Smart Emergency Solution

Based on Drones, AI Video Models, Video Aggregation and Encoding,
and IoT Technologies

Background and Needs Analysis

Needs and Solutions in Emergency Response

2019 June Guangdong Heyuan Flood

Delayed disaster Information collection and communication challenges

Three-Cutoff Scenarios and Thousand-Person Rescue

2012 June Guangdong
Rear-End Collision Along the River

Difficulty in acquiring information, difficulty in proper response

Rapid Disaster Information Acquisition and Scientific Decision-Making

2019 July Guizhou Liupanshui Landslide

Difficulties in passing information up and down the chain, leading to low decision-making efficiency.

Remote collaborative conferences, efficient and accurate communication

Difficulty in real-time monitoring at the rescue scene, data transmission delays leading to slow decision-making

Emergency resources are scattered, lacking an integrated information platform. High manpower and material investment

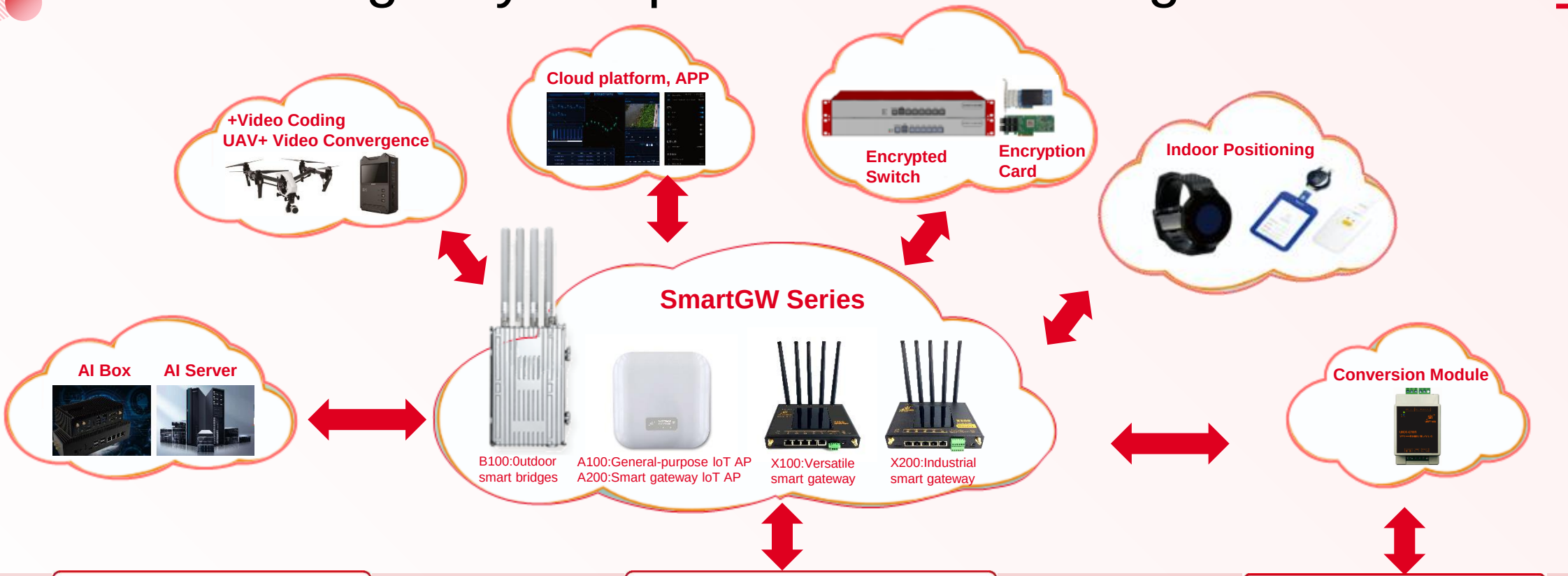
Real-time data aggregation to form an actionable emergency response platform

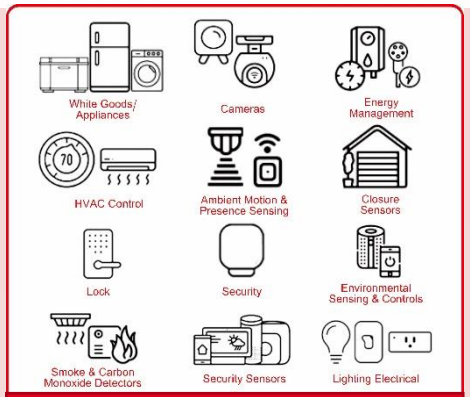
Integration and interoperability of various video resources (meetings, monitoring, image transmission, etc.), ensuring horizontal and vertical connectivity. Guarantee smooth communication under extreme conditions such as public network outages, power interruptions, and road blockages.

Global command with AI-assisted coordination and interaction.

A wide range of products providing diverse options for customers' emergency command needs. Use intelligent technologies to enhance the speed and accuracy of emergency responses.

Smart Emergency Response Solution Diagram





Matter Ecosystem

Proprietary Ecosystem

Other Ecosystems

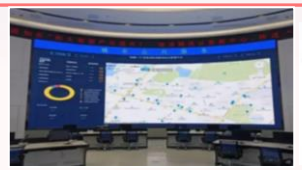
Smart Emergency Functional Architecture

Cloud Platform


Smart Emergency Operation Management Center


AI Box

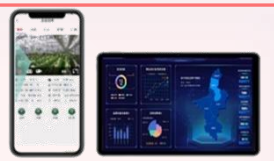

AI Server


Smart City Emergency Cloud Data Platform


Drone + Video Aggregation and Encoding


Domestic Encryption

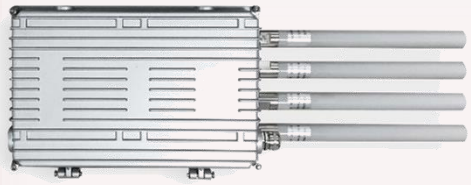

Corporate Smart Emergency Cloud Data Platform


Mobile and Tablet APP Systems

Cloud Center

Metadata Management | Data Statistics | Data Exchange | Data Extraction | Data Mining | Data Analysis | Data Sharing | Data Storage | Data Security

Transmission Products


B100:Outdoor Smart Bridge (WIFI& LoraWYAN)


A100:General IoT AP
A200:Smart Gateway IoT AP


X100:General Smart Gateway
X200:Industrial Smart Gateway


Protocol Conversion Modules


Expansion Modules

Connected Devices


Smoke Sensor


Ammonia Sensor


Temperature and Humidity Sensor


Fall Detection Radar Sensor


Electrical Fire Monitoring Detector


Remote Monitoring


Smoke Alarm

Human Presence Sensor


Smart Power Monitoring


Current Sensor


Explosion-Proof Audible and Visual Alarm


Smart Fire Hydrant

Key Technology Overview

Drone + Satellite
Remote Sensing

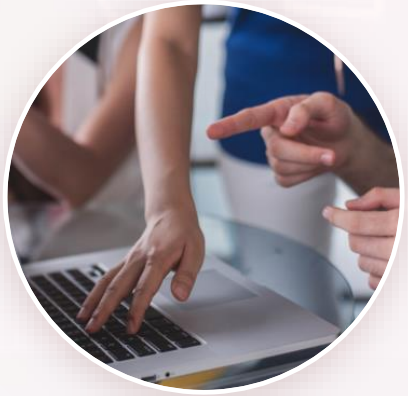
Providing aerial views to cover disaster areas, accident sites, and inaccessible regions.

Disaster Monitoring

Real-time monitoring of expanding disaster areas such as fires and floods.

Personnel Search and Rescue

Enhancing search efficiency through AI, drones, and infrared cameras.



Resource Allocation

Rapid transportation of medical and rescue supplies to remote areas.

Equipment Advantages

Quick deployment, mobility, and adaptability to various terrains.

Key Technology Overview

AI Industry Models

Training AI industry models using data from drones, IPCs, and sensors, enabling autonomous decision-making based on customer configurations after deployment.

PART 01

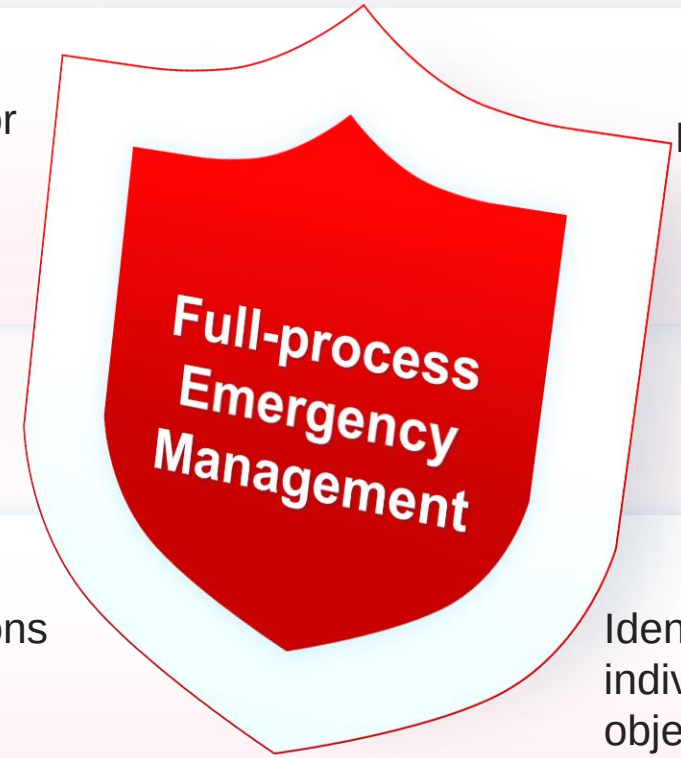
Intelligent Identification

Identifying disaster areas or target objects and issuing real-time alerts.

Case Applications

Detecting fire sources and trajectories

Disaster early warning



PART 02

Dynamic Analysis

Monitoring site conditions through dynamic video analysis.

Case Applications

Identifying trapped individuals or hazardous objects and enabling AI coordination.

Accident Analysis and Decision-making

Key Technology Overview >>> Video Aggregation and Encoding

Self-developed protocols, Adapting to complex weak network, disconnection, and power outage environments to efficiently transmit high-definition images and videos.

01 High-efficiency Encoding

Reducing data size through compression to improve transmission speed.

02 Video Aggregation

Proprietary technology integrates and aggregates video streams from different sources and protocols.

Application Scenarios

- Real-time disaster video transmission for remote command and rapid response.
- Providing high-definition, low-latency video images.
- Seamlessly interfaces with AI servers or algorithm boxes.

Key Technology Overview »» Domestic Cryptography

Product Panorama: Covering from underlying algorithms to applications, spanning end-to-end across terminals and servers.

Security Applications

IoT Security
- Secure video products: video access terminals; secure clients; secure management platform
- Video Secure Gateways: decryption gateway; Encryption gateway
- video watermarking to prevent leaks.: Screen projection watermark gateway; Transparent watermark gateway; Anti-leakage client
- Cryptographic Modules: 4G Module; NB Module; WiFi Module

Internet of Vehicles Security
- IoV Certificate Management Platform
- IoV Terminal Security Middleware
- Cryptographic Software Module

Industrial Internet Security
- Secure Client for Identifier Resolution
- Secure Proxy Gateway System for Identifier Resolution
- Secure Identifier Resolution Cryptographic Middleware (SDK: JAVA Edition)
- Secure Handle System for Identifier Resolution

Network Security
- Secure Access Client (SDK) — Windows | Linux | iOS | Android | Xinchuang
- Secure Access Gateway — IPsec VPN | Xinchuang
- Secure Access Terminal — Secure MIFI; RSW-100 Series; 4F Encrypted Internet Card
- Commercial Cryptographic Bastion Host

Data Security
- Database Encryption and Decryption System
  1. JDBC Component
  2. Proxy Mode
  3. SDK Component
  4. Encryption Policy Management System
- Data Security Service Platform — Service Platform; Service Component
- Storage Security — MI9 Disk; Transparent File Encryption System

Email Security
- Secure Client — Windows | iOS | Android | Mac
- Email Security Gateway — X86 | Xinchuang
- Email Security Middleware (SDK)

Instant Messaging Security
- Secure Client & Micro-Governance — PC Client | Mobile Client
- Instant Messaging Platform — X86 | Xinchuang

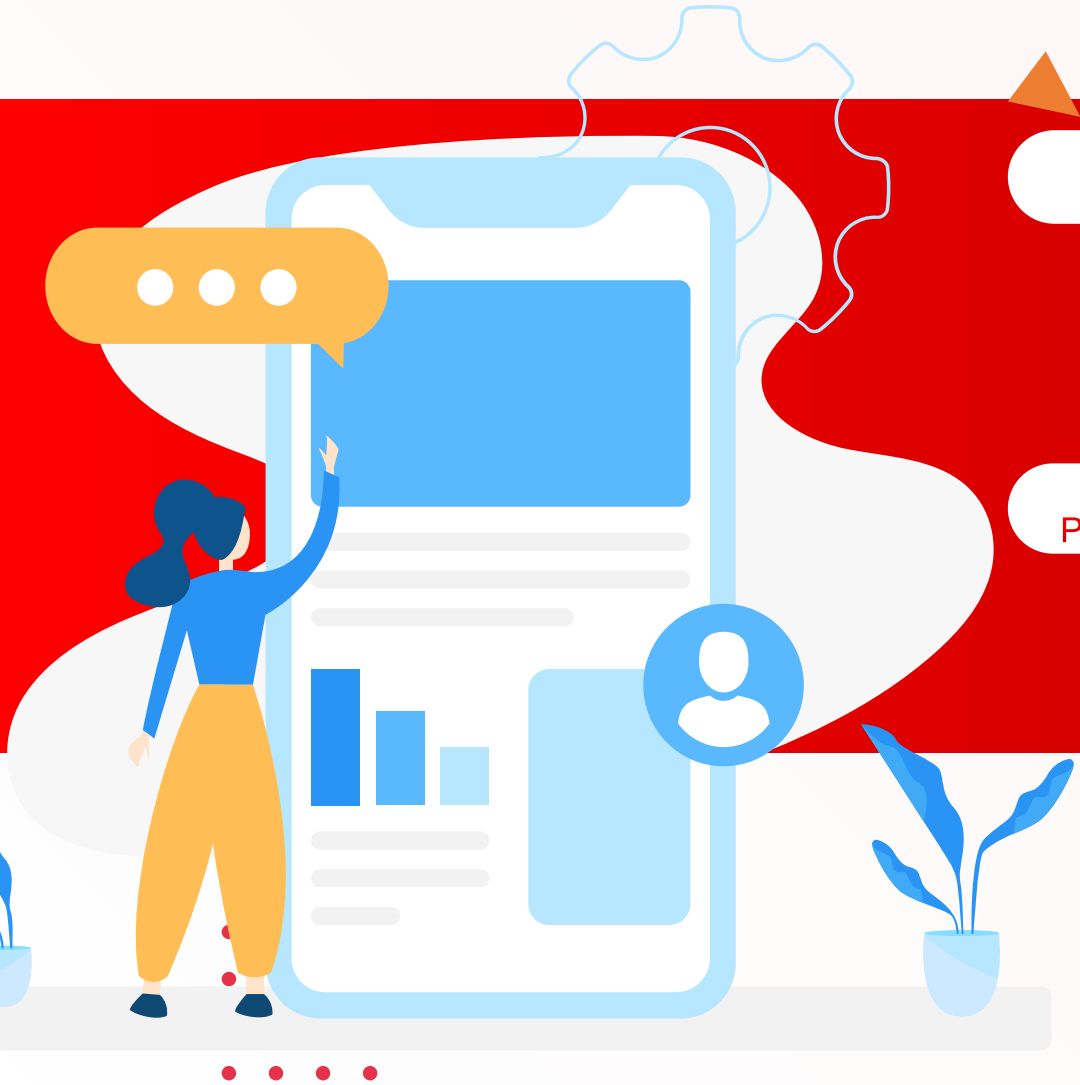
Cryptographic Middleware
- Cryptographic Machine Middleware (SDK: JAVA Edition; C Edition; JNIEdition) — Windows; Ubuntu; Management Client
- Platform Middleware (SDK: Windows; Mac; Linux; Xinchuang) — HTML5 (JS); RCE Interface Development Kit (SDK)
- Cryptographic Algorithm Library (SDK: Windows; Mac; Linux; Xinchuang)

Cryptographic Management and Service Systems
- Cryptographic Business Management System (Business Window)
- Cryptographic Service Platform (Cryptographic Module)
- Key Management System (Cryptographic Module)
- Regulation System for Cryptographic Service Platform (Regulation Module)
- Collaborative Signature Client (Server Version) — X86 | Xinchuang Cryptographic Module
- Collaborative Signature Client (Mobile Version) — Android | iOS
- Collaborative Signature System — SM2/SM9 X86 | Xinchuang Cryptographic Module

Cryptographic Hardware
- Cryptographic Machine — Server Cryptographic Machine (X86 | Xinchuang); Cloud Service Cryptographic Machine (32 | 64 Virtual Machines)
- Signature and Verification Server — X86 | Xinchuang
- Cryptographic Card — PCI-E Cryptographic Card (Xinchuang)
- Smart Cryptographic Key — Supports Xinchuang/Non-Xinchuang

Cryptographic Algorithm
SM2 | SM9 | ECS | SM1 | SM3 | SM4 | SM7 | ZUC

Key Technology Overview >>> Indoor Positioning & IoT



IoT Drones | Ground sensors | Surveillance cameras

Supports mainstream IoT devices, integrating drones, ground sensors, surveillance cameras, and more to enable real-time data transmission, analysis, and control.

Indoor Positioning Low project renovation cost | Positioning and IoT | emergency warnings

Traditional ceiling-mounted AP products, Enhanced with high-precision indoor positioning and IoT features, Suitable for hazardous chemical and mining detection, emergency warnings, and more.

Comprehensive Advantages of the Solution

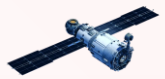
Feasibility

- Rapidly and cost-effectively establish a complete emergency positioning network, covering the entire monitoring area.
- Wide adaptability of equipment to various scenarios with real-time integration, enabling scientific decision-making at higher levels.

Analysis of Emergency Processes and Application Scenarios

Emergency Response Process

Drones ✚



Satellite Remote Sensing

24/7 high-definition information acquisition

区县级配备

10KM灾区通信响应时间

4+小时 → **2+小时**

省市级配备

100KM灾情可视

4+小时 → **1+小时**

省市级配备

亚米级分辨率卫星遥感灾区

图像及测绘数据

"Obtain disaster information promptly and respond rapidly under extreme conditions of road, network, and power outages.

Analysis of Emergency Processes and Application Scenarios

Utilize drones and remote sensing intelligent analysis for timely and accurate disaster analysis and assessment.

Situation Analysis and Command Coordination

Disaster Analysis and Assessment	Disaster Damage Assessment	Disaster Loss Evaluation	Recovery and Reconstruction Planning Assessment

Remote Sensing AI Analysis	Disaster Simulation and Modeling	Disaster Monitoring Technology
Disaster-Causing Factors • Rainfall distribution and levels • Distribution of landslides and debris flows • Distribution of hazardous geological structures • Regional subsidence	**Disaster-Prone Environment** • Regional 3D modeling • Distribution of settlements. • Distribution of roads • Vegetation coverage	**Disaster Receptors** • Impact on settlements • Road blockages • River channel blockages.

Basic Information	Sensor data	Remote sensing data	Drone mapping data

Rapid Disaster Assessment via Remote Sensing AI Analysis

Landslides and Debris Flows | **Falling Rocks** | **Collapses**

- Quickly determine the extent of disaster impact, and assess damages to settlements and roads
- Provide decision-making support for emergency rescue and road clearance
- Monitor hazardous geological structures and surface subsidence.

Analysis of Emergency Processes and Application Scenarios

Fire

Emergency rescue

Natural disasters

Emergency events

Monitoring images

In-vehicle video

Drone video

Handheld terminal video

Wireless network
3G/4G/5G

Command center

Monitoring images, command vehicle video, drone video, handheld emergency terminal, single soldier, can all transmit video images back to the back-end dispatch command center and AI box.

Drones collect on-site video and process it with AI models

Data is transmitted to the center via IoT

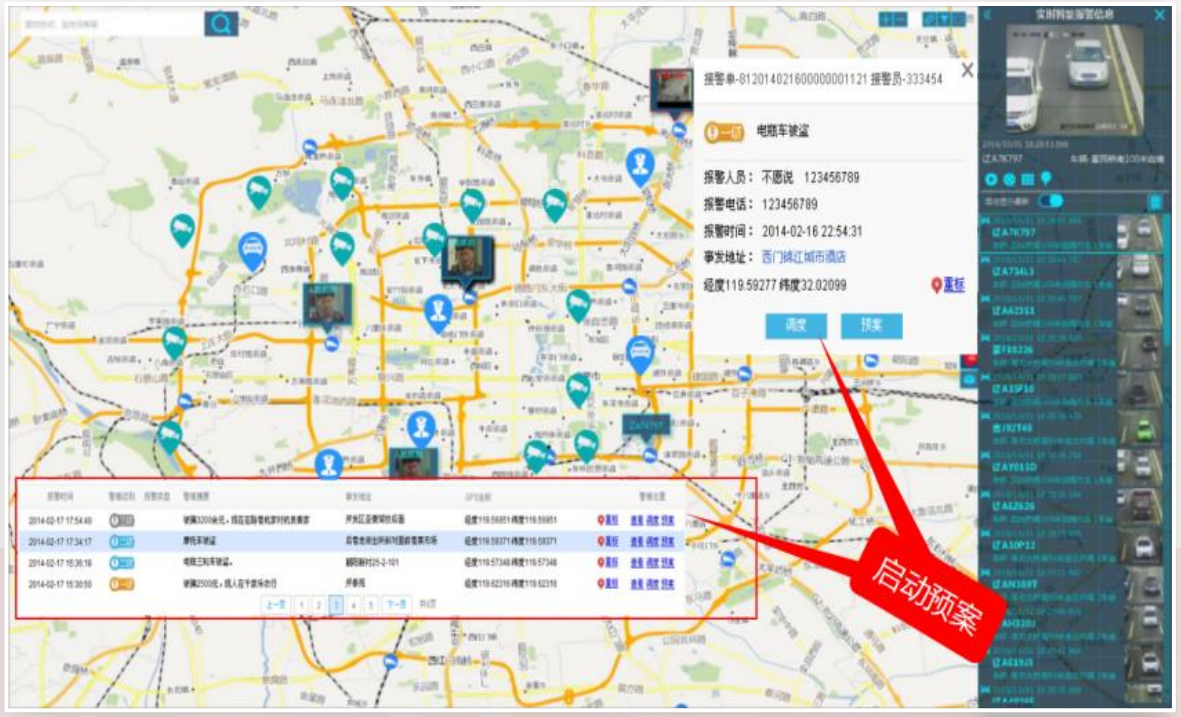
The emergency command center makes decisions based on real-time data

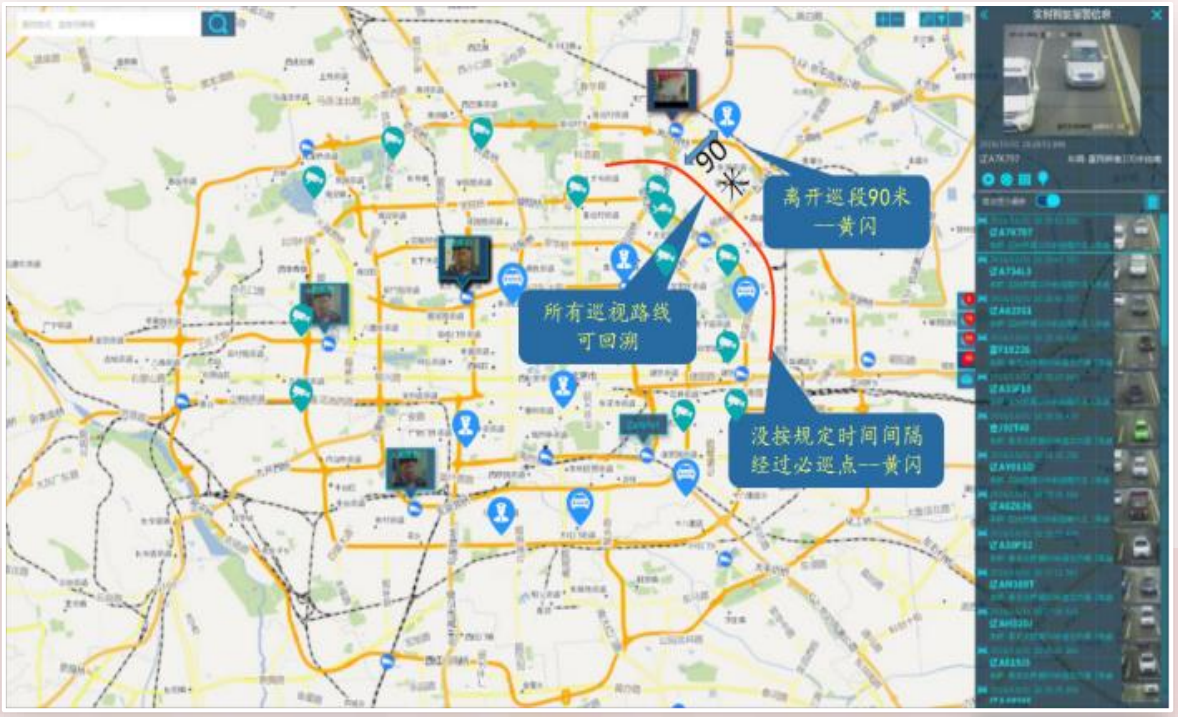
GIS Applications in Public Video Management Platforms

Construction Effectiveness -Overall Benefits

Core Values of Smart Emergency Solutions

- Rapid Response
- Comprehensive Coverage
- Intelligent Decision-Making





Smart Emergency Solution

Smart emergency solutions utilizing drones, AI industry models, video aggregation and encoding/decoding, and IoT technology