

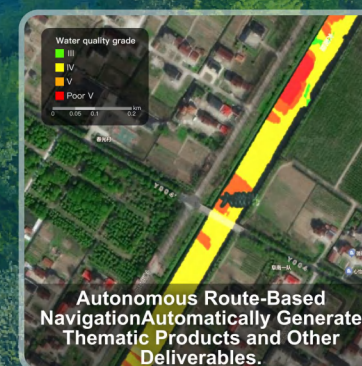
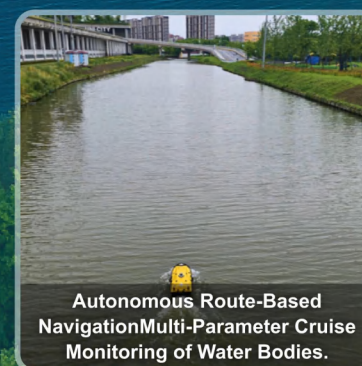
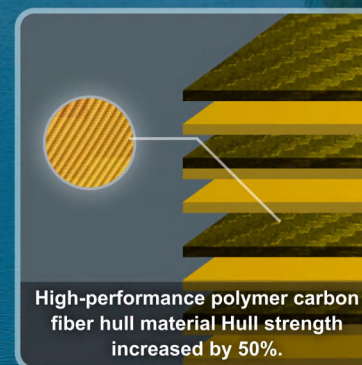
iBoat-6 (River Inspection Vessel)

► Monitoring-While-Navigating

The iBoat6 is a specialized unmanned surface vessel platform designed for aquatic environmental monitoring. Equipped with multiple water quality sensors, it enables real-time and accurate measurement of critical parameters, including but not limited to:

Total Phosphorus (TP) 、 Total Nitrogen (TN) 、 Ammonia Nitrogen (NH₃-N) 、 Dissolved Oxygen (DO) 、 Turbidity . This advanced USV platform provides scientific data support for:

Water quality assessment、 Pollution source tracking、 Ecological conservatio、 Water pollution control .



Hull	Hull dimensions	980*520*254mm
	Material	High-molecular polyester carbon fiber, Kevlar fabric
	Hull type	Full-curved M-type monohull
	Draft	8.5cm
	Deadweight	7kg
	Maximum load capacity	35kg
	Wind/wave resistance rating	Wind scale 4, Wave scale 3
	Water/dust proof	IP67
	GNSS	Built-in GNSS dual-antenna positioning and heading system
	Indicator lights	Bicolor indicator lights (remote control signal + GNSS status)
Power	Video	Main camera: 360° night vision; Auxiliary cameras: Left/right monocular AI cameras
	Safety	Automatic shallow-water reversing, millimeter-wave obstacle avoidance, triple-view simultaneous monitoring
	Obstacle avoidance distance	0.2-40m
	Obstacle avoidance range	Detection angle: 120°; Speed range: $\pm 18\text{m/s}$; Pitch/Azimuth: $14^\circ 112^\circ$; Max 64 detectable targets simultaneously
	Protective measures	Full-perimeter anti-collision bumper, reinforced bow + keel protection, double-layer hull anti-sinking design
	Expansion platform	Integrated hull expansion platform for quick assembly/disassembly
	Power type	Electric
	Motor type	Brushless motor
	Steering type	Differential steering without rudder (reverse supported)
	Motor power	Single motor max power $\geq 1200\text{W}$
Remote Control	Motor speed	Max rotation speed: 7500 RPM
	Mounting method	Plug-and-play design (no exposed wiring), easy replacement
	Aquatic weed protection	Semi-embedded ducted design, streamlined anti-weed cover, anti-jamming structure, anti-foreign object brushing
	Battery specifications	33.6V 25Ah*4 rechargeable ternary lithium battery, 21700 cell
	Power supply mode	Supports single-battery independent power supply or dual-battery balanced power supply
	Battery replacement	Hot-swappable replacement supported
	Endurance time	8hrs@2m/s, 14hrs@1.5m/s (optional: 16hrs@2m/s, 28hrs@1.5m/s)
	Operating range	70 km cruising range at economic speed
	Maximum speed	7 m/s speed, with the ability to safely traverse a 4 m/s flow section
	Dimensions	277*138*96mm
Remote Control	Display screen	Industrial touch screen + Sunlight-readable display
	Resolution	1920*1200
	Brightness	Max 1200nit
	Memory	RAM 4GB, Storage 64GB
	Frequency band	2.400-2.483GHz
	Communication range	Data transmission range 3km, 4G range unlimited
	Battery capacity	20000mAh
	Operational endurance	8 hours
	Charging power	18W fast charging, compatible with standard market Type-C interface
	Interface	PPM, RJ45, USB, Type-C, SIM card slot, TF card slot
Remote Control	Hull control	One-button control for manual/auto/hover/return-to-home modes; quick-access keys for route planning/safety settings/vessel parameters/USV (unmanned surface vehicle) info; triple-angle video recording & photo capture onboard; main video auto-centering scroll wheel; one-touch video interface switching.

Control	Operating System	Linux
	Base Station Communication	Radio & Network & CORS
	Data Communication	4G & 2.4G & Radio
	Video Transmission	4G&2.4G
	SIM Card Slot	Nano SIM slot
	Interface	2*RJ45 Ethernet ports, 2*RS232 serial ports, 2*RS485 serial ports, 2*CAN, 3*USB3.0, 2*indicator lights, 1*WiFi
	Memory	Main controller with built-in 64GB storage
	Main Controller Water/Dust Proof (IP Rating)	IP67
	Control Mode	Manual & Semi-automatic & Fully automatic
	Satellite System	BDS(BDS-2:B11,B21,B3LBDS-3:B11,B31), GPS(L1C/A,L2PL2C), GLONASS(G1,G2), Galileo(E1,E5b), QZSS*(L1C/A,L2C), SBAS*(L1C/A)
position	Number of Channels	1408 channels
	Cold Start	<30s
	Initialization Time	<5s(D<10km)
	Single-point	Horizontal $\leq 3\text{m}$, Vertical $\leq 1.5\text{m}$
	DGNSS	Horizontal: 40cm+1ppm, Vertical: 80cm+1ppm
	RTK	Horizontal: $\pm 8\text{mm}+1\text{ppm}$, Vertical: $\pm 15\text{mm}+1\text{ppm}$
	CORS	Supports network CORS
	Radio Differential	Supports TT450 protocol/transparent transmission protocol, etc.
	Heading Accuracy	Accuracy: $0.1^\circ(1\text{m baseline})$
	INS Accuracy	6°/h, 20S accuracy attenuation 1m, supports continuous autonomous navigation and measurement under bridges
Measured Depth	IMU Update Rate	200Hz
	Frequency	200KHz
	Beam Angle	$5^\circ \pm 1^\circ$
	Range	0.15-300m(configurable)
	Resolution	1cm
	Stability Rate	$\pm 2\text{cm}(\text{CEP.95}@10\text{m})$
	Accuracy	$\pm 1\text{cm}+0.1\%(\text{D}=\text{water depth})$
	Maximum Sampling Rate	30Hz
	Power Supply Voltage	9V-18V
	Sound Velocity Range	0m/s~1700m/s
Software	Power Consumption	10W
	Dust/Water Protection	IP67
	Software System	Android, HarmonyOS
	Hull Control	Supports multiple route planning modes, breakpoint continuation, real-time USV trajectory display, automatic obstacle avoidance, remaining range reminderSupports triple-view independent video, 360° gimbal camera control, physical & virtual joystick
	Data Acquisition	Supports coordinate conversion, real-time depth display, real-time echo data display, real-time water quality data display, real-time side-scan sonar data display, measurement record control, bathymetric parameter control
	Data Processing	Engineering parameter calculation, depth waveform overlay processing, attitude correction, arbitrary feature point extraction, manual point modification/insertion, tide file detection, multi-format data export, PPK post-processing, AI object recognition
	Safety Features	Automatic return on signal loss, shallow water warning & reverse, low battery warning & auto-return, one-key return
	Upgrade	Supports OTA firmware/software updates
	Self-check Alarm	System self-check & anomaly alerts on startup, abnormal cruise speed warning, low battery alarm, depth sounder anomaly alarm, obstacle avoidance alarm, shallow water alarm

01

Water Quality underway Monitoring

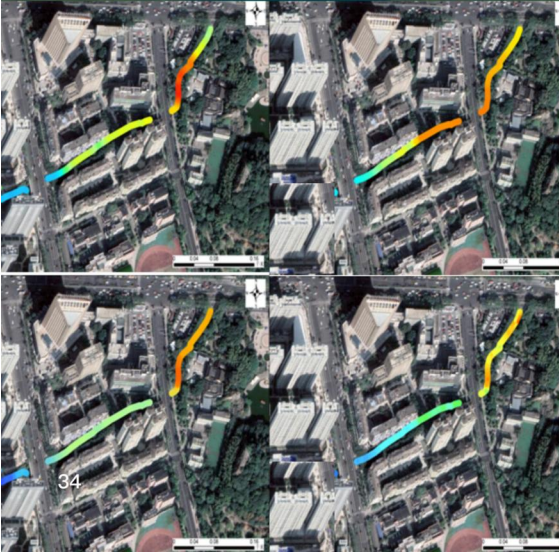
Equipped with advanced water quality sensors, our unmanned surface vessels (USVs) efficiently and accurately conduct autonomous water sampling along predefined routes. The system measures key parameters including dissolved oxygen, ammonia nitrogen, total phosphorus, total nitrogen, and pH levels. Through intelligent interpolation processing, it detects pollution trends and identifies risk areas in real time, achieving 85% monitoring accuracy – surpassing traditional manual methods.



02

Water Sampling with USVs

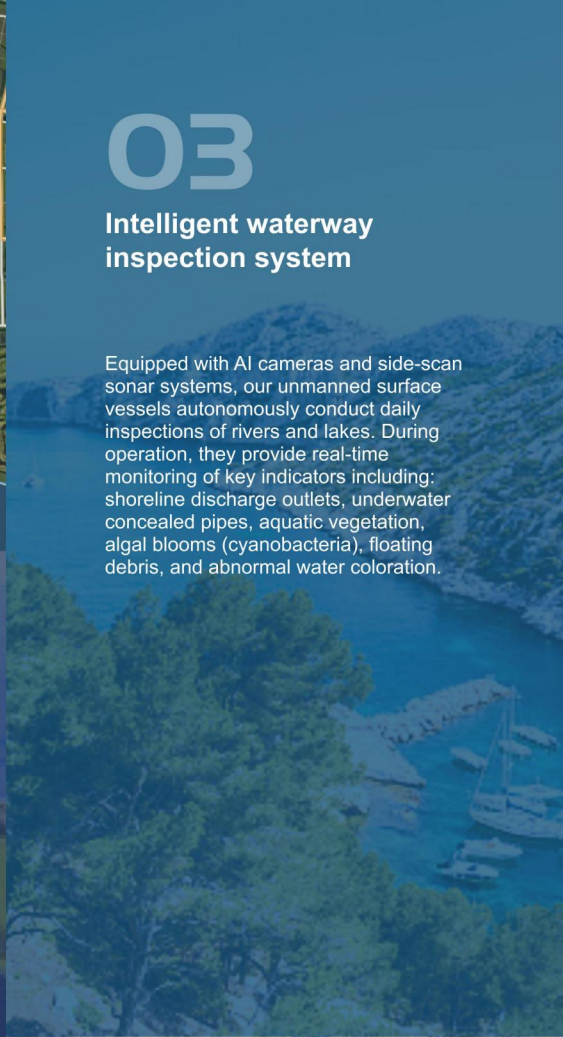
Our unmanned surface vessels (USVs) are equipped with precision water samplers, capable of performing timed, positioned, and quantitative water collection for both routine monitoring and emergency response scenarios.



03

Intelligent waterway inspection system

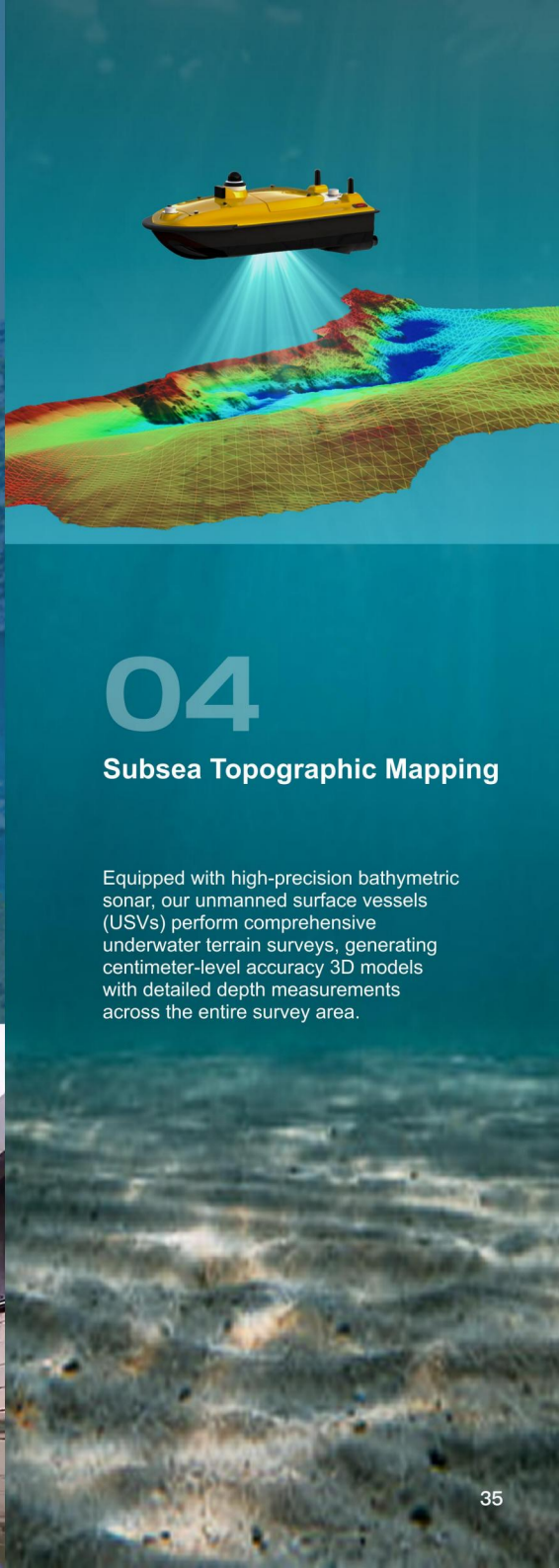
Equipped with AI cameras and side-scan sonar systems, our unmanned surface vessels autonomously conduct daily inspections of rivers and lakes. During operation, they provide real-time monitoring of key indicators including: shoreline discharge outlets, underwater concealed pipes, aquatic vegetation, algal blooms (cyanobacteria), floating debris, and abnormal water coloration.



04

Subsea Topographic Mapping

Equipped with high-precision bathymetric sonar, our unmanned surface vessels (USVs) perform comprehensive underwater terrain surveys, generating centimeter-level accuracy 3D models with detailed depth measurements across the entire survey area.



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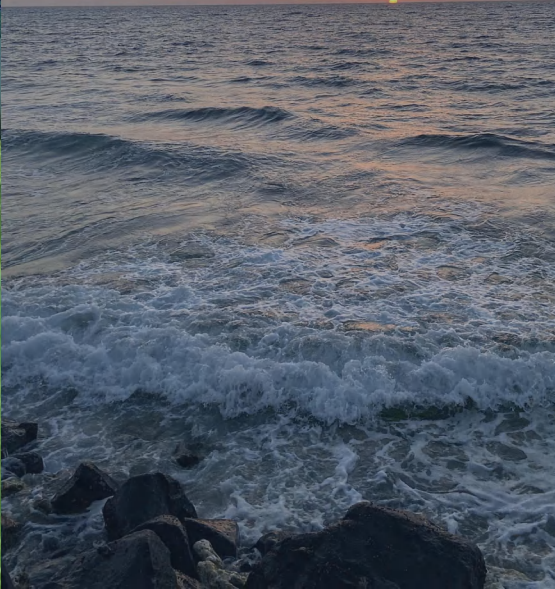
Autonomous Surface Cleaning

Integrated with advanced AI recognition algorithms, our unmanned surface vessels (USVs) accurately identify various floating pollutants including debris, algal blooms (cyanobacteria), water hyacinths, and plastic bottles. Through intelligent control systems, the cleaning vessels autonomously execute collection and removal operations, establishing a complete smart workflow from detection to remediation.



Emergency Rescue Solution

Our unmanned surface vessels (USVs) provide a safe and effective alternative to manual water rescues, addressing the limitations of traditional lifebuoy throwing methods.

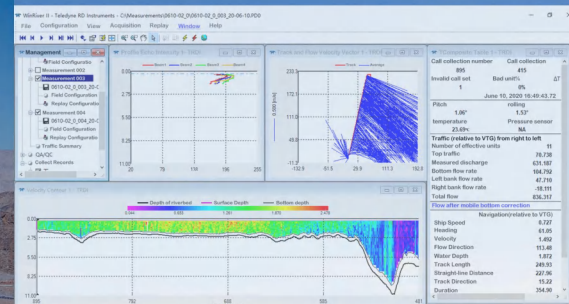
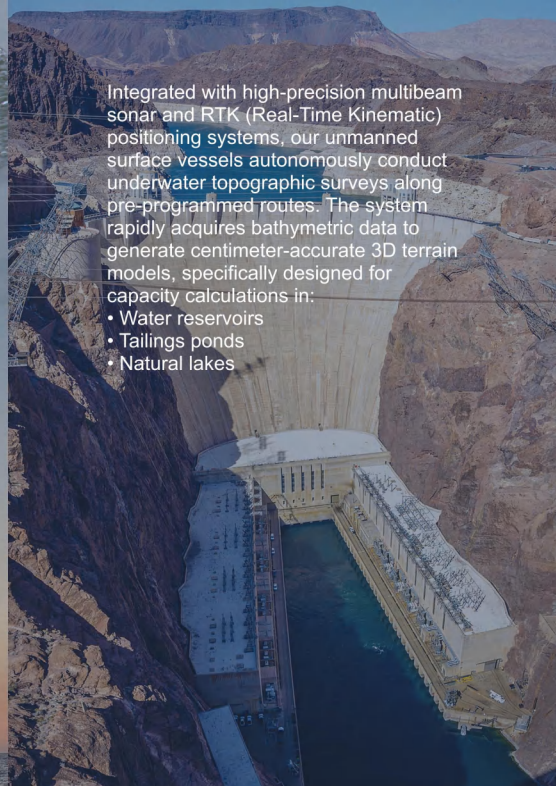


07

Reservoir Capacity Survey

Integrated with high-precision multibeam sonar and RTK (Real-Time Kinematic) positioning systems, our unmanned surface vessels autonomously conduct underwater topographic surveys along pre-programmed routes. The system rapidly acquires bathymetric data to generate centimeter-accurate 3D terrain models, specifically designed for capacity calculations in:

- Water reservoirs
- Tailings ponds
- Natural lakes



08

Hydrological Flow Measurement

Equipped with Acoustic Doppler Current Profilers (ADCP), our unmanned surface vessels measure 3D water velocity through acoustic wave reflection. Integrated with high-precision positioning and attitude compensation algorithms, the system converts raw data into earth-referenced velocity vector fields. The accompanying software processes massive datasets in real time to generate:

- Flow velocity distribution maps
- Discharge statistics
- Dynamic hydrographs

