear conditions;
2. The smart sensor module ensures that the surface of each sensor is clean and unobstructed during daily use, and that the components are intact and damage free.



# Choosing The Right Components & Accessories For The Job

## Squeegees

**MIDWEST(Red)** **standard**  
 For a variety of floor types. Wet abrasion resistant for longer squeegee life.

**MIDWEST(Blue)** **optional**  
 Optimal water pick-up on most floor surfaces. for low-water cleaning, rubber floors, oily floors or anti-slip floors.

## Battery Bank

DUST-E MX is powered by 2 rechargeable 12-volt batteries, delivering a run time of up to 4 hours between charges.

## Disinfect Module

With sodium hypochlorite disinfectant, 6.5L capacity, 1.8L/h atomization volume, delivering a run time of 4 hours of environmental disinfection work

## Disc Brushes

**Medium – Red** **standard**  
 An excellent, long-life, general purpose scrubbing brush for medium duty applications. Excellent for us on most unfinished floors, and a good choice for minimizing dulling of waxed floors.

**Soft - White** **optional**  
 An excellent long-life, general purpose scrubbing brush for light duty applications. Soft, flexible bristles provide excellent cleaning performance and make this brush suitable for use on relatively fragile floor materials. Likely to dull floors finished with wax.

**Grit - Green** **optional**  
 A long-lasting brush for heavy duty cleaning applications. Silicon carbide impregnated bristles provide gentle abrasion to remove even the toughest stains. Abrasive bristle composition may scratch fragile floor materials. Recommended for us on hard, unfinished floors.

## Flooring Pads

**3M 5100 Red Buffer Pad** **optional**  
 Designed for everyday cleaning and light scrubbing. Removes light soil, scuff marks and black heel marks.

**3M 5300 Blue Buffer Pad** **optional**  
 Designed for everyday cleaning and strong scrubbing. Removes strong soil, scuff marks and black heel marks.

**3M 5000 Green Buffer Pad** **optional**  
 Designed for everyday cleaning and light scrubbing. Removes light soil, scuff marks and black heel marks.

**Note:** Always test pads and brushes in an inconspicuous area before deploying for long-term use to ensure that no damage to the floor is caused.

# Comparison



**Richtech Robotics**

**Gaussian**

**Avidbots**

**Kärcher**

	Richtech Robotics	Gaussian	Avidbots	Kärcher
<b>Model</b>	DUST-E MX	GS Ecobot 50	NEO2.0	BD 50/50
<b>Width</b>	58cm	70cm	94cm	58cm
<b>Water tank</b>	65L	24L	135L	50L
<b>Pressure</b>	13.7g/cm <sup>2</sup>	9.6g/cm <sup>2</sup>	9.2-9.6g/cm <sup>2</sup>	13g/cm <sup>2</sup>
<b>Speed</b>	1.2m/s	0.8-1.0m/s	1.3m/s	1.3m/s
<b>Efficiency</b>	>2000m <sup>2</sup> /h	1500m <sup>2</sup> /h	>2000m <sup>2</sup> /h	>2000m <sup>2</sup> /h

Battery-water working time  
ratio: 1:2~1:3

Full battery duration:  
3.5~4h

Full water tank duration:  
80~100min

Working area per task:  
1500~2500 m<sup>2</sup>

Total working area per  
working cycle:  
4000~5000 m<sup>2</sup>

## Applicable Settings

1 Apartment Complexes



2 Commercial Estate



3 Medical center



4 Shopping Malls



5 Supermarket



6 Museum



7 Airport



8 Railway Stations



9 Factory

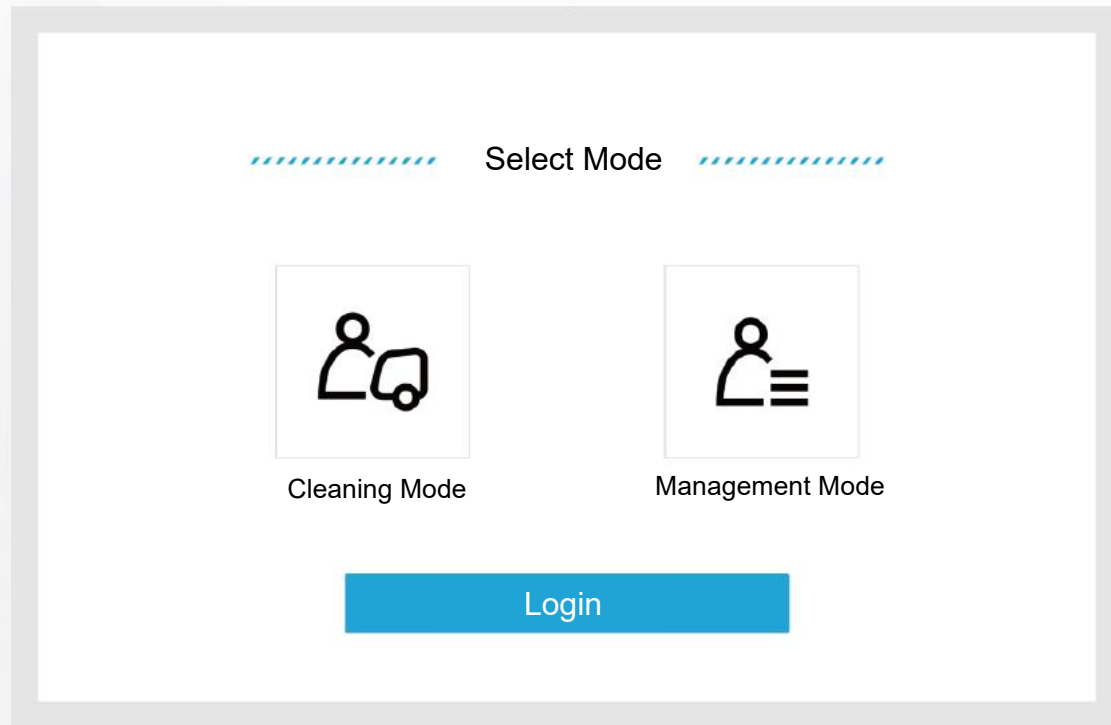




# Daily Use and Maintenance



# Login Interface



1. About 30 seconds after the key is turned on, the voice broadcast "Welcome to manual driving" will automatically enter the cleaning robot APP application;
2. Select the cleaning mode, enter the digital password to log in ;
3. Management mode: used by service personnel, mainly for deployment work such as on-site mapping/setting tasks(service account) ;
4. Cleaning mode: used by customer personnel, mainly for daily operations;

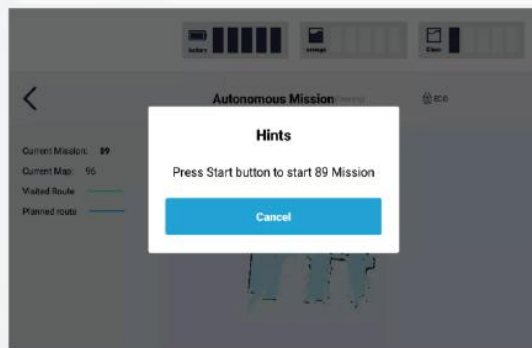
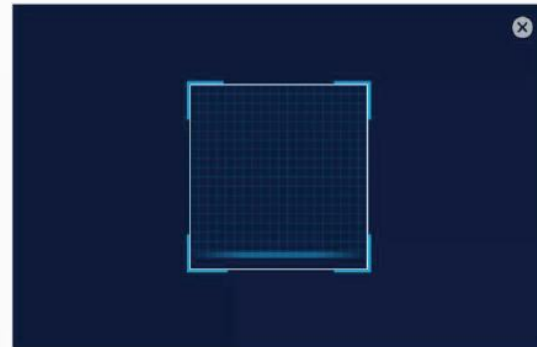
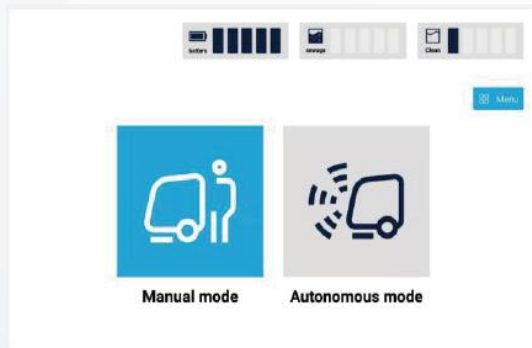


# Easy To Start Tasks

No complex UI design, simple work flow,  
Only 3 steps to do:

- a. Login in;
- b. Choose auto mode;
- c. Press the button to Begin;

1. Take DUST-E MX to the start point to scan the QR code;
2. Chose the auto mode;
3. DUST-E MX shows the bonded task, press the start button to go;
4. DUST-E MX begins the cleaning task



# Lidar and Camera Vision Positioning and Composition AI Algorithm

## Wide-angle 3D-ToF Camera

- Self-developed wide-angle 3D TOF module



**High frame rate**  
45FPS



**High Accuracy**  
~2cm Recognition accuracy



**Super sensitive**  
~20ms Reaction time



**Wide viewing angle**  
135° Large field of view

## High-speed lidar



**High speed**  
900rpm



**Long range**  
50m Extremely long distance



**High accuracy**  
0.125 degree



## 1D-lidar



**High accuracy**  
Light spot <1cm



**Anti-interference**  
808nm IR



## Monocular Panoramic Camera



### Full view

210° Large field of view, zero dead angle and efficient path planning



### Many goals

~1,000 Simultaneous tracking of massive landmarks



### High precision

~mm positioning accuracy



## Richtech Control Platform



### AI computing power

3 trillion operations per second



### ARM architecture

Small size, low temperature, power consumption reduced by more than 50%

Self-developed sensor matrix realizes microsecond time synchronization

Self-developed lidar and vision fusion positioning algorithm

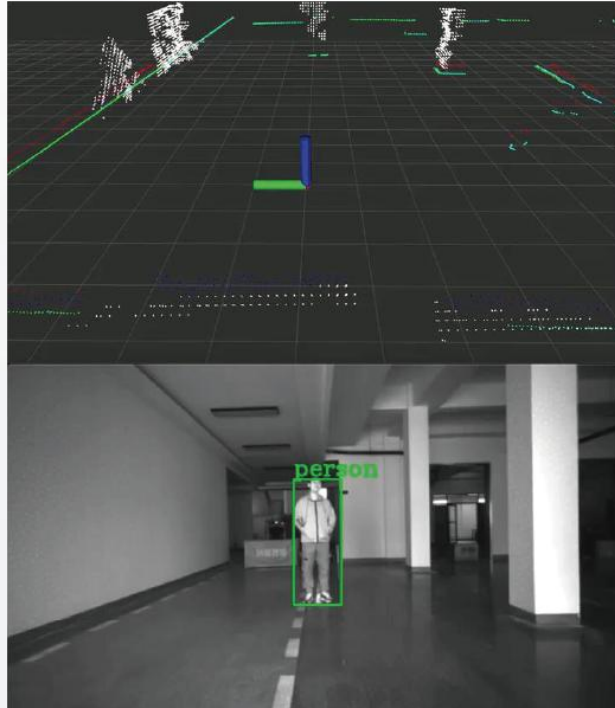
Self-developed Snapdragon 845AI robot control platform

Self-developed wide-angle 3D TOF module

Self-developed SPAD dTOF lidar

# Advanced Recognition and Rapid Response

## Perception System

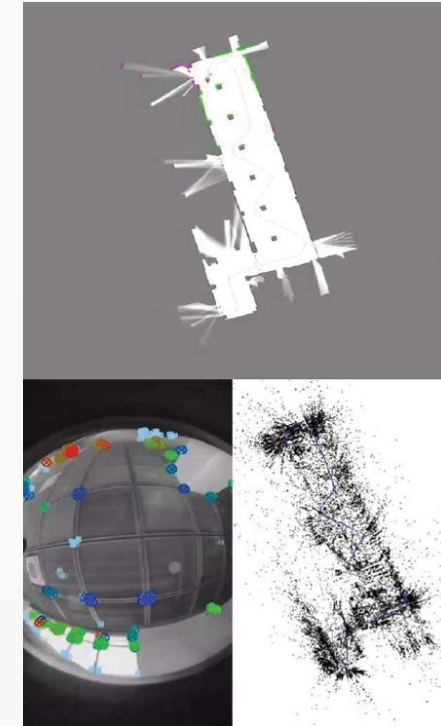


360°visibility and advanced obstacle avoidance and wide-angle 3D ToF array

10 categories, 40+ sensors matrix collaboration



## Mapping & Localization System



Reliable localization technology with self-developed lidar + vision dual fusion system



# Application Settings

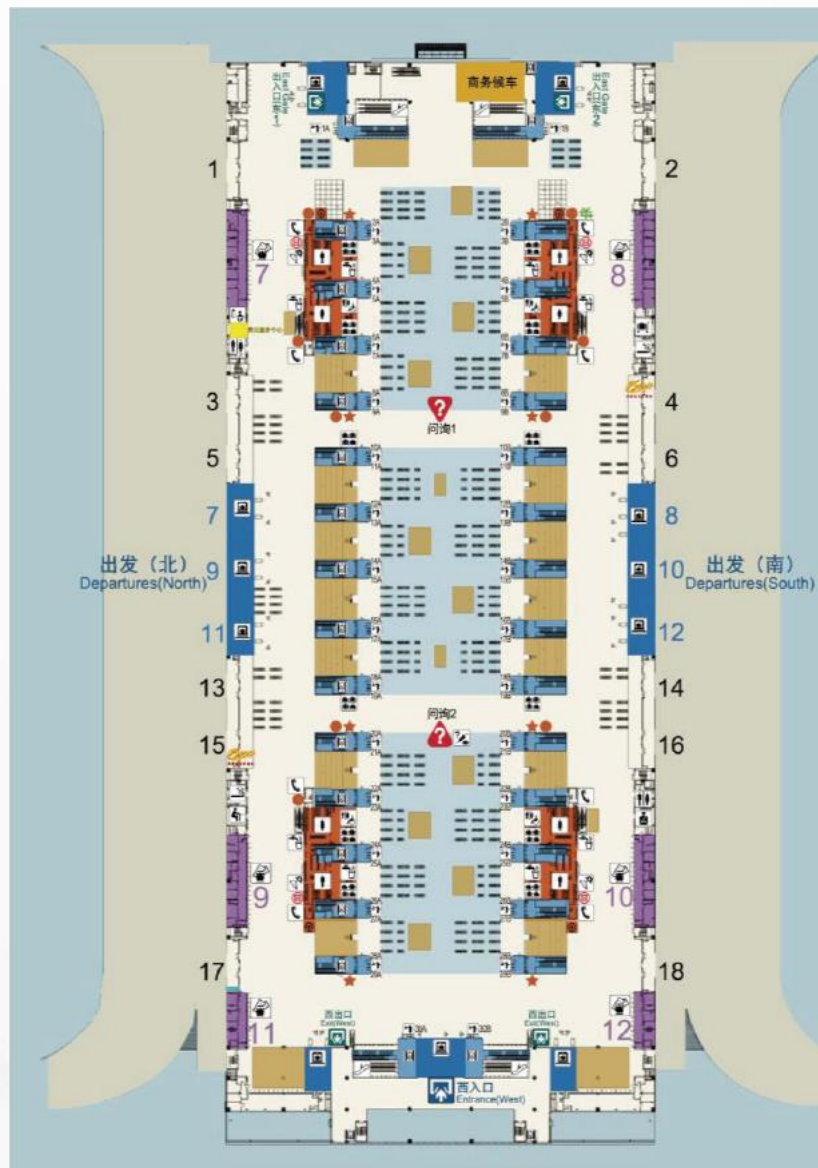
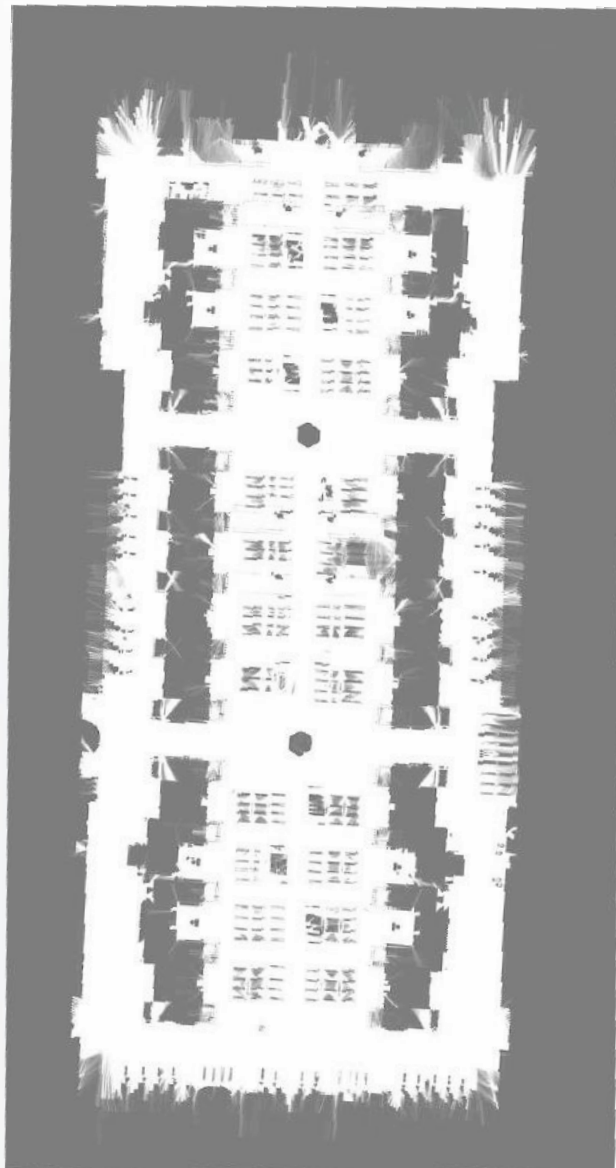


DUST-E MX is optimal for cleaning hard and flat floors made of epoxy resin, marble, terrazzo, floor tiles and other materials.

Great for:

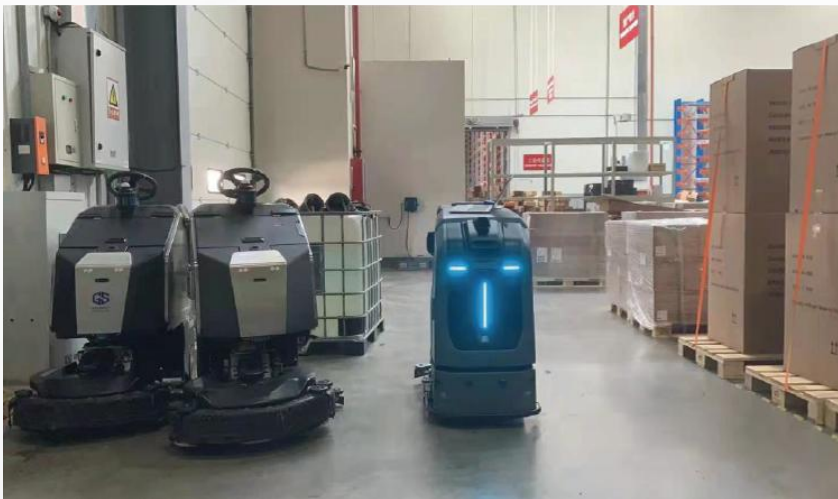
- Office buildings, hotels
- Banks, hospitals, schools
- Shopping malls, small and medium-sized stores
- Production workshop

# Railway Station



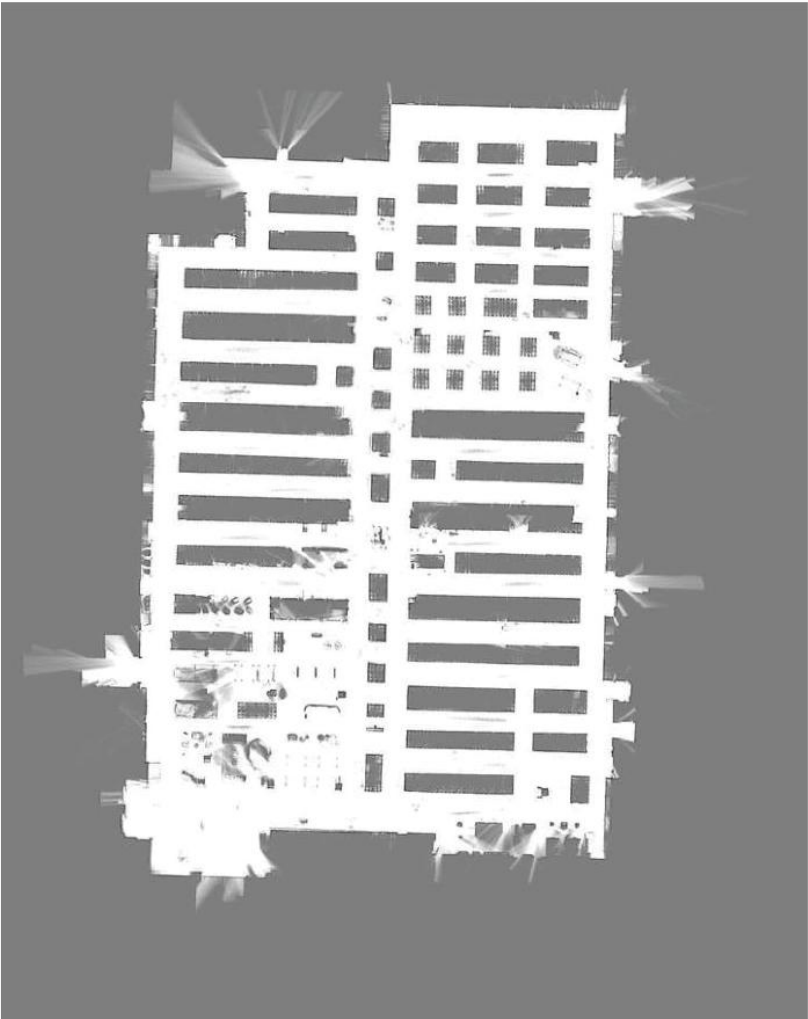


# Warehouse

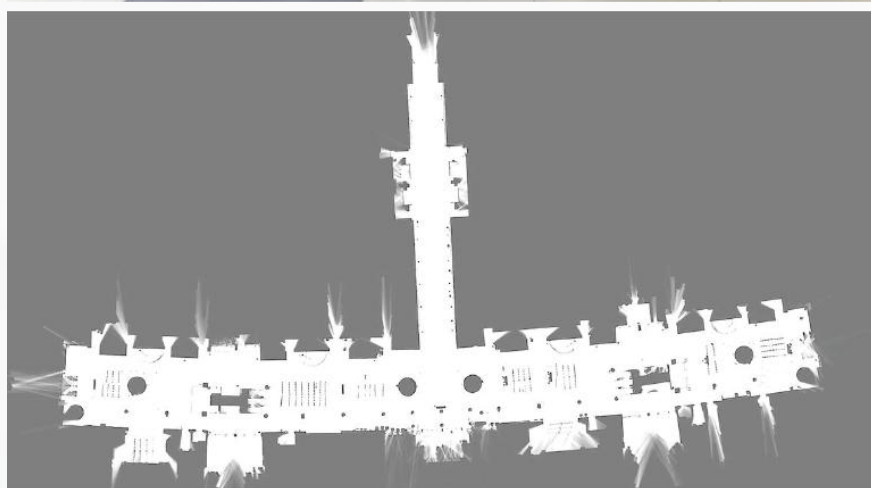




# Retail Store



# Hospital

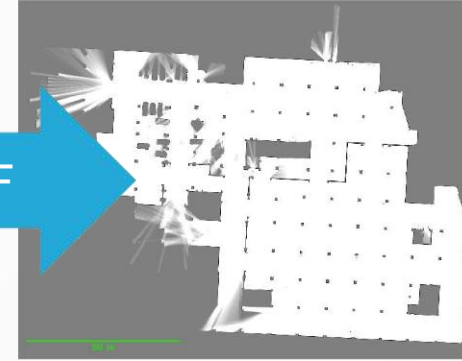
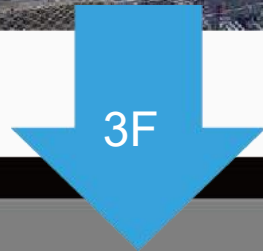




# Shopping Mall

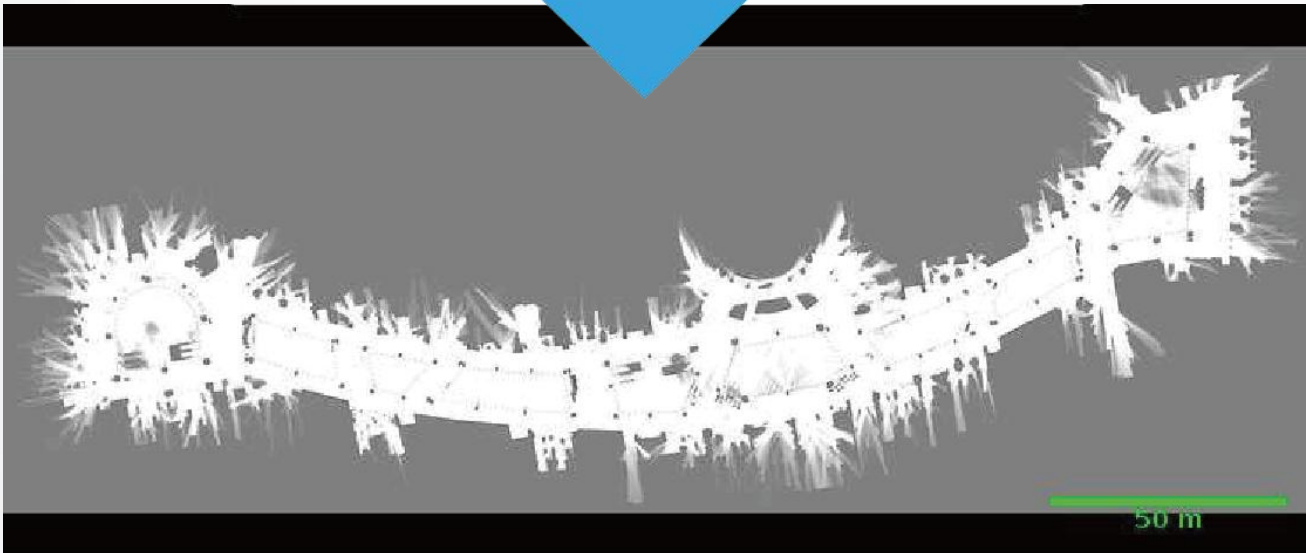


280m \* 120m



AEON MALL

150m \* 120 m





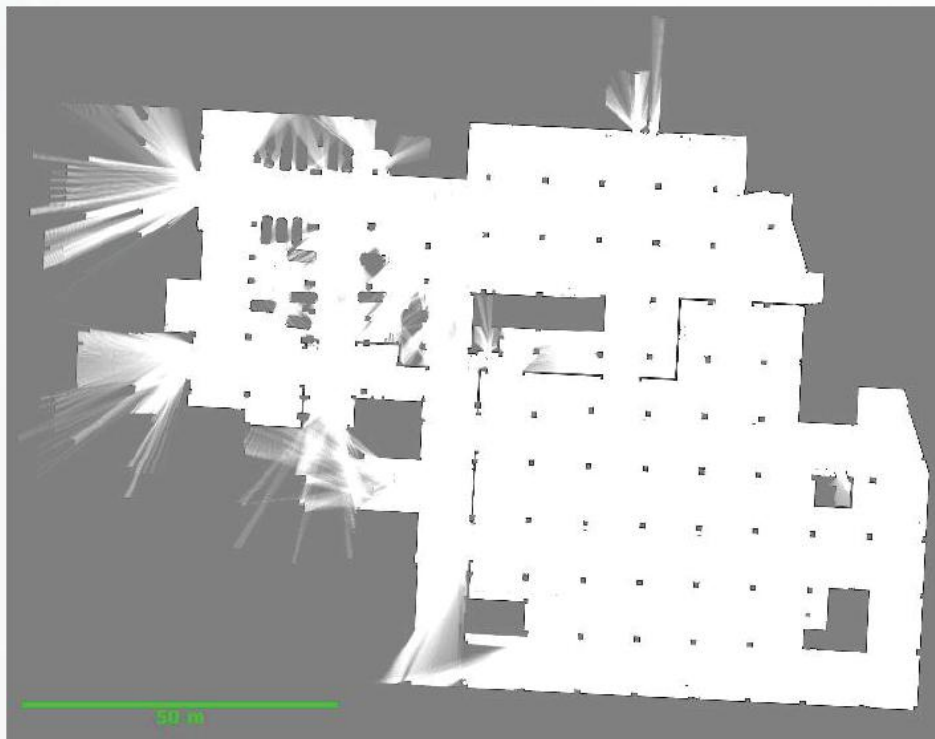
# Airport



青岛胶东国际机场  
QingDao JiaoDong International Airport



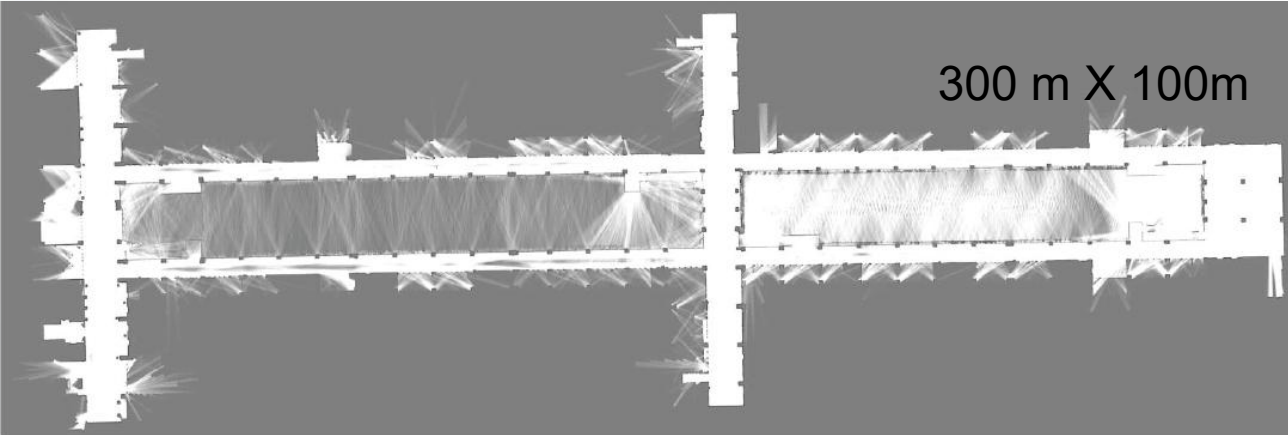
# Parking lot



150m x 120 m



# Office Building





# Maintenance

## 1. Intial Tips



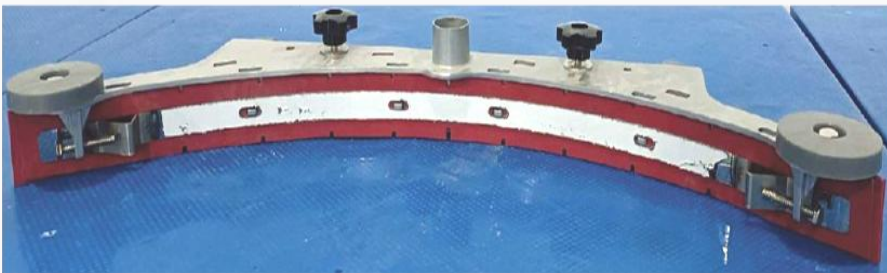
- Before maintenance, the power must be turned off to prevent accidental electric shock or damage to parts.
- The machine should be placed in a dry and ventilated place. Avoid damp environments when performing maintenance as this could damage the electric components.
- If the storage environment temperature is lower than 41 degrees Fahrenheit, please ensure that there is no water accumulation in the entire waterway.
- If detergent is added to the clean water tank, in order to prevent the accumulation of foam inside the water tank, be sure to add defoamer in the sewage tank (the amount of defoamer should be matched according to the proportion of detergent used).

## 2. Daily Maintenance



- Drain the water in the water tank and clean the watertank with a hose or a spray gun.
- Ensure the water tank and its interior, are clean to dirt from blocking the sewage tank, and avoid splashing water to other places during the process. Every time the wastewater is drained, please cover the sewage pipe cover.
- Clear the recovery tank of any sludge or debris.

## 2. Daily Maintenance Cont.



- Cleaning of the absorbent rubber strip: Use a wet towel to clean the inside of the rubber strip to prevent the accumulation of hair and other dirt, which will affect the wiping effect. And keep the surface clean, which can reduce wear and prolong its service life.
- After the scrubbing robot is finished, please check the power and charge if necessary.



### 3. Weekly Maintenance



- Check whether there is any dirt on the sensor, and use a soft cloth or paper to wipe gently,
- Avoid wiping directly with your hands, as this may cause scratches and other damage.

### 3. Weekly Maintenance Cont.



- The water filter on the upper D-Type Chassis must be regularly removed and cleaned
- Clean the bottom edge to avoid entangling more dirt.
- Remove the brush plate weekly and clean the brush plate, hair or other dirt may be entangled on the brush.

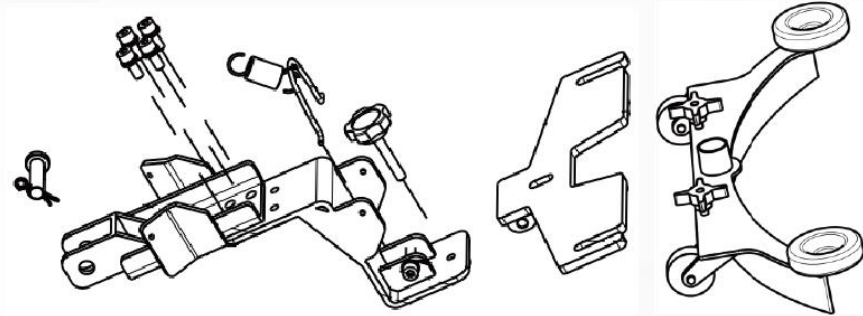
### 3. Weekly Maintenance



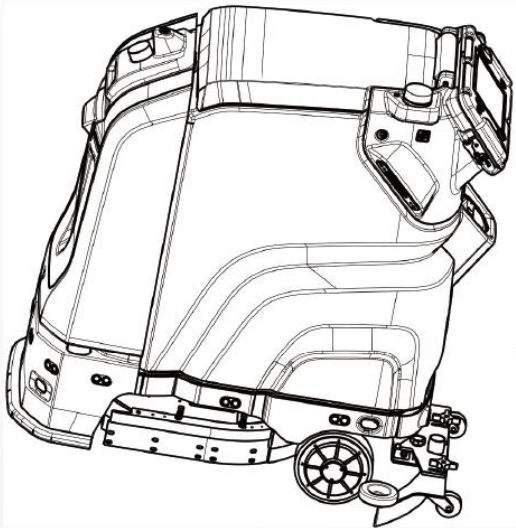
- Check whether the suction pipe is damaged, and remove the inner wall of the flushing pipe to prevent the accumulation of fluff and debris, which will affect the suction effect.
- If the water tank has peculiar smell, use a deodorant product
- The water tank is recommended to be treated with disinfectant twice a week, and the proportion of disinfectant can be used according to the product instructions.
- Flush the pipeline: After cleaning the water tank, add clean water, and clean the ground for 3 to 5 minutes with a large amount of water, so that the large flow of clean water can fully flow through the pipeline, which has the effect of cleaning the pipeline.



## 4.Long-term Maintenance



- Check whether the springs, screws and sheet metal parts of the suction rake structure are loose, deformed or damaged.

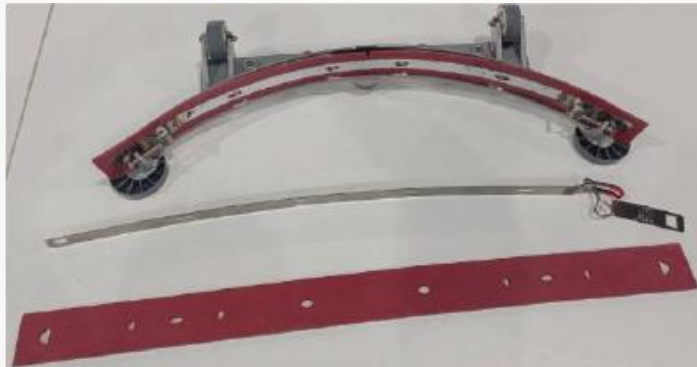


- Check for any abnormal sound in the whole structure

## 4.Long-term Maintenance Cont.



- Check whether the sealing ring of the water tank cover is damaged and whether the drain pipe is leaking.
- If the brush plate has been worn to the point that the cleaning effect cannot be achieved, please replace it.
- Check the wiper strip for wear and replace if necessary.





**Bringing People Together  
By Automating The Tasks  
That Keep Them Apart**

