

Inspur Intelligent Terminal Co. , Ltd.

---

# iScrub X50 Product Introduction



Using robotics to empower better public services

# Contents

1

Product  
Overview

2

Description

3

The case of  
the customer

# 1

## Product Overview

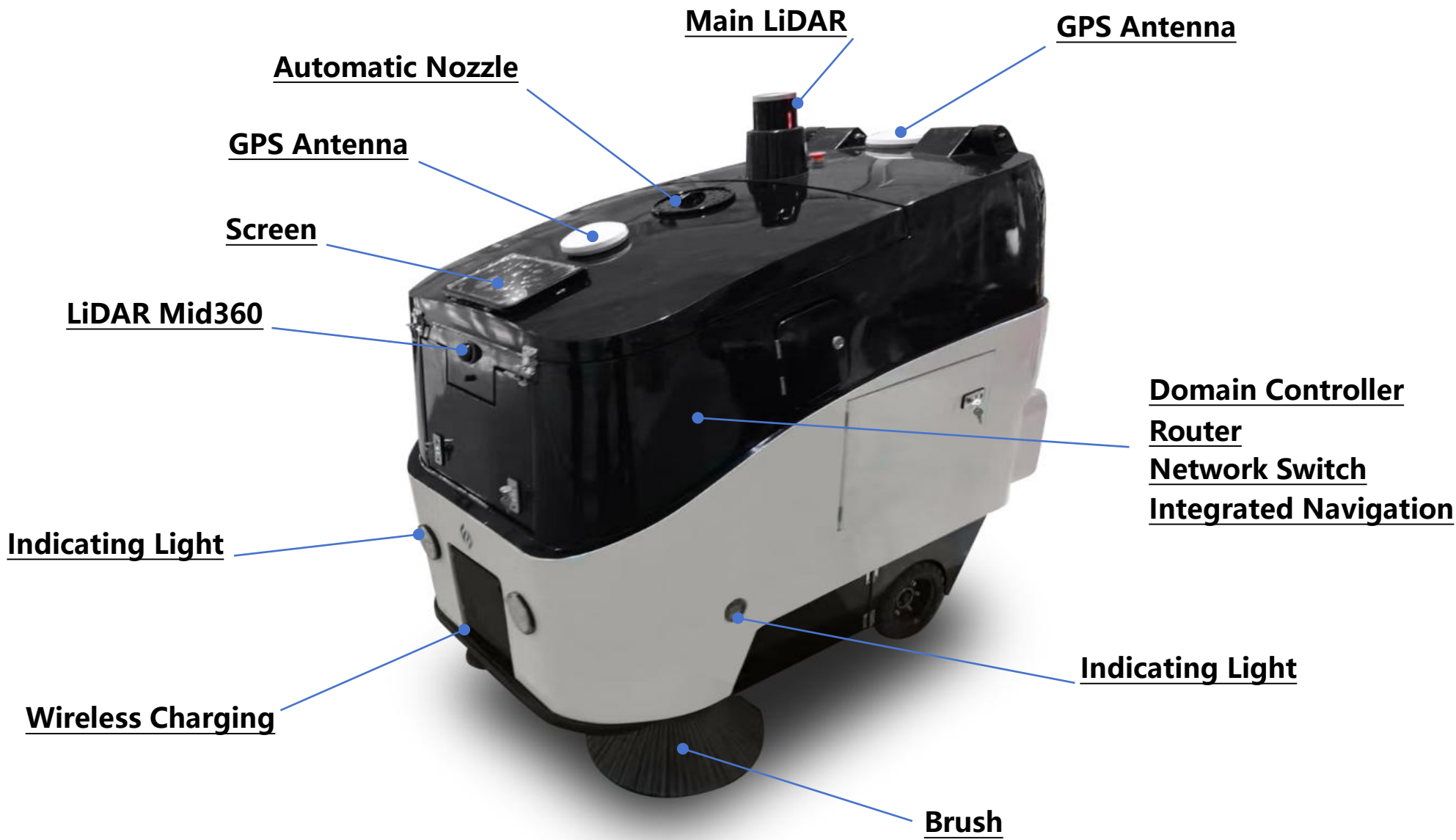
---

## Commercial cleaning specialists



**iScrub X50 is a L4 level unmanned technology as the core, fusion vision, ultrasonic, laser radar and other multi-modal sensors, to achieve, unmanned, intelligent obstacle avoidance detour, automatic charging, automatic dumping of garbage and other functions of the rolling sweeper, suitable for parks, squares, factory areas, parking lots, large production plants, etc. , scenarios.**

# Product hardware layout



Main LiDAR

GPS Antenna

Automatic Nozzle

GPS Antenna

Screen

LiDAR Mid360

Domain Controller  
Router  
Network Switch  
Integrated Navigation

Indicating Light

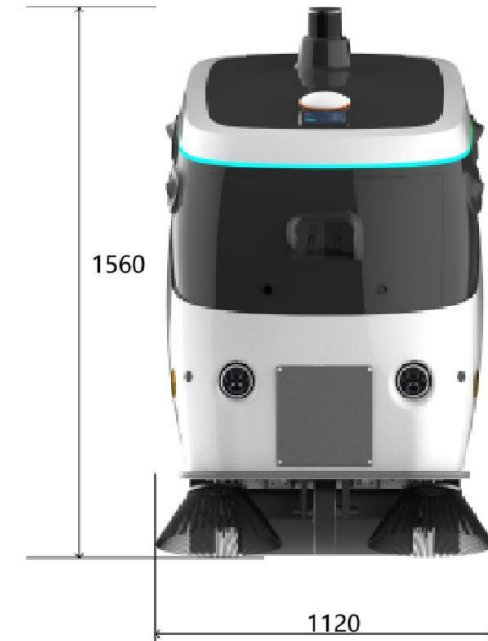
Indicating Light

Wireless Charging

Brush

## iScrub x 50

Type	Parameters
Vehicle size (MM)	Length: 1600 mm; width: 900 mm; height: 1560 mm (with exterior trim)
Full load mass	700 kg
Minimum turning radius	< 1.2 m
Maximum grade	20%
Minimum clearance from ground	7 cm
Top speed	7 km/h
Battery capacity	Power: 7.2 kwh, voltage platform: 48V
Maximum hours of operation	6h (< 10% battery)
Charging time	Less than 4 hours
Form of cleaning	Rolling sweeps
Sweep width	1120mm
Work Noise	Less than 70 dB
Trash bin capacity	> 80L
Water tank capacity	> 50L
Method of trash dumping	High level self dumping (660L trash bin recommended)
Obstacle clearance height	Less than 8cm
Charger	3.3 kw On-Board Charger, with 16A GB Charging gun
Weather-ready	Sunny, Cloudy, Light Rain, night
Normal operating temperature	-15~40 °C



# Traditional cleaning pain points

## Effective working hours are short

According to the survey, the average effective working time of domestic cleaners is only 3.2 hours per day

## Rising labor costs

According to the survey, in 2023 our country cleaning average wage reached 5970 yuan, 10% compound growth from 2014 to 2023

## Hard to find workers

Enterprises struggle to recruit satisfactory cleaners. In many star hotels, there is a 20% labor gap

## Old Age

The average cleaning staff is 50-60 years old, which is difficult to be competent for high-strength tasks and difficult to manage

## Easy to move

The annual average turnover rate of domestic cleaners more than 30% , summer and winter is the high incidence of separation period

# Customer demands



# Product value

## To the cleaner

Reduce the intensity of work and  
duplication of effort  
Shift more energy to other tasks

## For managers

Reduce labor and management costs  
Build an intelligent image of scene

## To the user

Improving the user's comfort  
experience  
Create the impression of a sense of  
technology

## To the environment

Reduce over-cleaning  
Avoid waste of detergents and  
energy

# Product advantage

## Traditional cleaning

- Strong dependence on manpower, low cleaning efficiency and different cleaning quality
- Frequent manual intervention increases the difficulty of management
- Different places have different cleaning requirements, so it is difficult to clean

## Efficiency

Through intelligent path planning and autonomous cleaning, the cleaning task can be completed efficiently and comprehensively

## Consistency

Provides consistent cleaning quality and reduces the influence of human factors on cleaning effectiveness

## Flexibility

It can meet the cleaning requirements of different places and sweep on various ground materials

## Low cost

Support high-intensity continuous work to reduce labor costs

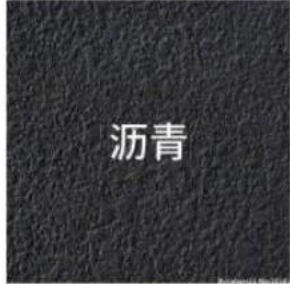
Scenario	Specific Requirements
Weather Conditions	<p>Usable weather: Sunny, cloudy, overcast, light rain, light snow.  Unusable weather: Moderate rain, heavy rain, moderate snow, heavy snow, hail, sandstorm, foggy days.</p>
Operating Temperature	-15°C ~ 40°C
Lighting Conditions	Daytime or nights with artificial lighting (illuminance > 50 Lux)
Communication Requirements	4G and GPS coverage
Actual Operating Environment	<ol style="list-style-type: none"> <li>1. Road type: Outdoor environments of non-public roads or municipal roads.</li> <li>2. Pavement requirements: Flat, hardened pavement with no water accumulation.</li> </ol>
Parking Space	<ol style="list-style-type: none"> <li>1. Structure: The parking space and adjacent ground shall be flat; if a carport exists, metal materials shall be avoided for its construction as much as possible.</li> <li>2. Dimensions: Length ≥ 2.0 m, width ≥ 1.0 m, supporting perpendicular parking.</li> </ol>

# Available Floor Types

Cement



Asphalt



Rubble stone



Terrazzo



Bricks



Marble

**Not picky about surfaces; capable of cleaning various hard surfaces.**

Suitable for cement floors, asphalt surfaces, rubble stones, terrazzo, small square bricks, marble, and other hard surfaces.

# Available Debris Types

Dust



Paper scraps



Fruit peels



Fallen leaves



Cigarette

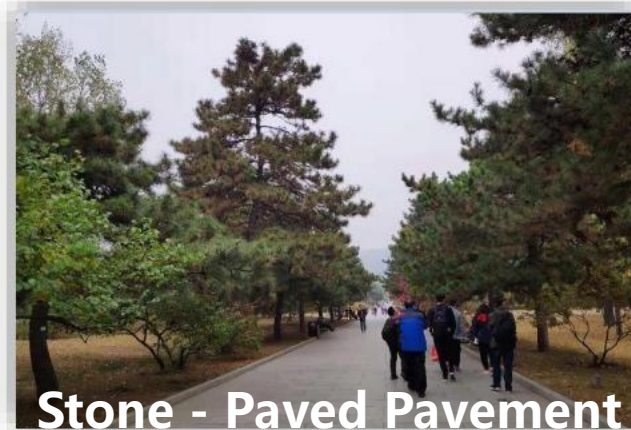


Crushed stones

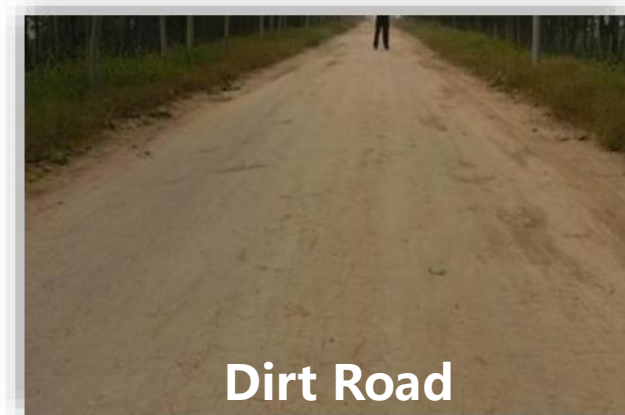
**Thoroughly cleans various common types of trash.**

Effectively sweeps up dust, paper scraps, fruit peels, fallen leaves, cigarette butts, crushed stones, and other common litter on road surfaces.

# Suitable floor



# Not-suitable floor



**2**

**Description**



# Basic Product Function



**Collision Detection**



**Spraying for Dust Suppression**



**Multi - level Fault Response**



**Light Alert**



**Buzzer Alert**



**Automatic Trash Dump**



**Automatic Water Refill**



**Wireless Charging**



**Rainfall monitoring**



**OTA Update**

# Product task management features



**Task Zoning**



**APP - Remote Task Issuance**



**Estimated Completion Time**



**Cleaning Completion Rate / Cleaned Area**



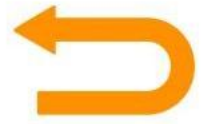
**Multi - Map Management**



**Business Statistics / Display**



**Historical Task Query**



**One - Click Call Back**



**Backend Monitoring**



**Remote Driving**

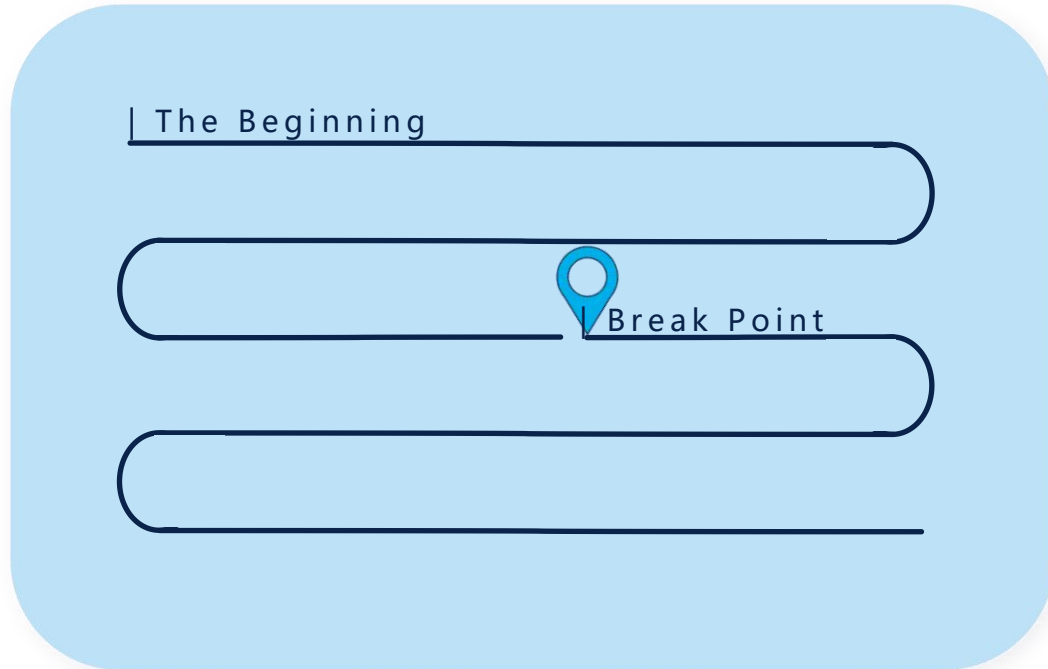
# Charging Post



**Machine tasks in the power shortage or task completion, will automatically back to the charging Post, guarantee the continuous cleaning ability of the machine**

# Breakpoints continue to scan

The machine will remember the cleaning progress, and then can continue from the save location to avoid repeated cleaning



## In which case does the breakpoint task occur?

- Human Intervention: the human finishes the current task and decides whether to continue cleaning next time
- Machine decision: when the machine become low power in the process of cleaning and support the remaining cleaning area, then it returns to the post to charge, until the power is enough to continue to clean

# 3

## The case of the customer

# Stadium scene

## Customer needs

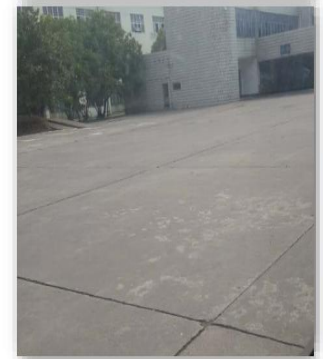
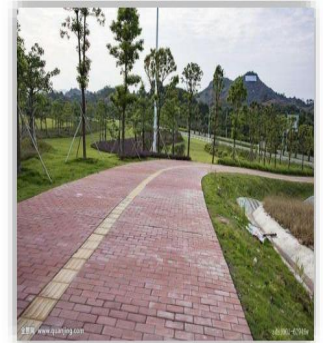
- **Cleanliness:** more leaf dust need to be cleaned frequently and support the elimination
- **Quiet:** low noise, so as not to affect the operation
- **Intelligence:** reduces manual intervention and saves labor costs
- **Safety:** pay attention to people and goods to avoid obstacles, prevent safety accidents



# School scene

## Customer needs

- **Cleanliness:** more leaf dust need to be cleaned frequently and support the elimination
- **Quiet:** low noise, so as not to affect the operation
- **Intelligence:** reduces manual intervention and saves labor costs
- **Safety:** pay attention to people and goods to avoid obstacles, prevent safety accidents



无人驾驶方案

人数少：9人  
效率高：3辆车  
成本低：13%/年

VS

传统方案

21人：人数多  
约4~5人：效率低



无人驾驶设备作业面积 70197 m<sup>2</sup> (人行道)  
 新能源有人设备作业面积 170463 m<sup>2</sup> (主车道和辅道)  
 人工作业面积 61445 m<sup>2</sup> (绿化带)

传统作业模式与无人驾驶智慧城服模式运营成本对比(年) (共 13.2 万 m<sup>2</sup>, 不含主车道和辅道)

	传统作业模式	无人驾驶智慧城服模式
作业人力数(人)	21	9
无人驾驶设备(台)	0	3
作业总成本(元/年)	1,400,400	1,216,900
一个作业时段清扫面积(m <sup>2</sup> )	4950 m <sup>2</sup> / 人	24000 m <sup>2</sup> / 车

无人驾驶智慧城服成本缩减比率(年) 13%