

A large, glowing sphere composed of a network of blue and red nodes connected by thin lines, set against a dark blue background with a subtle grid pattern. The sphere is the central focus of the image.

DAHUA

TECHNOLOGY

Contents

□ Requirement Background

□ Solution Introduction

- ◆ River environmental protection
- ◆ Shoreline and facility management
- ◆ Waterway traffic safety supervision

□ Solution Value

□ Successful Case



Chinese Characteristics——The River Chief System



The River Chief System



Organizational Form

- The government has established a system of river chiefs at the provincial, municipal, county and township levels.
- It is held by key officials of each level of government and offices are set up.

Main Responsibility

- Strengthen the implementation of **water resources protection**
- Strengthen the **management and protection of river and lake shorelines**
- Strengthen **prevention and control of water pollution**
- Strengthen **water environment governance**
- Strengthen **water ecological restoration**
- Strengthening **law enforcement and supervision**

Significance

- To fully implement the river chief system is an inherent requirement for implementing the concept of green development and promoting ecological civilization construction. It is an effective measure to solve China's complex water problems and safeguard the healthy lives of rivers and lakes. It is also **an institutional innovation** to improve the water management system and ensure national water security.

Pain Point Of River Management

Water pollution incident, Hydrologic data acquisition is difficult



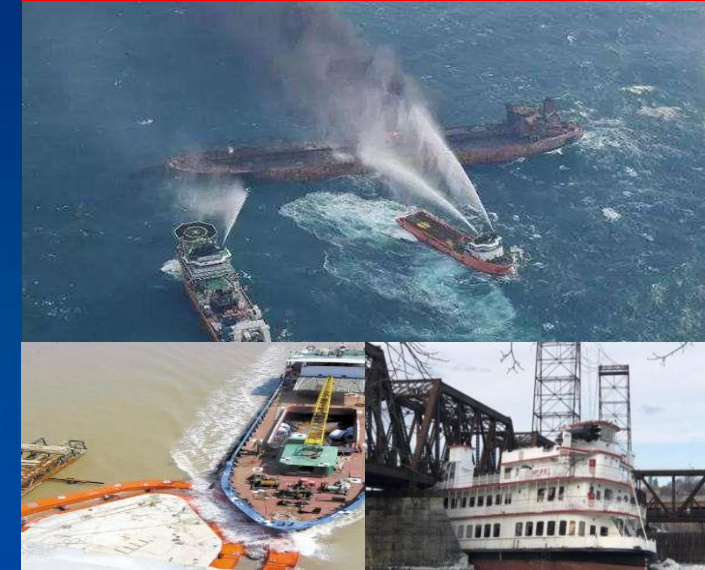
- ❑ Pollution control is difficult and water pollution is serious
- ❑ Seasonal changes in water levels cause floods
- ❑ The safety of drinking water is threatened, affecting the lives of residents

Illegal ACTS against river courses and installations



- ❑ Illegal fishing, aquaculture, sand mining and mining
- ❑ To destroy DAMS, reservoirs, and other river facilities
- ❑ Illegal discharge of pollutants, setting up of barriers, reclamation and encroachment on water shoreline

Waterway traffic safety incident



- ❑ Violation of stopping, going the wrong way, overload, overspeed...
- ❑ Bridge collision occurs from time to time, more hidden dangers
- ❑ The report of river safety accident is delayed and the response is slow

Solution Design

Scene

River\Water Surface



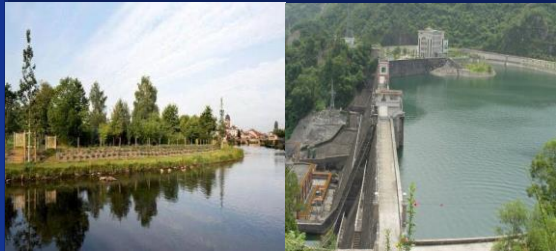
- Thermal imaging technology
- Video detection
- Intelligent analysis
- Multidimensional data perception



Solution

- Water quality and hydrological data visualization
- Sewage outlet monitoring
- River floatation detection early warning

Water Shoreline, River Facilities



- Panoramic surveillance camera
- Video inspection
- Face recognition
- Behavior analysis



- Coastline video visualization
- Patrol and Law Enforcement
- Violation detection
- Comprehensive reservoir supervision

Waterway



- AR technology
- Ship detection algorithm
- Event analysis
- Objective perception



- Channel ship management
- Bridge anti-collision
- AR panoramic visualization
- Full environment video surveillance

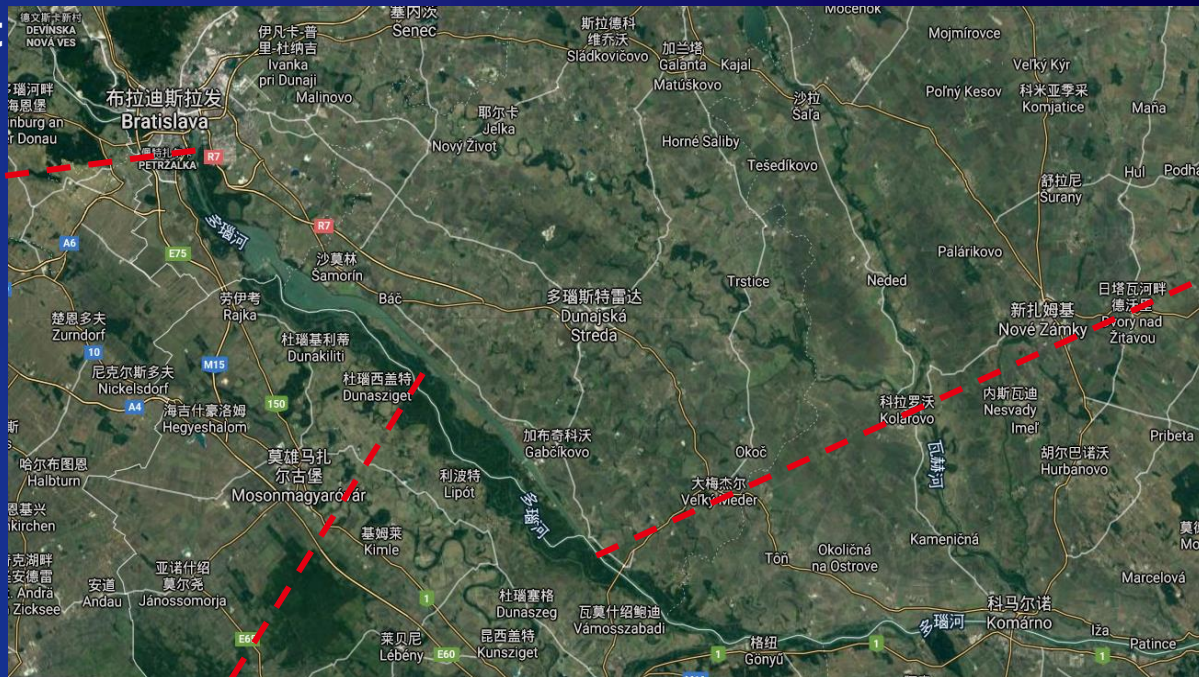
Solution Overview



Waterway Traffic Management



- Channel ship management
- Bridge anti-collision
- AR panoramic visualization
- Full environment video surveillance



River Courses And Installations Supervision



- Coastline video visualization
- Patrol and Law Enforcement
- Violation detection
- Comprehensive reservoir supervision



Hydrology And Environmental Monitoring

- Water quality and hydrological data visualization
- Sewage outlet monitoring
- River floatation detection early warning

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Hydrological Management

- Integrated data sensing system: real-time detection of hydrological data to solve the problem of unknown hydrological data.
- Intelligent AI water gauge ball machine: automatic and real-time reading of water gauge values while viewing the video can solve the problem of high sensor cost and easy maintenance.

Integrated data awareness system



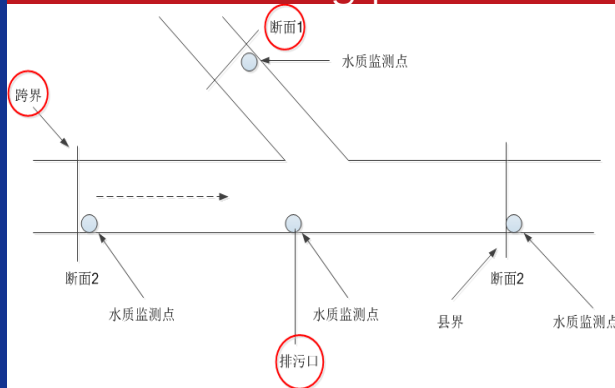
Hydrological perception of rainfall and water level



Intelligent identification of water draft



Reasonable arrangement of monitoring points



Sewage outlet video linkage



解决问题

Monitoring dirty water and muddy water

- The reasonable arrangement of the collection points in the water area section can discover the water quality in time and define the responsibility
- Monitor the discharge of chemical enterprises and livestock breeding enterprises to find out the violation in time
- Data online detection, data warning Settings, automatic prompt.
- Video surveillance linkage, timely confirmation.
- Data statistical presentation, grasp the data changes.

Perception of water quality data



Statistical data presentation

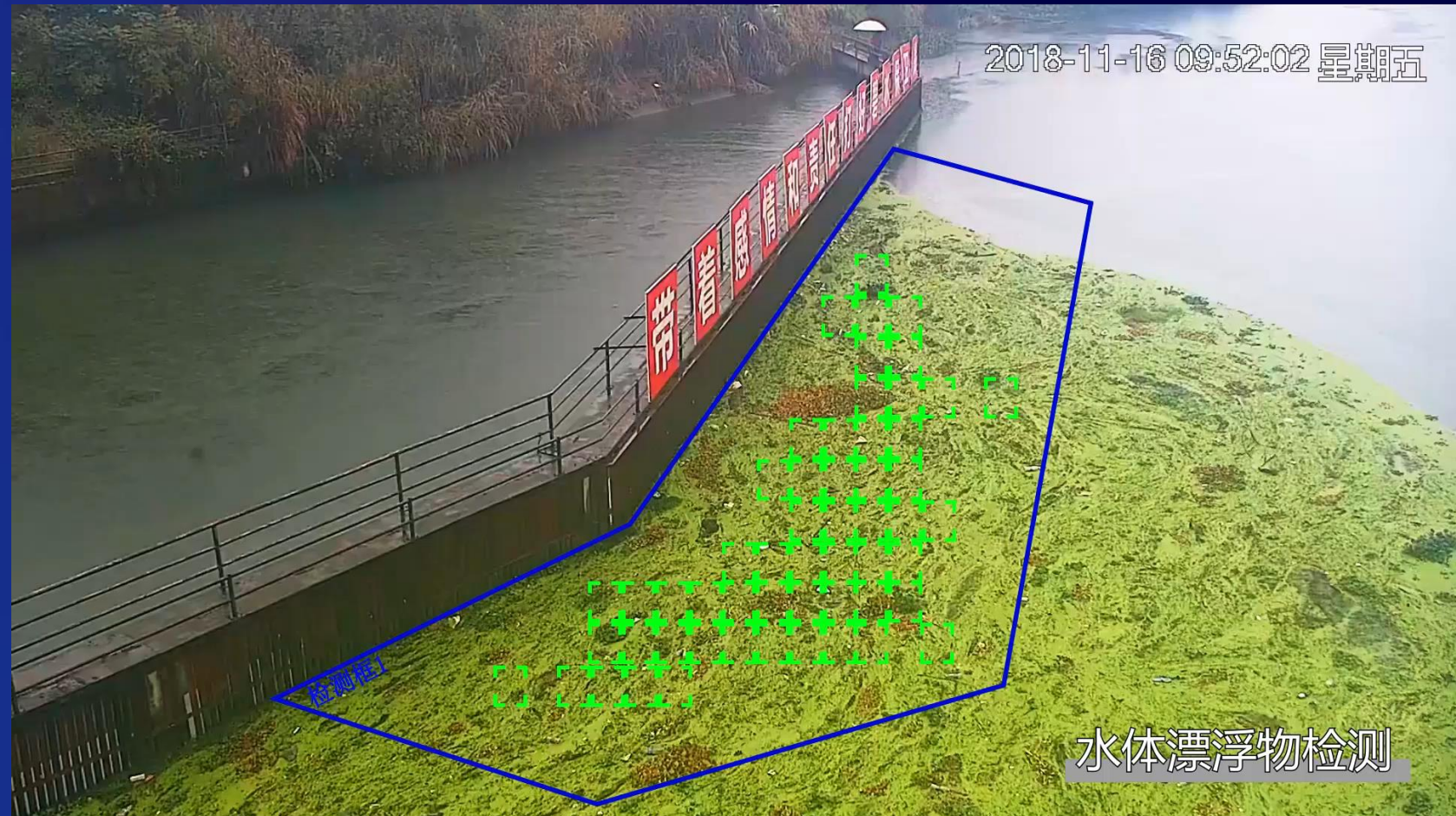


River Garbage Monitoring



Intelligent detection of floating objects

- Floating objects on water surface are one of the important contents of water surface cleaning.
- The floating objects in the river shall be monitored at the boundary section, dam and sluice gate of the area.
- Intelligent detection technology is adopted to realize automatic detection and early warning of floating objects and organize cleaning in time.



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River Line Illegal Activities Supervision



Illegal Swimming



Living garbage



Illegal occupation



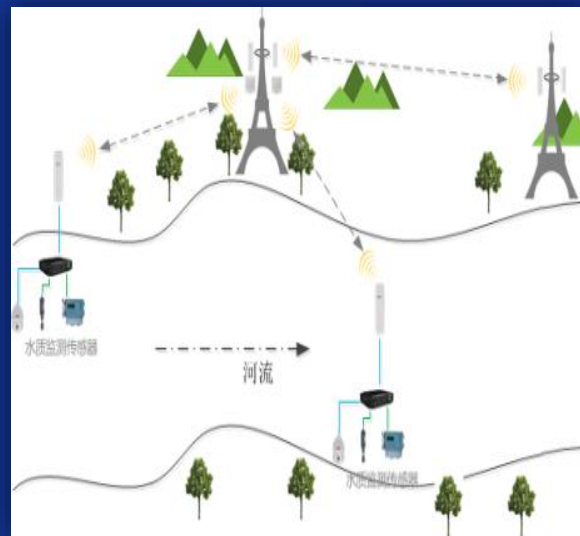
Personnel invasion



Illegal fishing



Damage facilities



Wireless Transmission

□ Monitoring disorderly occupation, random mining, random piling, random construction

- Some surface surveillance videos can be reused to timely find all kinds of violations along the coastline through video patrolling along the coastline, thus saving labor costs.
- Network and power supply is not convenient, we can use wireless transmission and solar power supply solutions.
- Wireless support for 4G transmission.

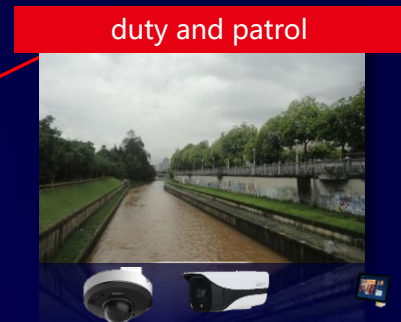
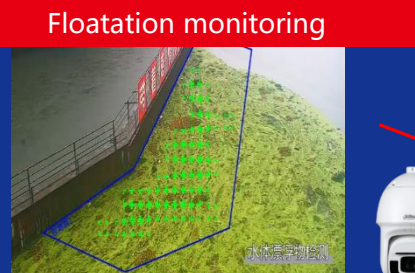
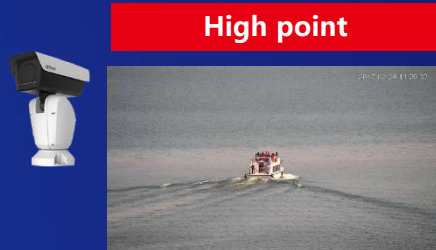


Solar power supply

Water Conservancy Projects Supervision



ANPR
Brake machine
Visitors management



Face Camera

Identification equipment

Perimeter devices

Sand Dredging Ship Monitoring



□ Scene Characteristics:

The water area is vast, and stealing often happens at night

□ Business pain points:

1. Close range of conventional visible light video monitoring
2. No boats can be seen at night



Thermal imaging to identify suspected sand dredging vessels



- Long distance
High point monitoring, can cover long distance, large area of water
- All-weather
Not affected by the light, day and night can be applied
Minimize the impact of rain, snow and fog
- Active alarm:
video identification of vessel and speed, suspicious vessel reported

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Visual Supervision Of Channels



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- Monitor the berthing area and channel at a great distance to see the ship's side number, ship close-up picture and ship status clearly. It is used for ship statistics and unidentified ship identification

Panoramic River monitoring



HD Pan & Tilt
Camera



Multi-Sensor



Remote lake monitoring



Big scene panorama monitoring, target tracking

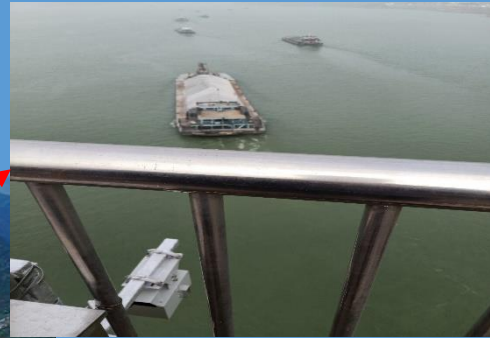


UAV Remote Monitoring And Command

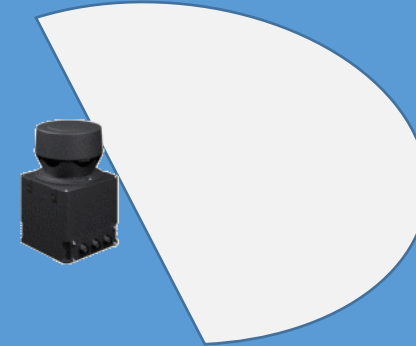


- Through the uav, the waters can be patrolled, emergency remote confirmation, image return, propaganda warning drive and other functions

Comprehensive Bridge Collision Prevention Solution



•Bridge anti-collision



•Off-course warning

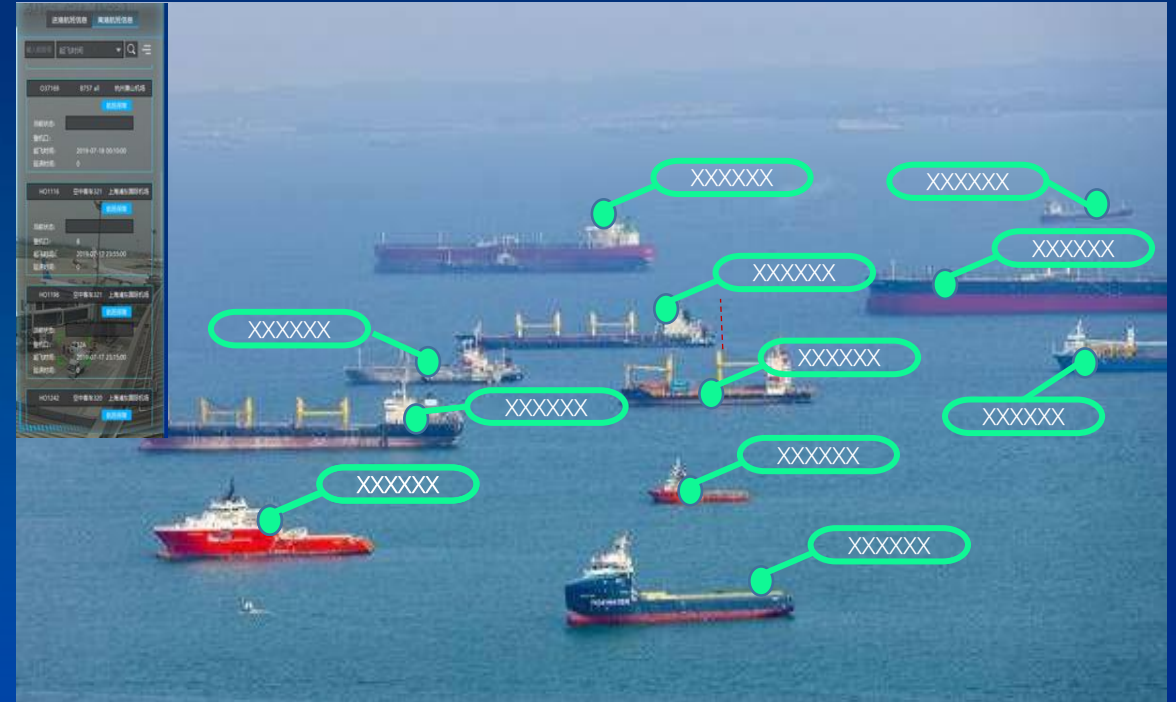
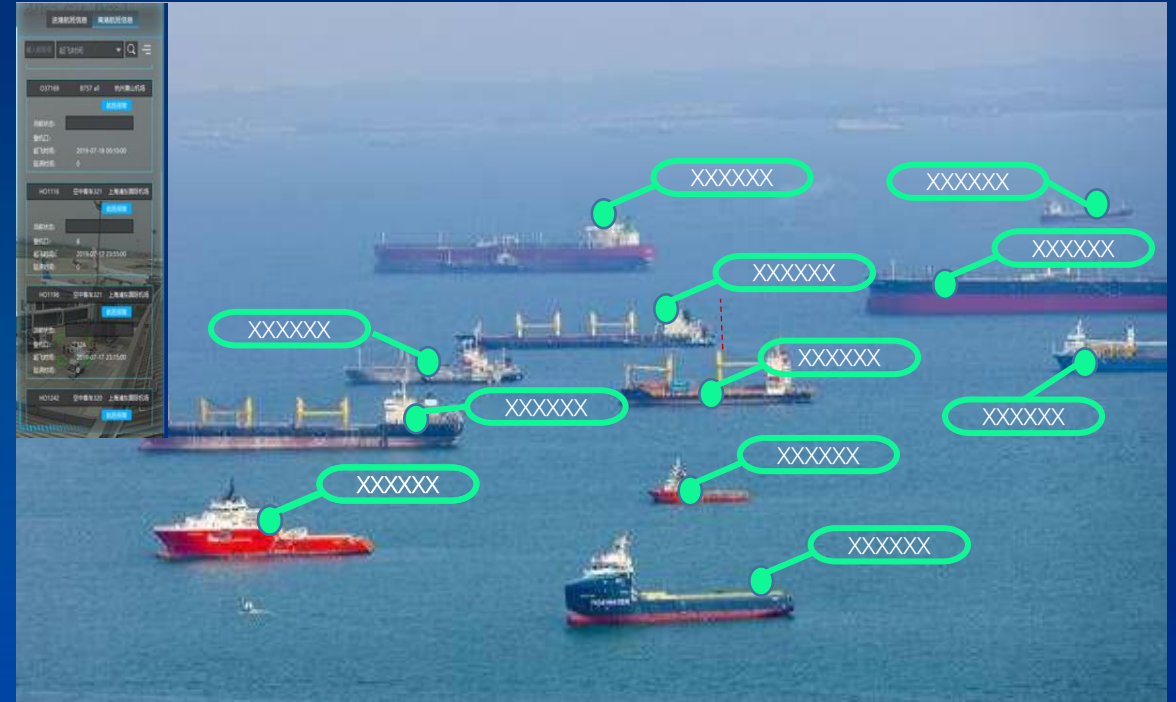
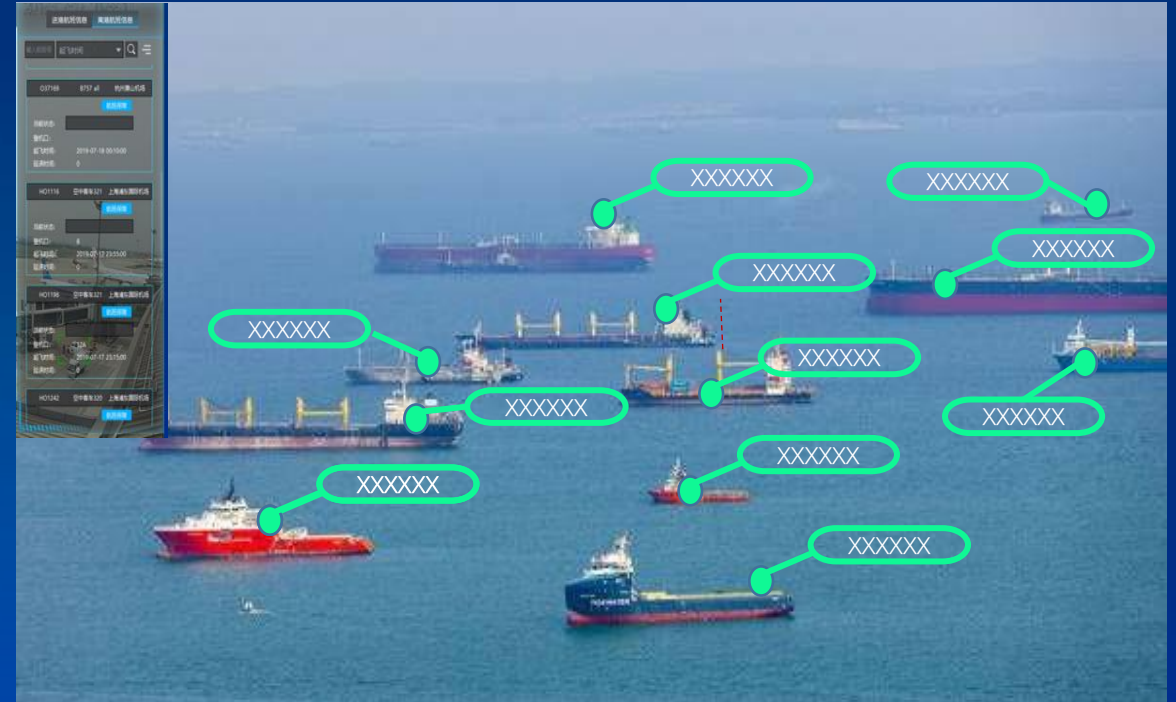


Bridge ahead, please
➤ Slow down to XX knots
➤ Navigable altitude 8 meters

•Ship deceleration
•Height limit warning



Water Area AR Surveillance



- Through algorithm intelligent tracking, scene /GPS conversion and AIS information docking, real-time ship name tag is realized, information of each ship is quickly located, and ships with unopened AIS are judged.

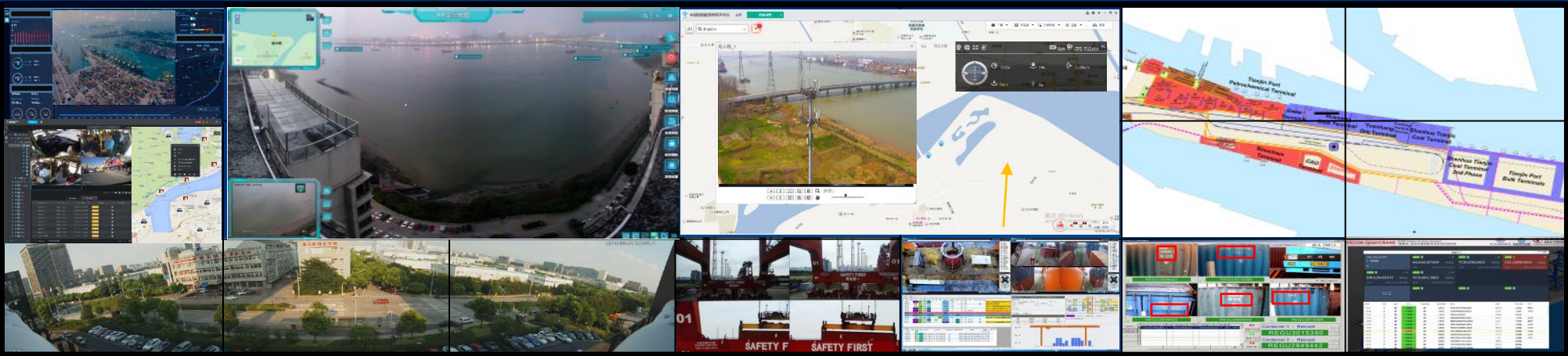
Water Area AR Surveillance



AR Panoramic Solution

- ❑ Based on the high panoramic video screen;
- ❑ Display other systems or devices in the form of labels.

Command And Dispatch Center



Splicing Screens



Value:

- ✓ One TV wall in the control center, it can display all kinds information and video of the system



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Solution Value

Environmental monitoring
to reduce pollution



Protect river facilities and
reduce violations in river
courses



Regulate waterway traffic
and reduce accidents

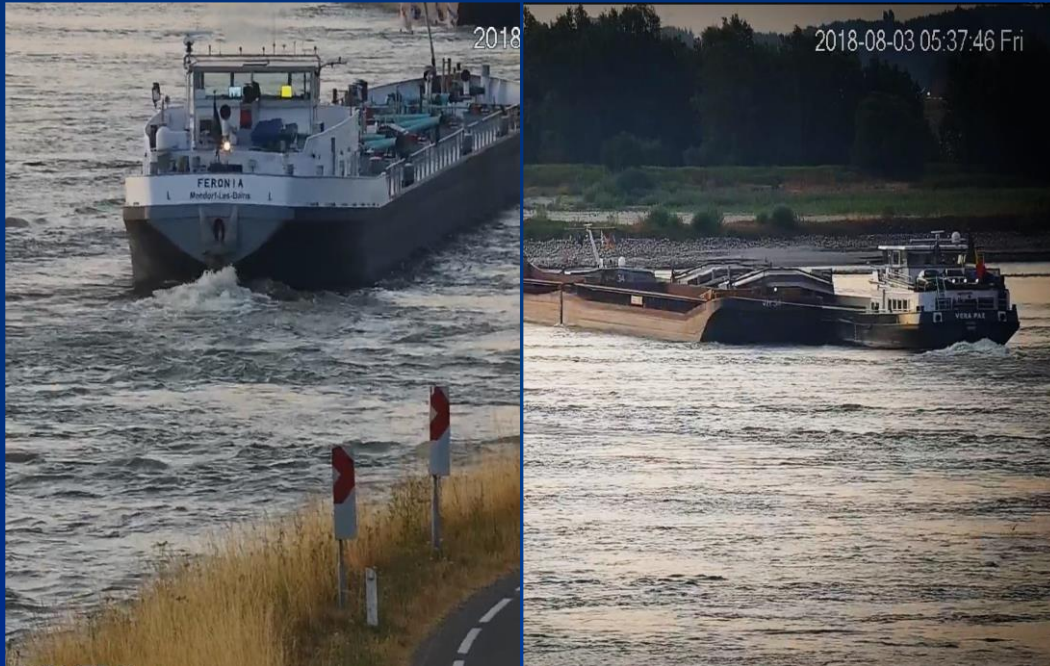


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Successful Cases



Waterway CCTV, Netherlands

- ❑ DAHUA waterway solution deploys 20 set of 48x PTZ cameras and a unified platform with the customer.
- ❑ The camera has a powerful high-definition multi-zoom function, allowing staff to clearly see the ship's name information for subsequent ship comparison business



MBCCS Cruise Terminal Project in Singapore

- ❑ The system is mainly to monitor the illegal invasion or destruction of the dock, ban illegal fishing boats to endanger cruise ships landing, face recognition at gateways, ship monitoring, and update the existing simulation system. The equipment is required to have anti-corrosion function.

Successful Cases



Video surveillance project of Hefeng Dam

- ❑ Make full use of existing lines and networks, adopt simulation and network HD hybrid monitoring system to realize the linkage of video, voice intercom and alarm between the central platform and star gas stations; And the provincial office business system platform docking.



Dongting Lake Environmental Protection project

- ❑ The system mainly monitors the floating objects and the cleaning personnel.
- ❑ Regularly monitor the floating objects in front of the dam and gate, and conduct intelligent video analysis of floating objects.

Successful Cases

South-to-North Water Diversion Project In China Video surveillance system project



□ Project value

The whole process visualization, intelligent detection, early warning, etc., realizes the visual management of the project, improves the management means, and reduces the management cost.

□ Project overview

The Shandong section of the eastern route of the South-to-North Water Diversion Project covers 14 cities in total, and the GDP of the water supply area accounts for about 80.8% of the province.

□ System Scale

This surveillance system project consists of a total of **88 subsystems** (trunk lines, 7 administrations, 3 emergency maintenance sub-centers, 29 management offices and 48 on-site management stations). Realizing the Shared application under the same management platform. And access to local management facilities security alarm system to achieve hierarchical alarm management and video linkage control.