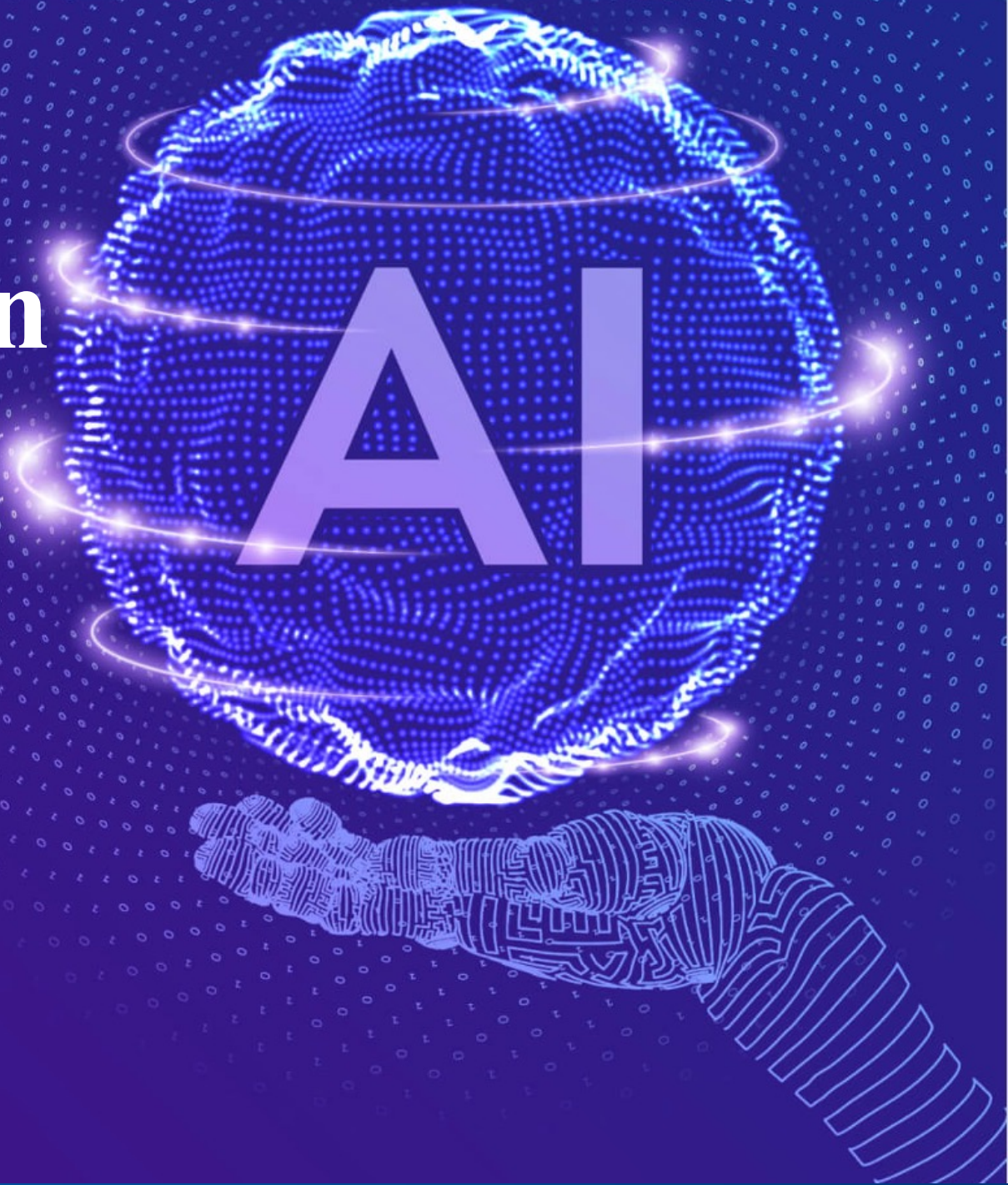# Transparent Kitchen

Monitoring

Solution

VIETADATA HOLDING (SHENZHEN) GROUP CO.,LTD

2025.10

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Solution Introduction

Background Introduction

Vietadata

Problem Statement

In recent years, food safety issues have occurred frequently. This solution primarily assists regulatory departments, enterprises, schools, and the public in addressing food safety hazards, achieving transparency, informatization, and intellectualization of back-of-house information.

Solution Approach

Utilizes algorithms for accurate identification, enabling intelligent management of enterprise canteen kitchens. Significantly enhances supervision and reduces manpower investment.

Solution Advantages & Highlights

High Recognition Rate   Full Process Coverage   Rich Algorithm Library

Current Needs & Status

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Regulatory Departments

- Traditional management methods are singular and costly, making effective supervision difficult.

- Mostly operate under semi-informatized or non-informatized management models, with scattered and uncontrollable data. Existing enforcement processes are cumbersome and lack AI intelligent prevention measures.

Enterprise Canteen Kitchens

- Numerous management links, where a problem in a single link affects the entire food safety management chain; prevalence of a risk-taking mentality and insufficient safety awareness; varying quality of employees, making standardization difficult; untimely problem handling.

Public

- Desire more right to know; want convenient ways to understand the hygiene status and ingredient sources of canteens and catering establishments; wish to view food hygiene processing in kitchens; need channels for feedback.

Solution Overview

AI Smart Early Warning
- Rat Identification
- Hat Identification
- Mask Identification
- Smoking Identification
- Open Flame/Personnel Leaving Post
  - Smoke & Fire Identification
  - Illegal Intrusion
  - Nighttime Intrusion

Digital Management Platform
- Big Data Analysis Platform
- Supervision Data Platform
- Enterprise Data Platform
- Public Display Platform
- Nutritional Diet Platform

Supervision Department

Government Departments

Information Entry

Record Keeping Information
- Ingredient Traceability
- Food Additives
- Pesticide Residue Detection
- Dish Sampling
- Kitchen Cleaning
- Waste Disposal
- Environmental Hygiene
- Kitchen Sanitization

Smart Alerts

Certificate Anomaly Alert

Equipment Status Alert

Information Entry Alert

IoT Device Alert

Personnel Anomaly Alert

IoT Devices
- Temperature & Humidity Sensors
- Sterilization Lamps
- Sample Retention Cabinet
- Smoke Sensors
- Fume Sensors
- Gas Alarms
- Pesticide Residue Detectors

Smart food safety supervision system

Data Security

Network Security Firewall

Data Security Precautions

User Roles
- Government Users
- Enterprise Unit Users
- Public Users

Bright Kitchen Initiative

Video Surveillance Networkingimage

Image Recognition & Early Warning

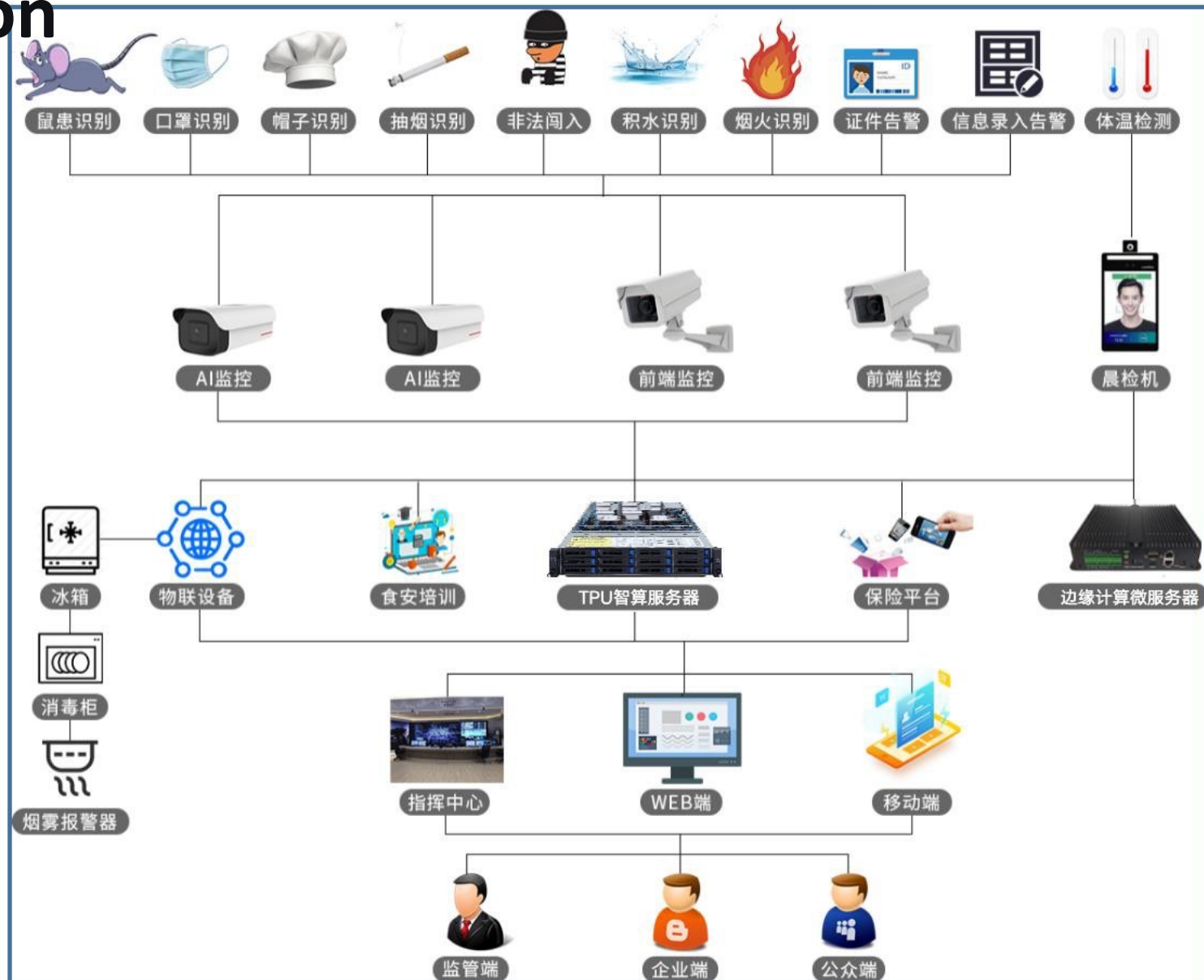Public Display of Kitchen Images

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Solution Introduction

The system fully utilizes various technological means such as mobile internet, IoT, big data, and cloud computing to achieve the collection of enterprise ingredient traceability data, and the public display of information including canteen business licenses, morning inspection records, additive detection, utensil cleaning and sanitization, waste disposal, and environmental hygiene.

Simultaneously, using technologies like AI distributed computing, big data, microservices, and video streaming, it processes image and video data from terminal devices via cloud servers. After processing by the AI Brain, it enables intelligent identification of rats, masks, hats, smoke/fire, open flames, illegal intrusion, smoking, etc. This realizes intelligent management of enterprise canteen kitchens, greatly enhances supervision, and reduces manpower investment.

By building a full-chain food safety data system, it breaks down barriers with market supervision departments, forming a joint supervision force involving enterprises, regulatory bodies, and the public, thereby maximizing the improvement of food safety prevention and governance levels.

Smart Early Warning

- The smart early warning function automatically identifies abnormal and behaviors, including certificate anomaly alerts, equipment status alerts, information entry alerts, AI smart early warnings, IoT device alerts, and personnel anomaly alerts.

- AI smart warnings include intelligent identification of: rats/small animals, masks, smoking, smoke, open flames, illegal intrusion, nighttime intrusion, etc.

- The smart early warning function greatly improves management efficiency, not only helping canteens reduce management workload but also identifying safety hazards and preventing incidents.

Rat Identification

Mask Identification

Smoking Identification

Open Flame/Personnel Leaving Post

Nighttime Intrusion

Smoke & Fire Identification

Big Data Analysis

Smart Food Safety Big Data Management Platform	Food Safety	Risk Early Warning	Smart Management

Utilizes the big data management platform to analyze and display food safety status.

Bright Kitchen Initiative: Continuously displays the full view of the enterprise kitchen, truly achieving transparency and openness, enhancing customer trust in the group catering enterprise.

Smart Early Warning: Intelligent alerts for rat identification, hat identification, mask identification, smoking identification, etc., allow enterprises to prevent food safety issues. Identification of open flames/personnel leaving post, smoke/fire, illegal intrusion, nighttime intrusion, etc., helps enterprises investigate potential safety hazards and prevent accidents.

Big Data Analysis:upload and analyze excellent results such as alarminformation, enterprise kitchen situation, food traceability statistics in real time, so that the public can eat at ease.

Real-time push: When violations and abnormal behaviors are detected, the system can push alarm information, and push the alarm to thePC end and mobile phone end of the kitchen management personnel at the first time, which can help enterprises to investigate potential safety hazards, improve management level and efficiency, and effectively eliminate food safety accidents.

Kitchen IoT equipment control

Personnel Prevention & Control

IoT Console

AIFood Safety Super Brain

Smart Sterilization Cabinet

Video Access Gateway

Sterilization Lamp

Monitoring Camera

Smoke Alarm

Temperature & Humidity Sensor

Gas Sensor

Solution Advantages

Efficient and Accurate AI Recognition

The system features AI recognition capabilities for rodent infestation, face masks, hats, smoking, fire, and unauthorized intrusion. It adopts self-developed ConvFilter noise reduction technology, ITSR algorithm-based recognition technology, and intelligent anti-interference recognition technology, enabling more accurate AI identification.

More Cost-Saving Without Self-Building a Center

The system is deployed based on the cloud. The cloud platform is distributed in data centers across the country and has the capability to access and forward tens of millions of devices. Users can directly rent cloud services without investing huge amounts of money to build their own data centers.

More Effective Real-Time Video Analysis

For video-side recognition and analysis, the system abandons the traditional mode of irregular random image sampling for recognition. Instead, it uses core algorithms to analyze and recognize all videos, greatly enhancing the real-time performance of supervision.

More Secure and Reliable Cloud and Local Deployment

The cloud supervision platform provides technical guarantees in communication, authorization management, and cloud security, including online banking-level encryption technology, a one-to-one device addition mechanism, and secondary encryption of video streams and alarm images, making the system more secure and reliable.

More Convenient Self-Closed-Loop Management

In terms of system architecture design, the relevant functional modules on the enterprise side have been further improved and refined, better helping enterprise-side food safety managers or responsible persons to discover problems in a timely manner based on the system and rectify them by themselves, effectively improving the enterprise's self-improvement capability and making real closed-loop management more convenient.

Good Openness of the Cloud Platform

The cloud supervision platform can be very conveniently and freely connected with users' own official websites, APPs, WeChat accounts, and service accounts, and has good openness.
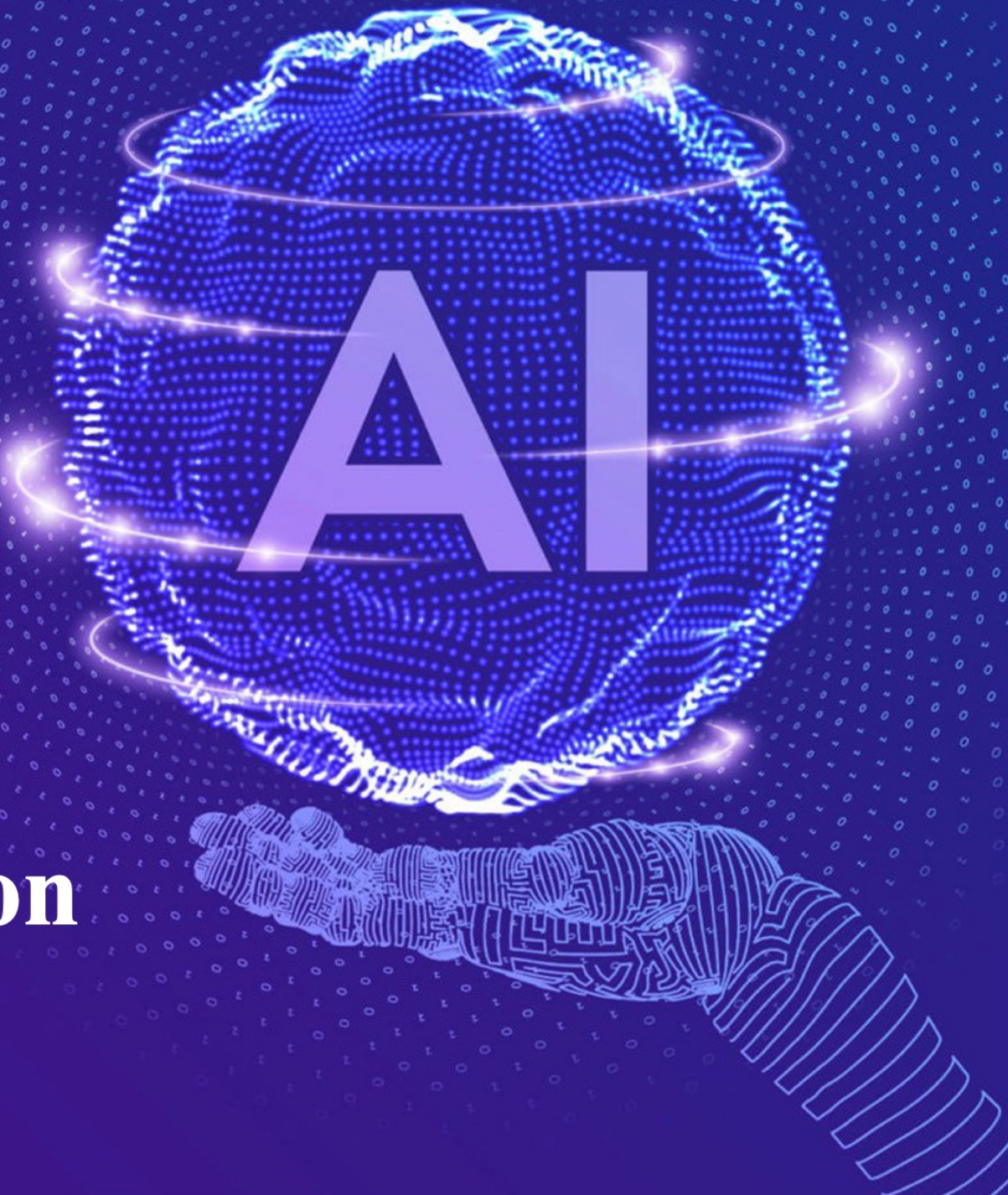
Landing model case

Hunan Mobile established a platform architecture with Changsha Company as the general platform of computing center and LoudiCity as the sub-domain deployment. Through the algorithm platform of theMinistryas thecomputing base, on the basis of which the brightkitchenalgorithmandapplicationplatformare used torealize the bright kitchen network in many cities in the province. Transfervideo of the catering enterprise kitchen to the mobile clairvoyant platformforvideoaggregationvia the Internet. Thenthrough the algorithm platform to achievealgorithmimplementationandalgorithmadjustment. Upto now, the brightkitchenstove has been officially launched nearly1000roads, and the follow-up plan is to connect 4000+ roads. In the future, allmobileAIrequirementswill have to bemigratedto the algorithm pool,and applications willalsohave to interface withtheplatform.
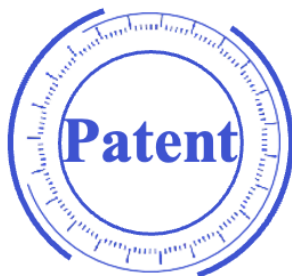
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Company Introduction

Vietadata Company Profile

Vieta is committed to becoming the world's leading AI vision application service provider, focusing on visual recognition model development and landing applications.

Algorithm
300+

Patent
100+

Team
120+

Our mission is to redefine surveillance and security through innovative technologies and applications. By upgrading the server (system "brain"), we upgrade the ordinary camera to an "electronic eye" with intelligent recognition ability, so that monitoring is no longer just watching and recording, but understanding and predicting. This enables us to improve work efficiency, reduce management costs and create a safer working and living environment.

We have a large number of success stories in smart industrial parks, warehousing and logistics parks, express distribution centers and outlets, and international top 500 enterprises. As the advantages of AI become more and more recognized, we quickly expand this technology to all walks of life, such as urban emergency command centers, financial business halls, construction sites, bright kitchen lighting projects, smart communities, gas stations, etc. This year, we went out with the country and completed the first Belt and Road project in Africa.

We are not only a technology company, but also a leader in the AI vision revolution!

We are good at customizing industry algorithms and model training for specific scenarios, providing personalized and exclusive industry solutions for users. At the same time, we cooperate with industry-leading computing, 3D digital twins and Internet of Things enterprises to build ecosystems, provide digital solutions for various industries, and realize the penetration of business scenarios.

Management Software and Mid-station

- A Alert Middle Platform - Station-Standard Edition

- AI Early Warning Center Station-3D Map Version

- Alarm Push

- Weixin Official Accounts
- Mail push
- Short Message

Owl X Ai

Hardware Modules

AI Visual Recognition Technology Covers All Industries

Security Monitoring and Alert

- Elevator Electric Vehicle Inspection
- Escalator Falls
- Aggregation Detection
- Aggregation Detection
- Regional Invasion
- Person Fall Detection
- Loitering Detection
- Climbing Detection
- Line-Crossing Detection

Vehicle and Traffic Monitoring

- Vehicle Intrusion Detection
- License Plate Recognition (LPR)
- Illegal Parking Detection
- Forklift Detection
- Vehicle Overspeed Detection
- Vehicle Counting
- Vehicle Congestion Detection
- Non-Motor Vehicle Parking Detection
- Dump Truck Recognition

Object Recognition and Statistics

- Face Snapshot Detection
- Face Recognition
- Phone Use Detection
- People Counting
- Small Animal Detection

Mining Industry Applications

- Dust Detection
- Falling Rock Detection
- Wrong-Way Vehicle Detection
- Coal Spillage Detection
- Large Coal Block Detection
- Coal Transport Truck Detection
- Leakage Detection
- Belt Operation Monitoring
- Conveyor Belt Deviation Detection
- Water Level Monitoring

Smart Street Monitoring

- Unauthorized Umbrella Use Detection
- Illegal Street Vending Detection
- Illegal Poster Detection
- Trash Bin Tipped Over Detection
- Shared Bike Misparking Detection
- Unauthorized Banner Display

Construction Site Monitoring

- Uniform Detection
- Dump Truck Recognition
- Cover Status of Loaded Dump Truck
- Pile Detection
- Exposed Soil Detection
- Construction Site Dust Detection

Wearable Compliance Detection

- Workwear Detection
- Workwear Detection
- Face Mask Detection
- No Reflective Vest Detection
- No Long-Sleeve Detection
- Chef Uniform Detection
- Chef Hat Detection

Human Behavior Analysis

- Simultaneous Smoking and Phone Use Detection
- Fight Detection
- Crossing the Fence
- Off Duty Inspection
- Sleep Detection
- Fiddling with the Phone
- Armed
- Raise Hand Recognition
- Personnel Retrograde

Custom Algorithm Modules

- Video Disconnection Detection
- Button & Indicator Light Detection
- Hot Work Detection
- Water Water Accumulation Detection
- Trash Bin Overflow Detection
- Fire Extinguisher Detection
- Video Blur Detection
- Video Noise Detection
- Missing Fire Equipment Detection
- Knob Switch Detection

Transparent Kitchen Monitoring

- Unattended Open Flame Detection
- Camera Obstruction Detection
- Small Animal Detection
- Chef Uniform Detection
- Chef Hat Detection
- Trash Bin Uncovered Detection
- Smoke and Flame Detection
- Camera Distortion/Interference Detection
- Regional People Counting (Head Count)
- Camera Status Detection
- Regional People Counting (Full Body)

Chemical Industry Applications

- Equipment Status Recognition
- Safety Goggles Detection
- Indicator Light Status Detection
- LED Meter Reading
- Analog Gauge Reading
- Video Anomaly Detection
- Acetylene Cylinder Detection
- Pile Detection
- Electrostatic Discharge Detection
- Overcrowding Detection

Environmental Monitoring & Control

- Missing Manhole Cover Detection
- River Debris Detection
- Road Surface Damage Detection
- Exposed Garbage Detection
- Crossing Green Space Detection
- Road Waterlogging Detection

Thanks For Your Attention

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Weixin Official Accounts

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