

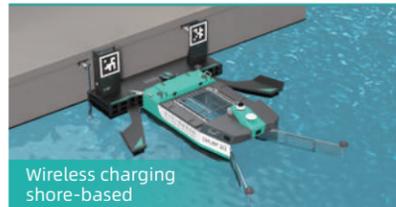
## Product parameters

Hull size (length, width, height/mm)	<b>2860*1700*1050</b>
Hull material	<b>High strength aluminium alloy</b>
Hull weight	<b>140KG</b>
Loaded garbage	<b>50KG</b>
Battery life	<b>8-10 hours</b>
Charging time	<b>6 hours (5%-90%)</b>
Depth of immersion	<b>470mm</b>
Maintain waters	<b>40-70 acres</b>
Safety protection and dustproof design	<b>IP65</b>
Power plant	<b>Electric propulsion</b>
Speed of work	<b>1.4m/s</b>
Maximum speed	<b>2m/s</b>

## Configuration service

### Basic configuration

PAD control panel	Standard	Wireless charging shore-based	Optional
Charging cabinet	Optional	Unmanned boat intelligent management system	Optional



Wireless charging shore-based



Charging cabinet

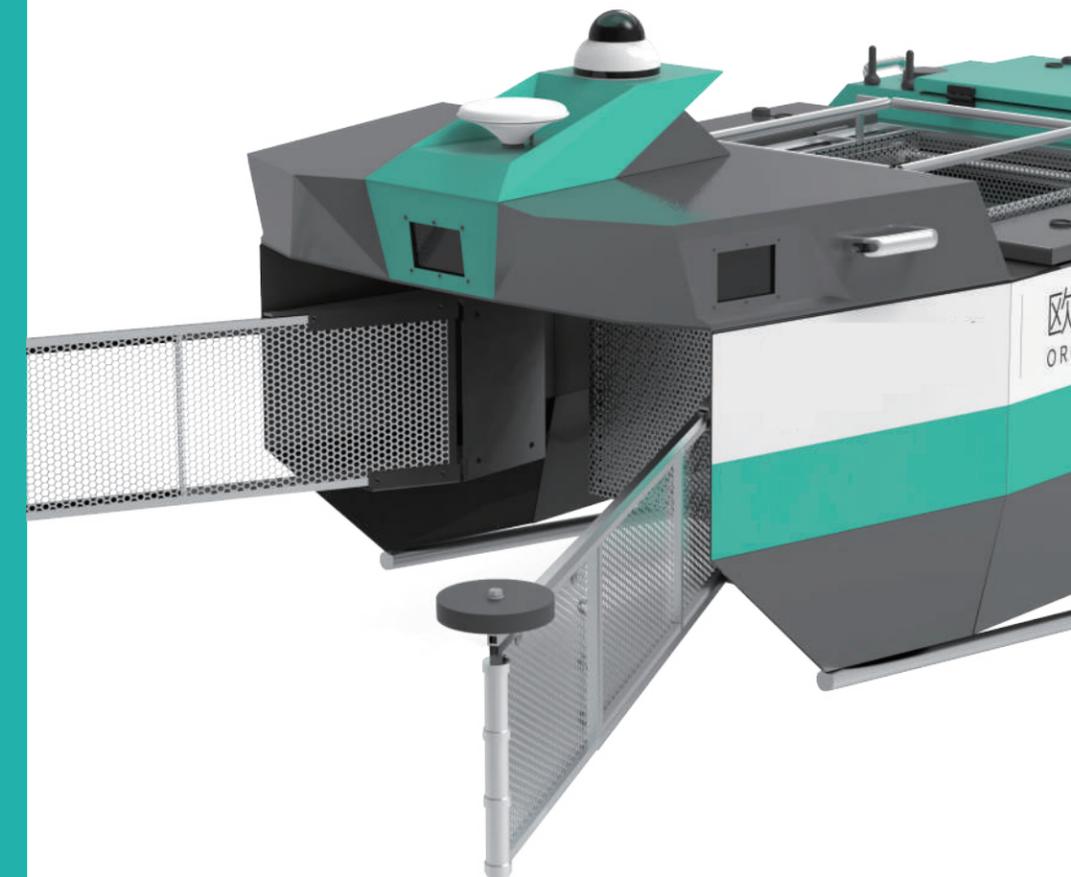
### Value-added module

Conventional 5 parameter monitoring module	Chlorophyll detection module	Blue-green algae detection module
COD detection module	Ammonia nitrogen detection module	
Water depth detection module	Bluetooth smart audio module	



## SMURF Unmanned Cleaning Boat

Multifunctional and suitable for a variety of waters



## SMURF Unmanned Cleaning Boat

SMURF is the first unmanned cleaning boat in China that integrates surface garbage cleaning, intelligent inspection, and data monitoring. SMURF is mainly used in urban inland rivers, landscape lakes, reservoirs, offshore waters, and other water bodies. SMURF was awarded the title of "China Best Smart Sanitation Equipment".



## Core functions



Unattended  
cleaning



Daily water area  
inspection



Data  
monitoring



Automatic  
charging

## Product Advantages

	SMURF	Traditional cleaning	Semi-automatic machiner
Maintenance area	70 acres/boat	20 acres/person	100 acres/person + boat
Length of work	16h/day (automatically charges itself)	6h/day	6h/day
Safety	Driverless, 100% safe	People + tools, high labour risk	Manned driving, high driving risk
Response efficiency	24h all-day response	Working time response	Working time response
Energy consumption	Clean energy, charges at night, works during the day	Manpower	Gasoline energy, need to be purchased at the petrol station
Skill requirements	Smart machine operation, easy to use, no certificate required	Skilled in using tools, skilled in ferrying boats, swimming license required	Skilled in mechanical boat driving, swimming license and crew certificate are required
Working quality	Machines clean-up, quality of clean-up is consistent	Affected by workers' status and attitude	Affected by workers' status and attitude, equipment maintenance is complicated, large equipment cannot be adapted to all water bodies

## Product highlights

### RTK High-precision positioning

Based on RTK's high-precision positioning, the unmanned boat can achieve centimetre-precision water surface positioning and better cope with complex water bodies.

### Autonomous and precise obstacle avoidance

Relying on the equipped millimetre-wave radar + vision sensor, the unmanned boat can accurately avoid obstacles and can perform scene modelling of operating waters.

### Intelligent path optimization

With the support of intelligent algorithms, the unmanned boat can independently plan the best cleaning path, which can achieve efficient and safe water cleaning operations.

### Automatic lifting of garbage basket

The garbage basket can be automatically lifted to facilitate the dumping of garbage, and at the same time, it can reduce the water resistance during sailing.

### The latest generation flexible extension arm

Using the industry's latest generation of flexible extension arms, it can clean all edges and spots in the water body, including the tiniest spot.

### The latest generation battery system

Using the latest BYD batteries + LG imported batteries, the battery life can reach 10 hours.

### Double boat pulling net technology

Support the double-vessel pulling net cleaning scheme, greatly increasing the water areas cleaned, and making the water cleaning process more efficient.

### Bluetooth Smart Speaker

Equipped with Bluetooth smart speakers, it can warn illegal fishing and dangerous behaviours in water as soon as possible, and achieve efficient and safe inspection.

## Project cases

It has been employed in **10** countries, **50+** cities, **100+** water bodies, **400,000+** kilometres of sailing mileage.



Port of Barcelona, Spain



Lotus Pond in Tsinghua University, Beijing



River Thames, England



Sentosa Port, Singapore

## Product parameter

Product name	<b>TITAN unmanned cleaning boat</b>
Hull size · Length, width and height/mm (extension arm not included)	<b>3150 x 1660 x 1480</b>
Hull size · Length, width and height/mm (standard 1m extension arm)	<b>4030 x 2980 x 1480</b>
Hull material	<b>Aluminum alloy</b>
Hull weight (no load)	<b>430Kg</b>
Loaded garbage	<b>100Kg</b>
Charging time	<b>0.45m<sup>3</sup></b>
Battery life	<b>6 hours</b>
Rated storage volume	<b>800mm</b>
Working minimum water depth	<b>IP55</b>
Safety protection and dustproof design	<b>1.5m/s</b>
Cleaning speed	<b>5hours*</b>

## Configuration service

### Basic configuration

Charging cabinet



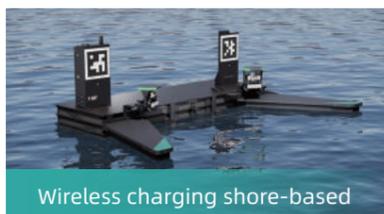
Charging cabinet

### Value-added module

Wireless charging shore-based

water quality monitoring module

coastal flushing module

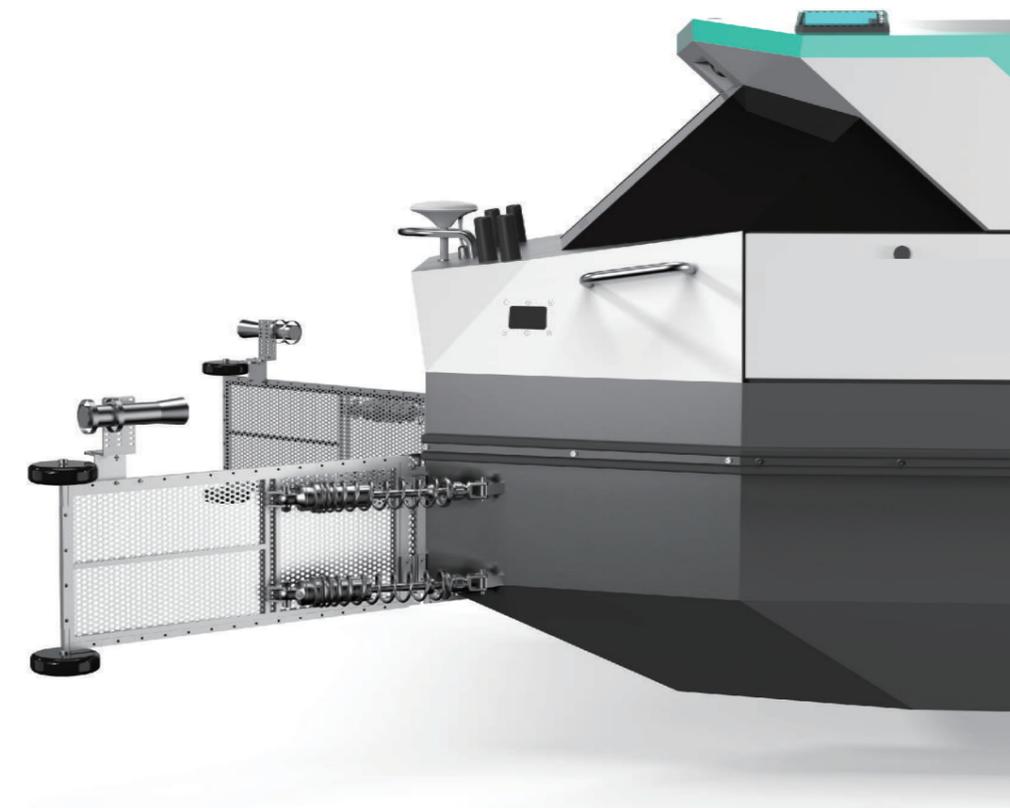


Wireless charging shore-based



# TITAN

## unmanned cleaning boat



## TITAN unmanned cleaning boat

TITAN unmanned cleaning boat is a surface service robot that integrates surface garbage cleaning, water quality detection, intelligent inspection and other functions. It can collect 100kg of garbage. The main application scenarios are urban inland rivers, reservoirs, landscape lakes and other waters.

### Core functions



garbage cleaning



dry and wet separation



water quality detection



intelligent route planning



full load of garbage and return

### Product advantages

	TITAN	Traditional labor	Semi-automatic machinery
Maintenance area	24.7acres/boat	3.2acres/person	16.4acres/person
Length of work	0.5h/day (Artificial intervention)	6h/day (Artificial intervention)	6h/day
Safety	unmanned, 100% safe	People + tools, high labor risk	Manned , High driving risk
Response efficiency	All-day online	Working time response	Working time response
Energy consumption	Clean energy, charging at night, working during the day	Manpower	Gasoline energy, need to be purchased at the petrol station
Working Quality	Machine Cleanup, quality maintain unity	Affected by work status and attitude	Affected by work status and attitude
Skill requirements	Simple smart machine operation, no certificate requirements	Skilled in using tools, skilled in ferrying boats, swimming license required	Skilled in mechanical boat driving, swimming license required, crew certificate required

### Product Highlights



**Dry and wet separation of water surface garbage**

Through the garbage collection module, the garbage floating on the water can be collected into the garbage basket inside the hull to filter out the water.



**0.8m extended edge cleaning**

For cement or stone rivers/lake banks, the sweeping module along the shore can be used to clean up the rubbish near the shore.



**RTK High-precision positioning**

Based on RTK's high-precision positioning, unmanned ships can achieve centimeter-level water surface positioning, which can better cope with complex water scenes.



**Autonomous and precise obstacle avoidance**

Relying on the mounted millimeter-wave radar, the unmanned ship can accurately avoid obstacles, and can perform scene modeling of operating waters.



**Multiple cleaning modes**

For different water scenarios, unmanned ships have multiple cleaning modes such as area cleaning and edge cleaning. The mobile /pad APP supports independent selection and combination of cleaning modes.



**Hand/Auto mode switch**

The user can either use the remote control that comes with the ship to control the hull unmanned ship, or remotely operate the mobile phone APP, and the two modes can be switched.



**Autonomous garbage identification**

Automatic garbage identification function based on visual recognition can achieve density cleaning and intelligent maintenance of water area cleaning.



**LED Propaganda is everywhere**

There are colorful LED screens on both sides of the hull, and customers can use PAD to edit the displayed text in real time according to your needs.

### Landing case



Xi'an · Port area



Chengdu · Luhu



Xi'an · Seoul Lake



Wuhan · Shahu

## Product parameters

Hull size length, width, height/mm (excluding extension arm)	<b>4000*2500*1930mm</b>
Hull size length, width, height/mm (standard 1m extension arm)	<b>4700*2500*1930mm</b>
Hull material	<b>High strength aluminum alloy</b>
Hull weight (unladen)	<b>Weight 1100kg</b>
Rated load	<b>150kg</b>
Charging time	<b>5 Hours</b>
battery life	<b>8 Hours</b>
Draft depth	<b>0.4m</b>
type of harvest	<b>All submerged plants</b>
type of control	<b>4g-autopilot/2.4g-remote control</b>
Maximum speed	<b>1.5m/s</b>
Rated working speed	<b>1m/s</b>

## Configuration service



wired charging pile



wireless charging dock



# MoShark 150 Unmanned mowing boat

Water ecological intelligent maintenance expert



## Product introduction

MoShark 150 unmanned mowing boat is an intelligent maintenance robot for ecological waters. It is designed for large and medium-sized ecological waters. It has functions such as water grass harvesting, water surface cleaning, water quality monitoring, and autonomous return charging. It is suitable for ecological water systems with submerged plants, including natural lakes, urban parks, urban rivers and tourist attractions. As well as high-end residential waters, science and technology parks, golf courses and other commercial waters. It can achieve 24-hour standby, all-weather management and control, and promote intelligent maintenance of water ecology.

## Core functions



water grass harvesting



water surface cleaning



water quality monitoring

## Solving pain points

	MoShark 150	Traditional artificial	Semi-Automated
Harvested area per day	13000m <sup>2</sup> /Boat	500 m <sup>2</sup> /person	6900 m <sup>2</sup> /3 people*boat
Working Hours	16h	8h	8h
Safety	unmanned, 100% safe	Human + tools, high labor risk manned	People are driving, high driving risk
work quality	Harvesting depth consistent, no omission	Harvesting depth is inconsistent, affected by environmental changes	affected by working state and attitude
work efficiency	Compared with traditional manual efficiency 25 times, compared with semi-mechanized mowing boat efficiency 88%		

## Product Highlights

1.

### **AUTO** Unmanned driving

24/7 response, automatic operation, one-button start, the whole process without worry

2.

### **Adjustable harvesting depth**

the harvesting depth is 10cm ~ 60cm, which can be flexibly adjusted to meet the demand of water grass in low season.

3.

### **Functional integration**

Harvesting water and grass at the same time, both water surface clear drift and water quality monitoring functions, multi-purpose boat.

4.

### **Horizontal and vertical cutters**

The horizontal and vertical cutters are set to flexibly harvest high-density and complex aquatic plants.

7.

### **Automatic lifting and lowering of garbage baskets**

The garbage baskets can be automatically lifted and lowered to adapt to docks of different heights and materials, reducing the difficulty of garbage dumping.

6.

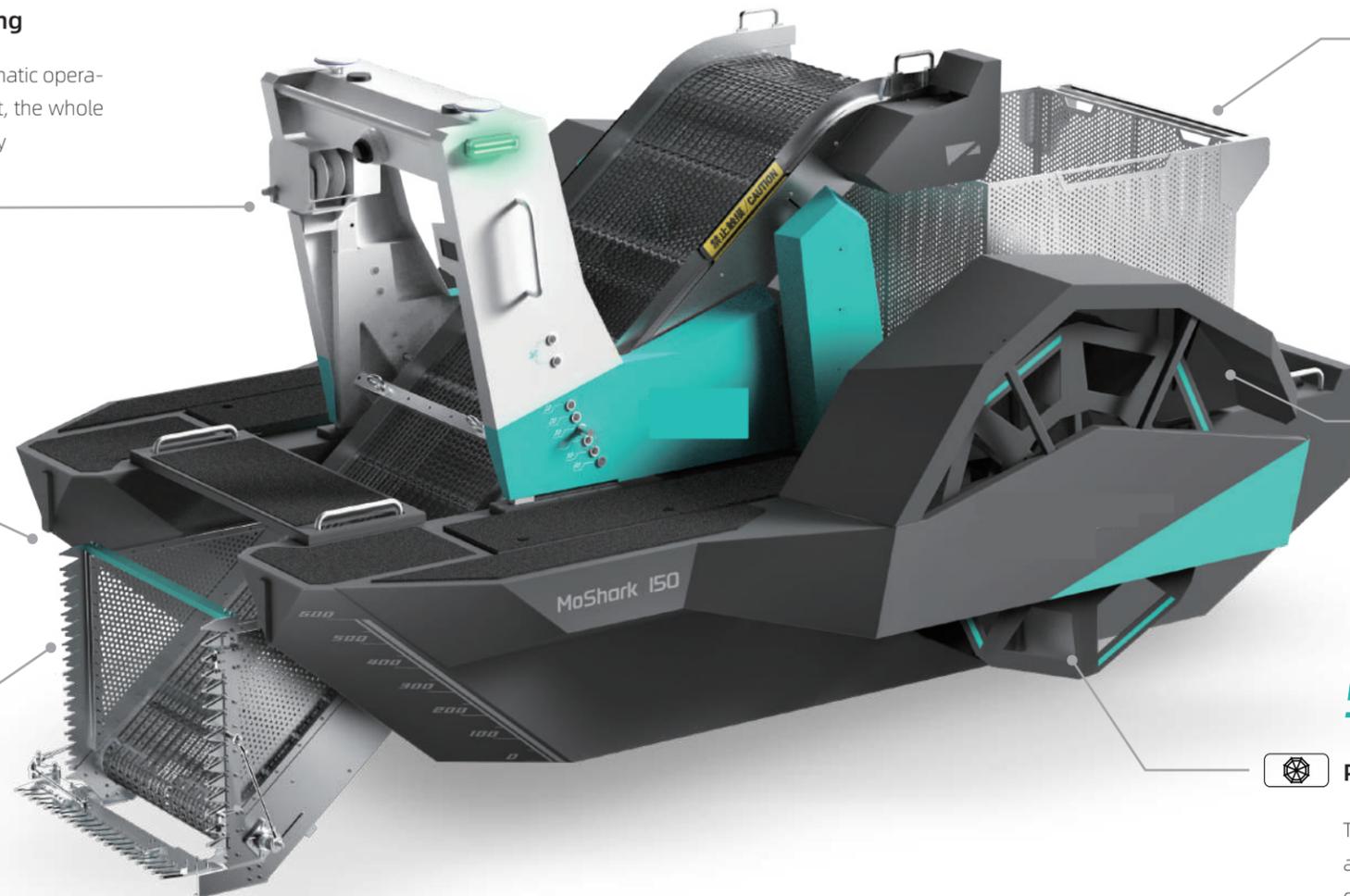
### **Garbage weighing**

real-time statistics of harvest weight, convenient transportation scheduling, harvest prediction, and intelligent management.

5.

### **Paddle wheel propulsion**

The paddle wheel propulsion system is adopted to avoid water and grass entanglement and ensure smooth operation.



## Parameters

Parameters	Specifications
Hull size (length, width, height/mm)	<b>4950*2360*1600</b>
Hull material	<b>High strength aluminium alloy</b>
Hull weight	<b>1300KG</b>
Maximum load capacity	<b>2100KG</b>
Depth of immersion	<b>0.5m</b>
Width of collection	<b>0 -15m</b>
Loaded garbage	<b>500-700KG</b>
Maintain waters	<b>500 acres</b>
Safety protection and dustproof design	<b>IP65</b>
Wind and wave resistance rating	<b>3 wind force, 1 meter waves</b>
Speed of work	<b>0.5m/s</b>
Maximum speed	<b>1.2m/s</b>
Charging time	<b>6 hours</b>
Battery life	<b>8-10 hours</b>
Battery	<b>2 High-capacity lithium batteries</b>
Power plant	<b>4*1KW Electric propulsion</b>

## Configuration services

### Charging Equipment

Charger	Standard	Unmanned Intelligent Charging Dock	Optional
			



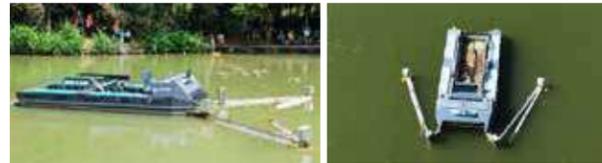
# Zhiduoqing Intelligent Unmanned Cleaning Boat

—— Clean Everything on Waters ——



## Introduction

**Orcaubot Zhiduoqing** is a high-efficiency large-scale unmanned cleaning boat designed for the water sanitation industry, which can collect many kinds of stubborn garbage on the water surface such as fallen leaves, willow flakes, floating mud, cyanobacteria, duckweed, oil, etc. It is mainly applicable to the daily cleaning of large-scale water areas, such as urban rivers, reservoirs, lakes, ports and wharves, etc., which can save 12-14 manpower and reduce the cleaning cost by 75% compared to the traditional manual cleaning.



## Values

- 0 Fully unmanned operations**  
8-10 hours of battery life, autonomous identification of garbage and cleaning, when it is low battery, it will automatically return to charge, automatic lifting of garbage basket, 24/7 unmanned operation
- 1 Guarantee one time clean**  
The cleaning width is up to 15 meters, a 20 meters wide river can be cleaned once completely
- 2 Two control modes**  
Using both autonomous driving and manned control, can be switched freely according to actual needs
- 3 Three types of shorelines**  
Self-adaptation to different shorelines such as vertical, sloping, and ecological shorelines
- 4 Four types of challenges**  
Can clean fallen leaves, cyanobacteria, floating mud and oil stains by using one boat

## Cases



Xi'an Chanba Expo Ecological Zone

Before the China-Central Asia Summit held on May 18, 2023, Chanba Ecological Zone in Xi'an, as a reception center, introduced Orcaubot Zhiduoqing for the emergency cleaning of floating mud in the waters of the Expo Park, and the original plan was for 50 workers to complete the cleaning task in half a month, but the Zhiduoqing only took 6 hours to complete the job, which was highly praised by the owners.

On June 12, 2023, "Welcoming the Asian Games, Promoting Security, Embroidering Hangzhou" activity, Hangzhou Wuchang-gang River introduced Orcaubot Zhiduoqing for cleaning the river surface garbage and achieved a high degree of acceptance, to help create the most beautiful water environment for the Asian Games.



Hangzhou Wuchanggang River

## Highlights

