

AIoT SAFETY, SMARTER SITES



AI-powered supervision, RFID tracking, worker management, environmental monitoring, and integrated safety solutions for modern construction and industrial sites.

Ref. 2.0

Revised in Sept. 2026

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WELCOME TO TKSSE

TKSSE is a technology company specializing in Smart Site Safety System (4S) solutions. We support safer and smarter worksites through AI monitoring, RFID tracking, worker management, and real-time site supervision.

With experience in 4S-related applications, we provide practical and customizable solutions to help clients improve safety, compliance, and operational efficiency.



WHAT IS 4S?

4S stands for **Smart Site Safety System**. It is a technology-based approach widely adopted in Hong Kong to enhance construction site safety through real-time monitoring, alert systems, digital management, and connected smart devices.

Core Components of 4S:

- Smart Safety Devices
- Communication Network
- Centralized Management Platform



中華人民共和國香港特別行政區政府
發展局
The Government of the Hong Kong Special Administrative Region
of the People's Republic of China

CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

安全智慧工地系統標籤計劃
SMART SITE SAFETY SYSTEM
LABELLING SCHEME

安全智慧工地系統標籤計劃 SMART SITE SAFETY SYSTEM LABELLING SCHEME

立即申請 APPLY NOW!

發展局在 2023 年已發出工務技術通告 3/2023 號要求工務工程上合約金額超過 3,000 萬元的
基本工程合約必須全面應用安全智慧工地系統。

發展局和建造業議會合作推出安全智慧工地系統標籤計劃（標籤計劃），推動工務工程和私人
發展項目全面應用安全智慧工地系統，以進一步提升建造業安全表現。

有興趣參與標籤計劃的總承建商可以直接向建造業議會提出申請。如工地被確認已適當應用
安全智慧工地系統，將獲發具有獨特認證牌匾以展示於工地入口以及該工程合約與其標籤
將發布於建造業議會網站。

In 2023, the Works Branch of the Development Bureau of the Government of the Hong Kong
Special Administrative Region (DEVB) has issued Technical Circular [Works] No. 3/2023
promulgating the adoption of Smart Site Safety System (4S) in capital works contracts with a
contract sum exceeding \$30 million.

The DEVB and the Construction Industry Council (CIC) have collaboratively
rolled out the Smart Site Safety System Labelling Scheme (4SLS) to
drive the full adoption of 4S in both public and private
works contracts for further uplifting the safety
performance of the construction industry.

Main contractors having
interest to include their works
projects in the 4SLS should
apply directly to the CIC. If 4S
has been satisfactorily
adopted, a plaque with unique
identification will be presented
to the corresponding main
contractor for displaying at the
site entrance and the
information of works
contracts with 4S Label will be
published on the CIC website.

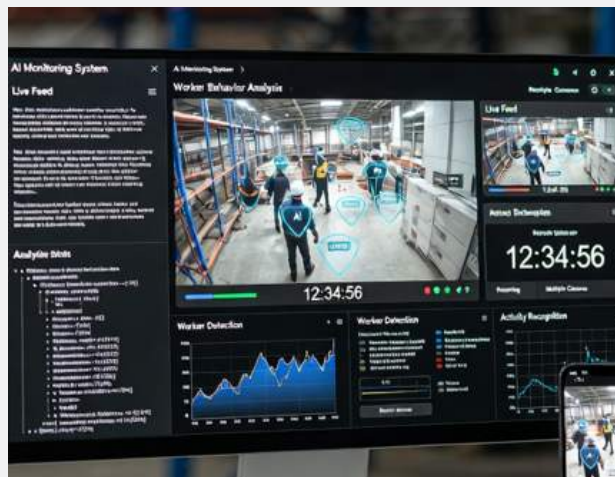
查詢 ENQUIRIES
2100 9000 4s@sic.hk cic.hk/4s-labelling

<https://www.cic.hk/content/4s-labelling/zh-hk/home.html>

PRODUCTS & SERVICE

Our products are integrated into a **centralized management platform** for unified control. Each solution can also be deployed separately to suit different project needs.

Clients may also integrate selected **existing devices** into our system for a flexible and cost-effective smart site solution.



CENTRALIZED MANAGEMENT PLATFORM 1

One platform for real-time monitoring, alerts, and management.

AI MONITORING 2

Intelligent video analytics for real-time detection, alerts, and safer site operations.

SITE HAZARD CONTROL 3

Smart systems for monitoring environmental conditions, confined spaces, and fire-related risks.

PERSONNEL & ASSETS MANAGEMENT 4

Digital tools for tracking workforce attendance, access, movement, and asset utilization.

PRODUCTS & SERVICE

CENTRALIZED MANAGEMENT PLATFORM 1

AI ANALYTICS 2

- 1.AI Monitoring
- 2.Lifting Zone Control

SITE HAZARD CONTROL 3

- 1.4-in-1 Gas Detector
- 2.Smart Watch
- 3.Environmental Monitoring
- 4.Smart Fire Extinguisher
- 5.Safety Harness
- 6.Smoke Detector

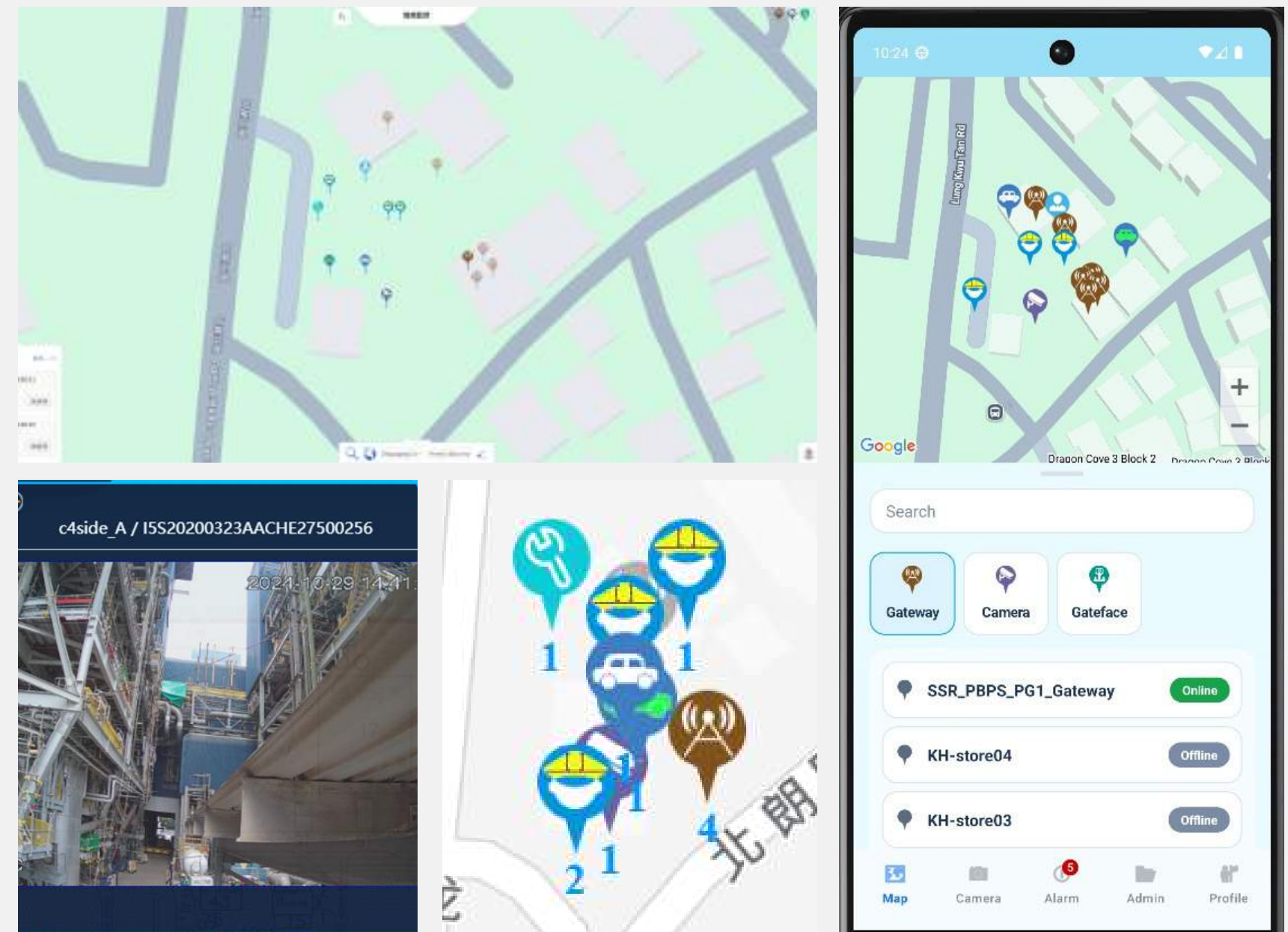
PERSONNEL & ASSETS MANAGEMENT 4

- 1.Automatic Staff Management
- 2.NFC/ Biometric Access Control
- 3.Assets Management
- 4.CCTV & NVR

CENTRALIZED MANAGEMENT PLATFORM

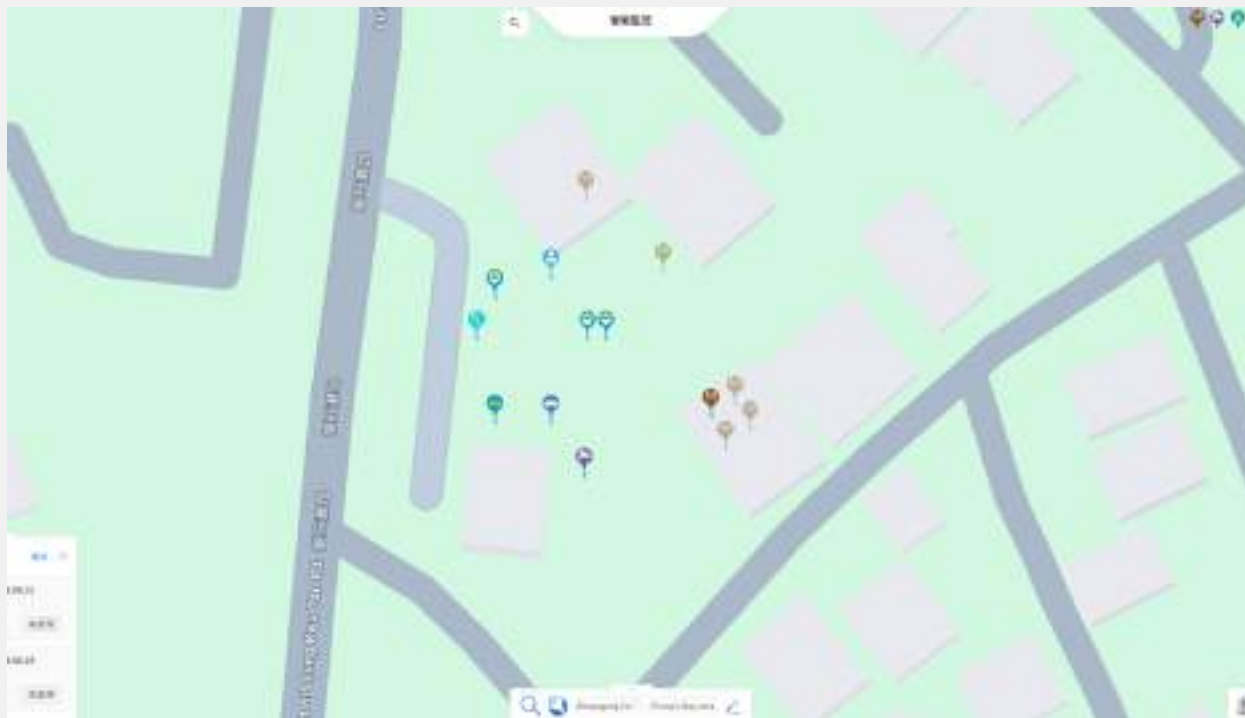
Our platform offers a unified system for smart site operations, with both **web** and **mobile app** access. It supports real-time monitoring of site data, live camera feeds, personnel and asset locations, alarm events, and operational records. Custom platform development is also available to suit specific project needs.

Built for scalability, the platform can manage multiple companies, sites, and teams within one system, improving visibility, coordination, and control.

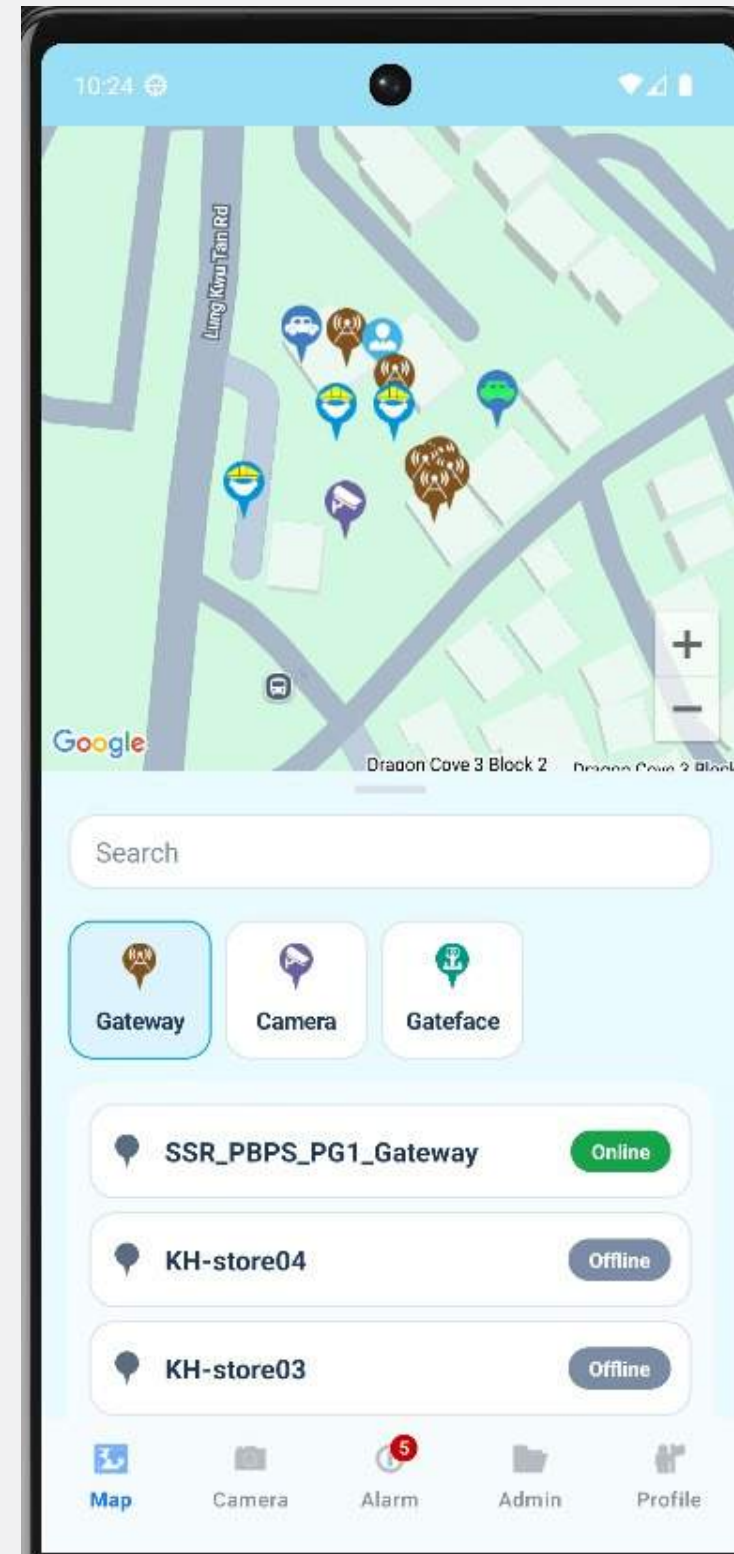


Key Features

- Web and mobile app access



- Support for multi-company and multi-site management



- Customizable platform solution

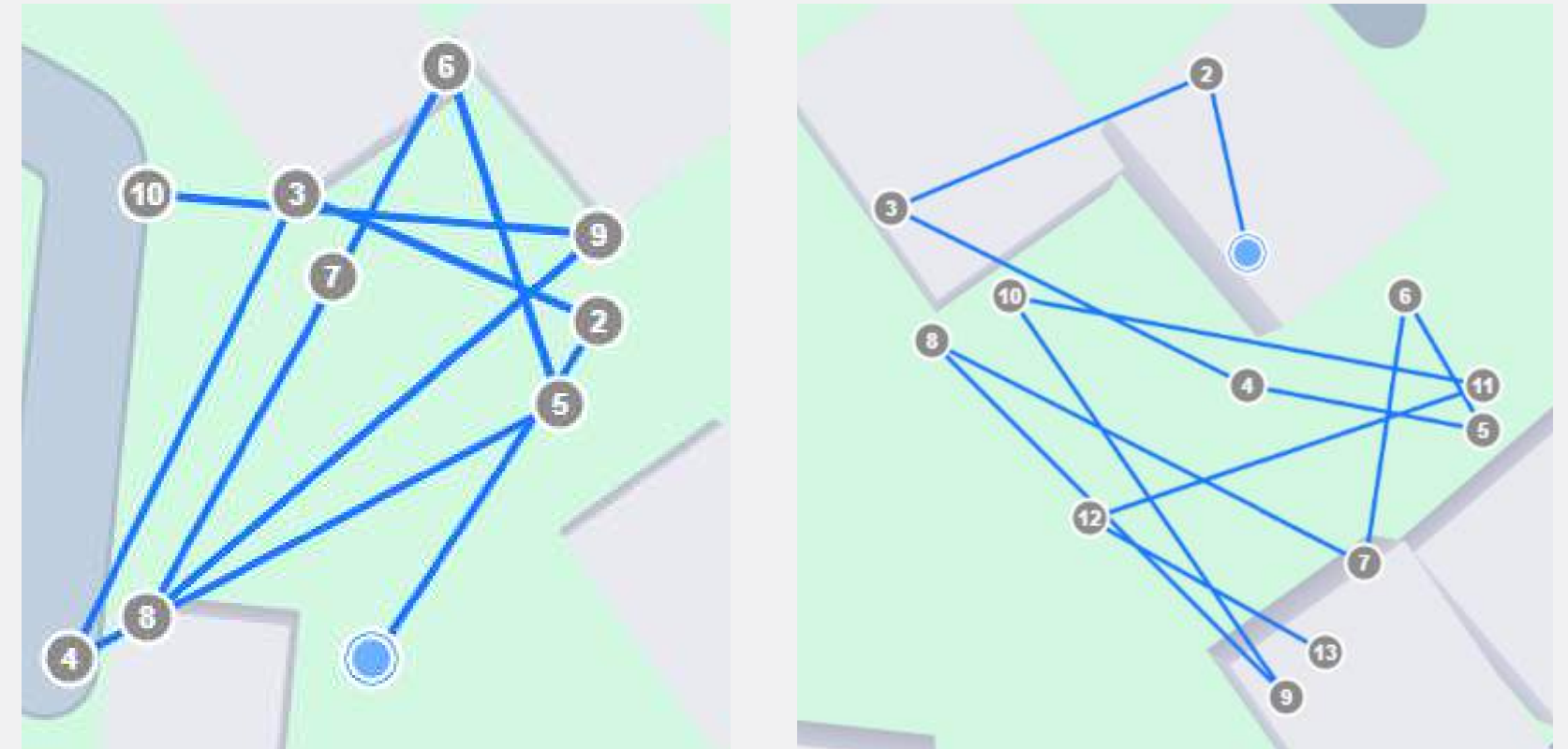


Key Features

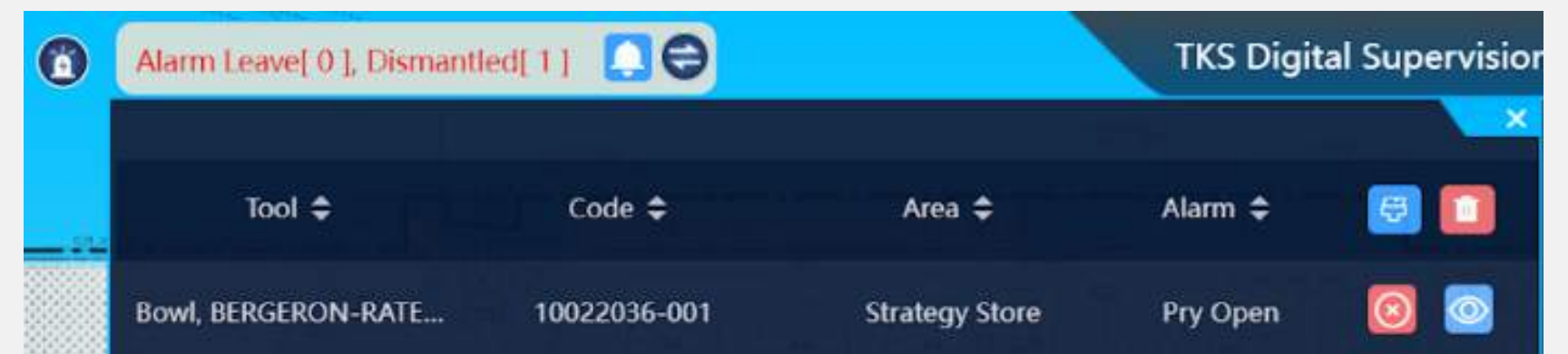
- Real-time data and live camera monitoring



- Personnel and asset location tracking



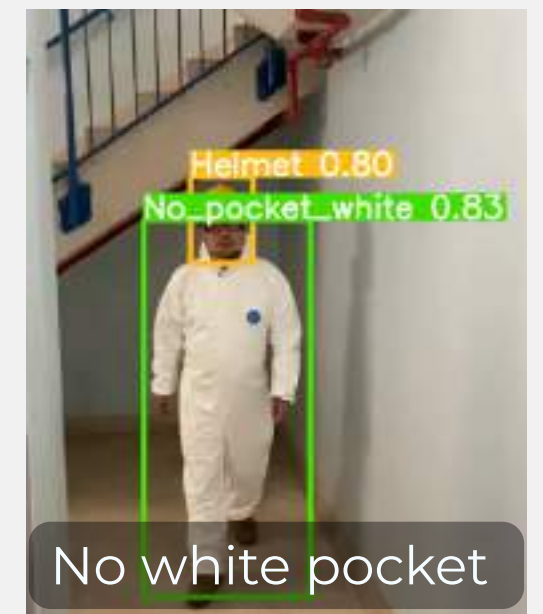
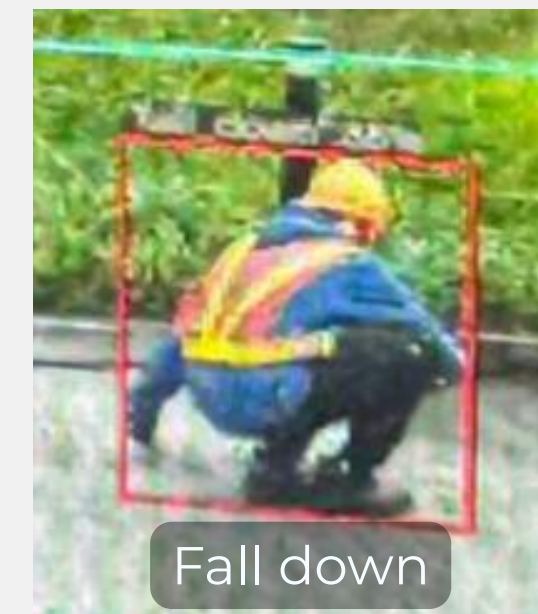
- Alerts for unauthorized movement/ removal



AI MONITORING

Using intelligent **video analytics**, we detect unsafe behaviours and non-compliant site conditions in real time.

- Work with existing IP cameras
- Customizable detection rules based on site needs
- Automatic alerts through the TKS platform
- Supports designated notification settings
- Helps improve compliance and response efficiency
- Suitable for continuous site safety monitoring



AI ANALYTICS

OUR EXISTING MODELS

- Material Stacking



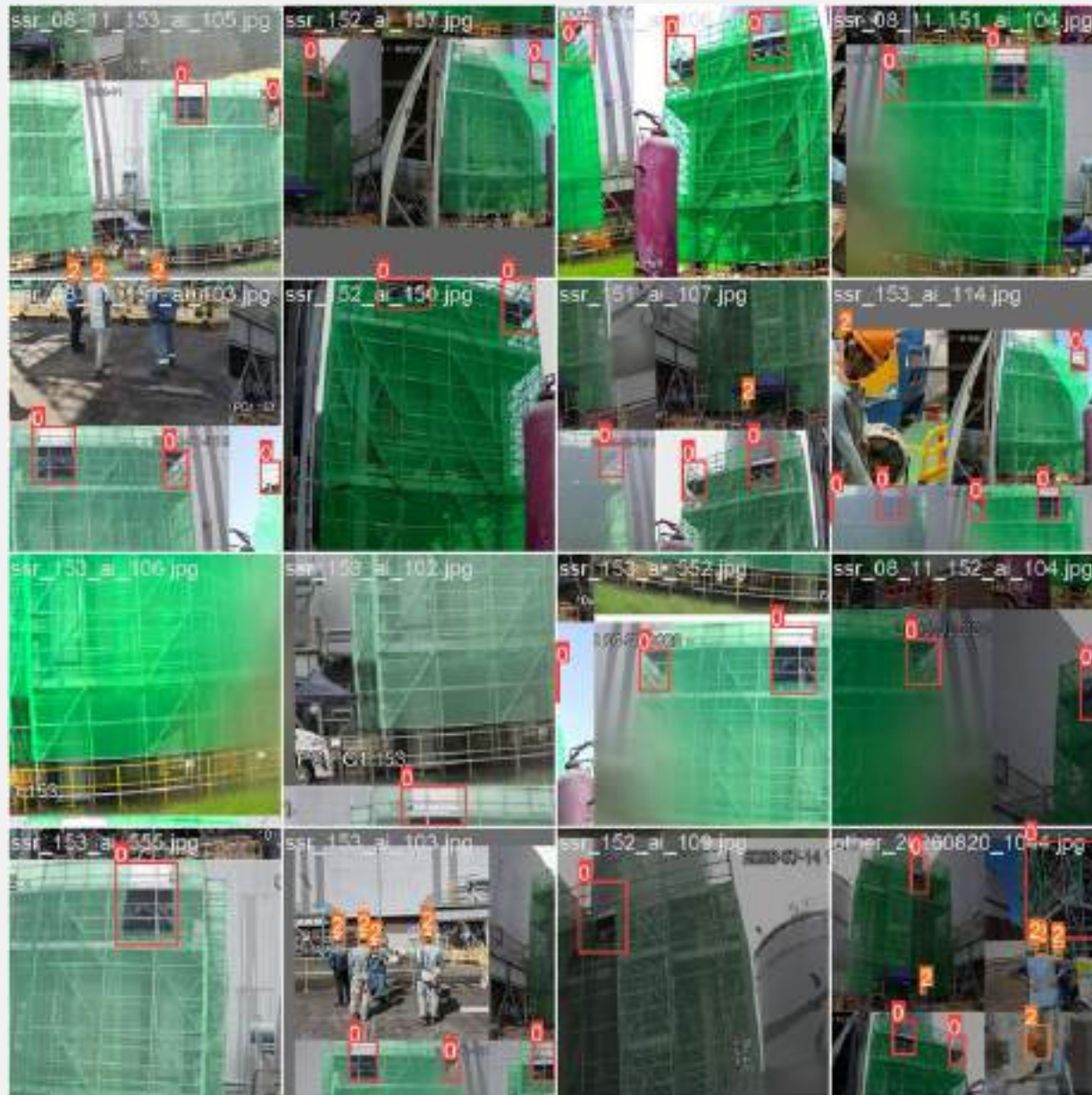
- Personnel Wearing PPE



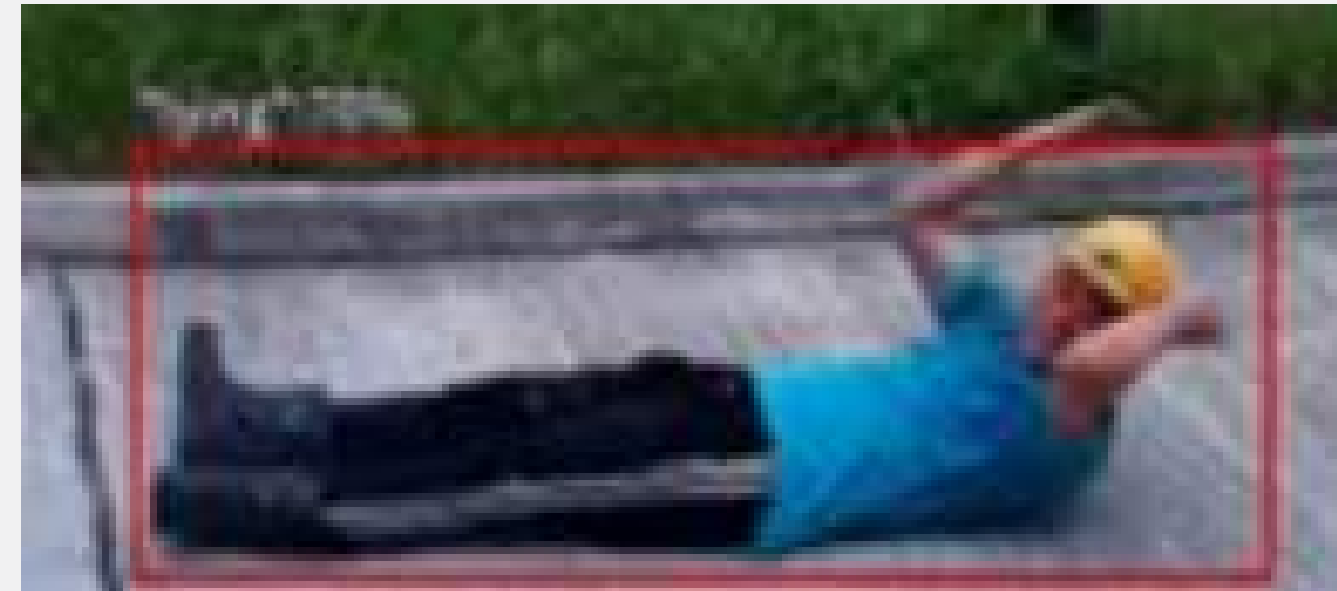
AI ANALYTICS

OUR EXISTING MODELS

- Scaffolding Modification



- Unsafe Activities



- Floor Opening



LIFTING ZONE CONTROL

Utilizing AI cameras, we monitor designated danger zones around lifting operations.

- Customizable geofencing
- Automatic detection of unauthorized entry
- Real-time alarm activation
- Image capture for incident record and review
- Helps strengthen lifting safety control and site awareness



AI camera



Alarm initiated

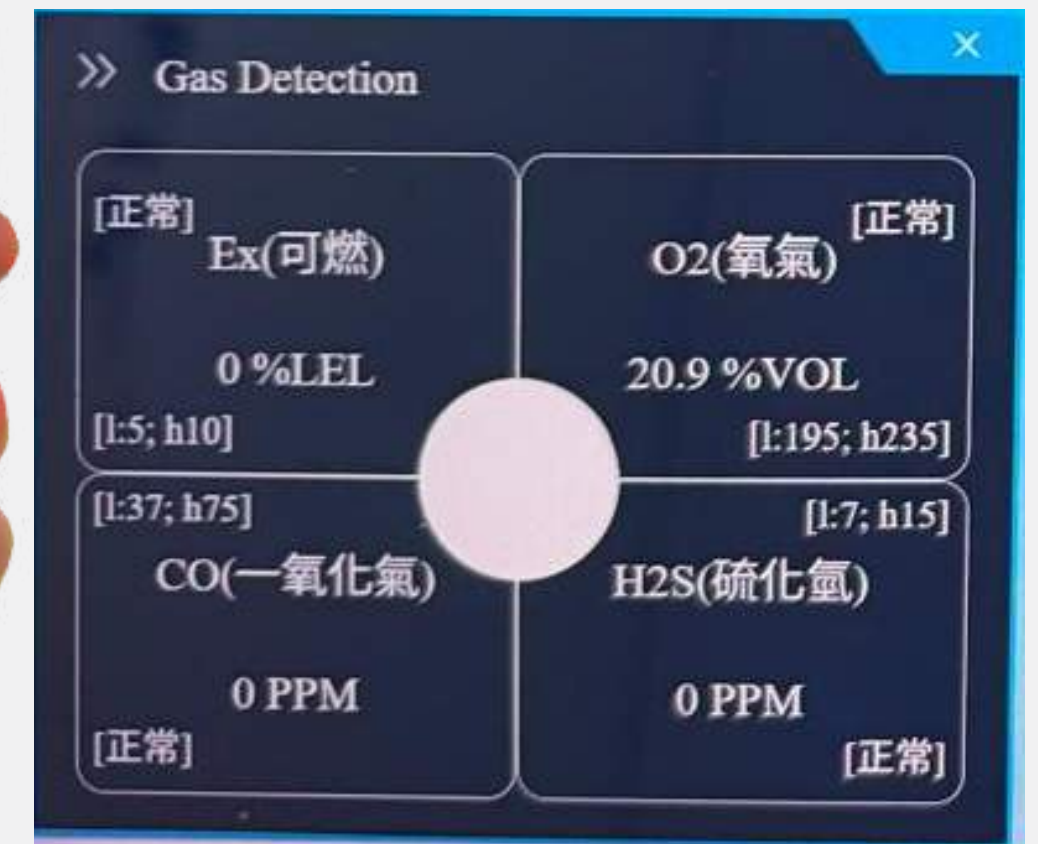
4-IN-1 GAS DETECTOR

- Real-time detection of gases: Ex, O₂, CO, H₂S
- Continuous gas level monitoring for confined space
- Alarm alerts for hazardous gas conditions
- Connected to the TKS platform for centralized monitoring
- Enables swift response from safety watchman and site office when gas levels exceed thresholds



Handheld gas detector

Data shown on TKS platform



SMART WATCHES

- Real-time worker status monitoring
- Status: body temperature, pulse rate, movement
- Alerts for emergency/ abnormal condition
- Use **Bluetooth** to transmit data back to the cloud platform (Range: 100 metres)
- Swift detection for worker distress in confined space



Data shown on TKS platform

ENVIRONMENTAL MONITORING

We provide real-time monitoring of key site conditions to support safer and more informed operations. The system can track environmental data such as **temperature, humidity, wind speed & direction, flooding level, noise level, and thunderstorm risk.**

When adverse conditions are detected, alerts can be issued through the platform, SMS, or phone calls, allowing timely action and worker evacuation when necessary.



Wind Direction &
Speed Detector



ENVIRONMENTAL MONITORING

THUNDERSTORM RISK

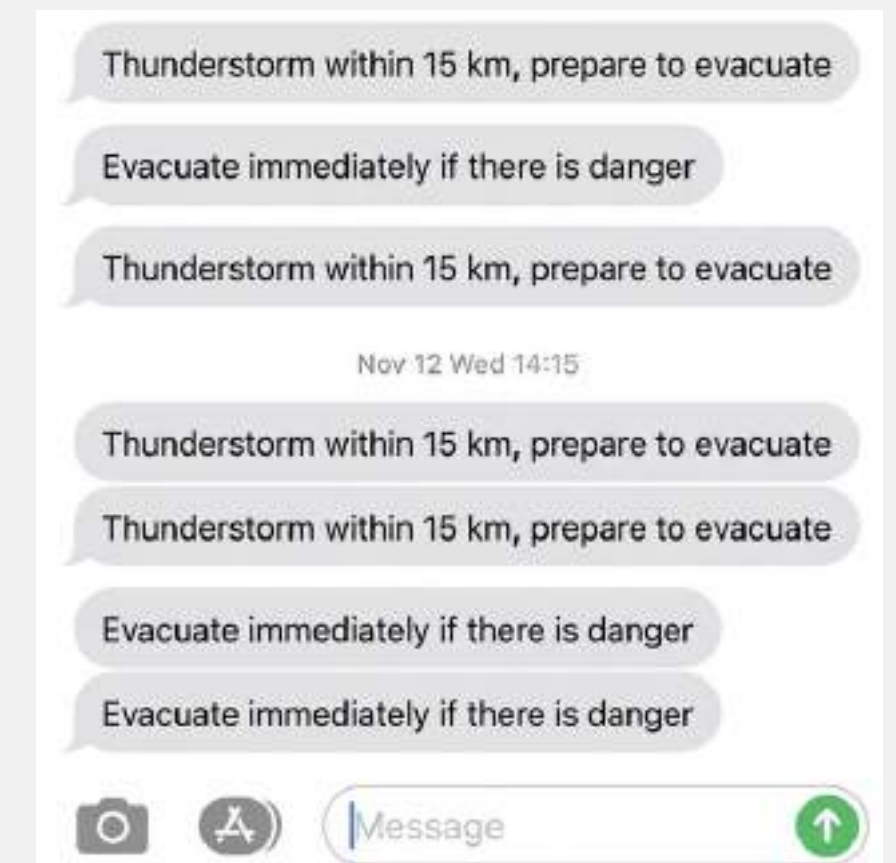
- Adjustable radius lightening detection (default 15 km)



- Instant alerts across multiple channels



Phone call



SMS

SMART FIRE EXTINGUISHER

It combines AI-powered fire identification with automatic suppression to reduce risk at an early stage.

- Early detection of fire (smoke/ flame) at sites
- Automatic fire extinguishing at early stage
- Continuous monitoring of high-risk areas
- Connected to the **cloud-based** platform
- Both audio and visual alarms for evacuation
- Manual override & shutdown functions



AI camera

Manual shutdown keyhole

Speakers

Fire extinguisher



SMART FIRE EXTINGUISHER

AI CAMERA

- Dual-verification fire detection:
 - 1. Infrared thermal sensing**
 - 2. AI-based image recognition**
- Able to distinguish between welding and real fire



VS



AI camera

Manual shutdown keyhole

Speakers

Fire extinguisher



SMART FIRE EXTINGUISHER

FIRE EXTINGUISHER

- Works with any standard 2kg fire extinguisher that fits
- Recommended using dry powder



AI camera

Manual shutdown keyhole

Speakers

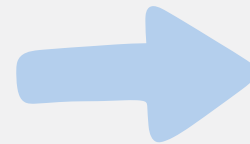
Fire extinguisher



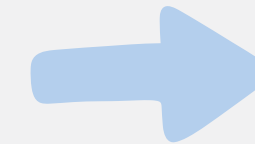
SMART FIRE EXTINGUISHER

HOW TO ACHIEVE?

Fire detected + Alarm



Activation



Fire extinguished



- Adjustable delay allows manual shutdown for false alarms
- Alarm language and alert style are fully customizable

SMART FIRE EXTINGUISHER

OVER CURRENT METHOD

- We provide active response, not just monitoring
- Prevent large-scale fire damage
- Lower manpower requirement for monitoring and response
- Provide superior safety value



SMART SAFETY HARNESS

This product combines is designed for real-time tie-off monitoring, worker protection, and cloud-connected safety alerts during work at height.

- **Unhook alerts** while working at height above 2m
- Cloud-based real-time monitoring
- Both local and cloud safety alarms
- Historical Trajectory Playback
- GPS Positioning & **Geo-Fencing** Supported
- Two-way voice SOS
- Battery life over 36 hours (5000mAh battery)



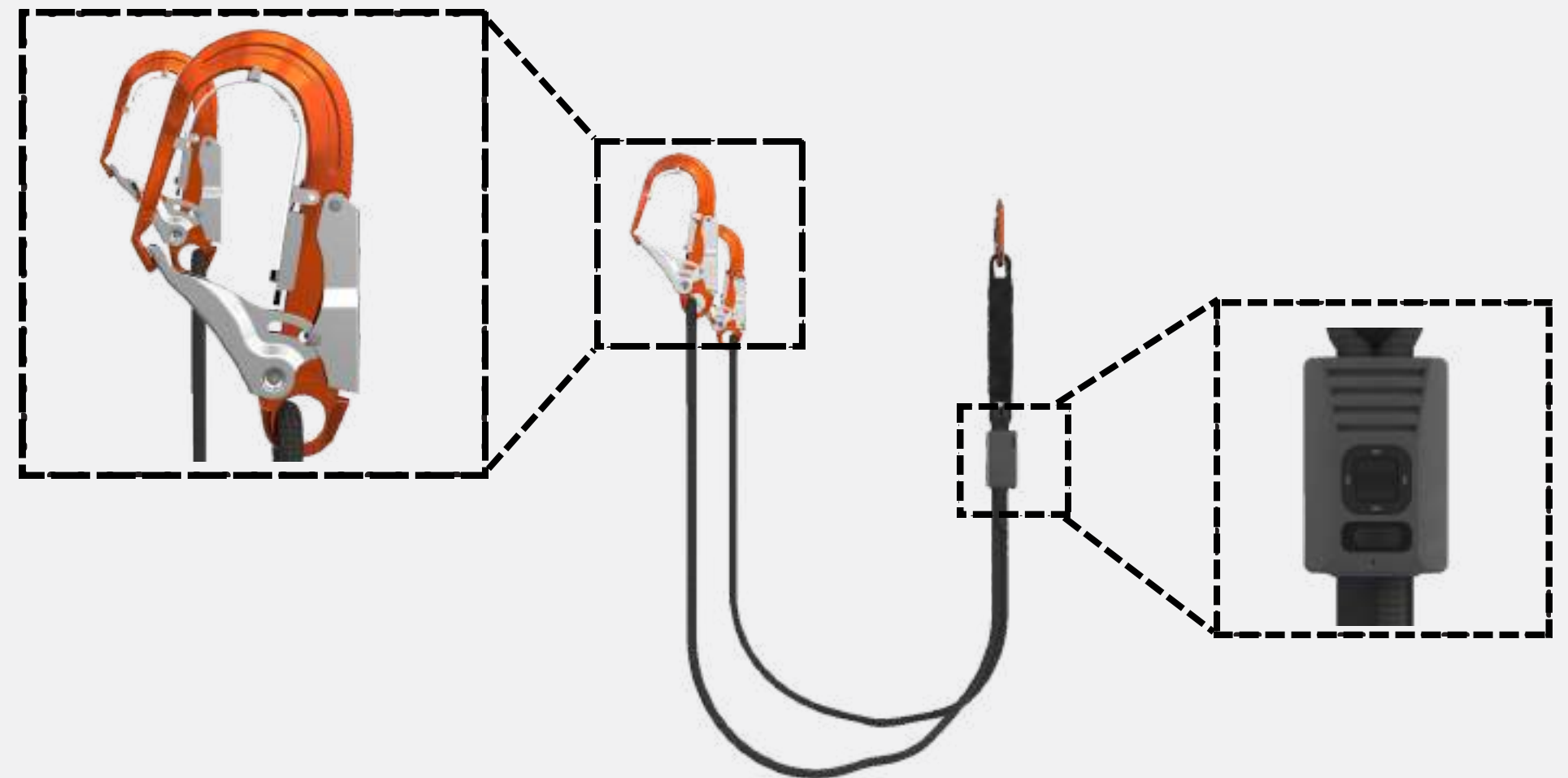
IP66 rated



SMART SAFETY HARNESS

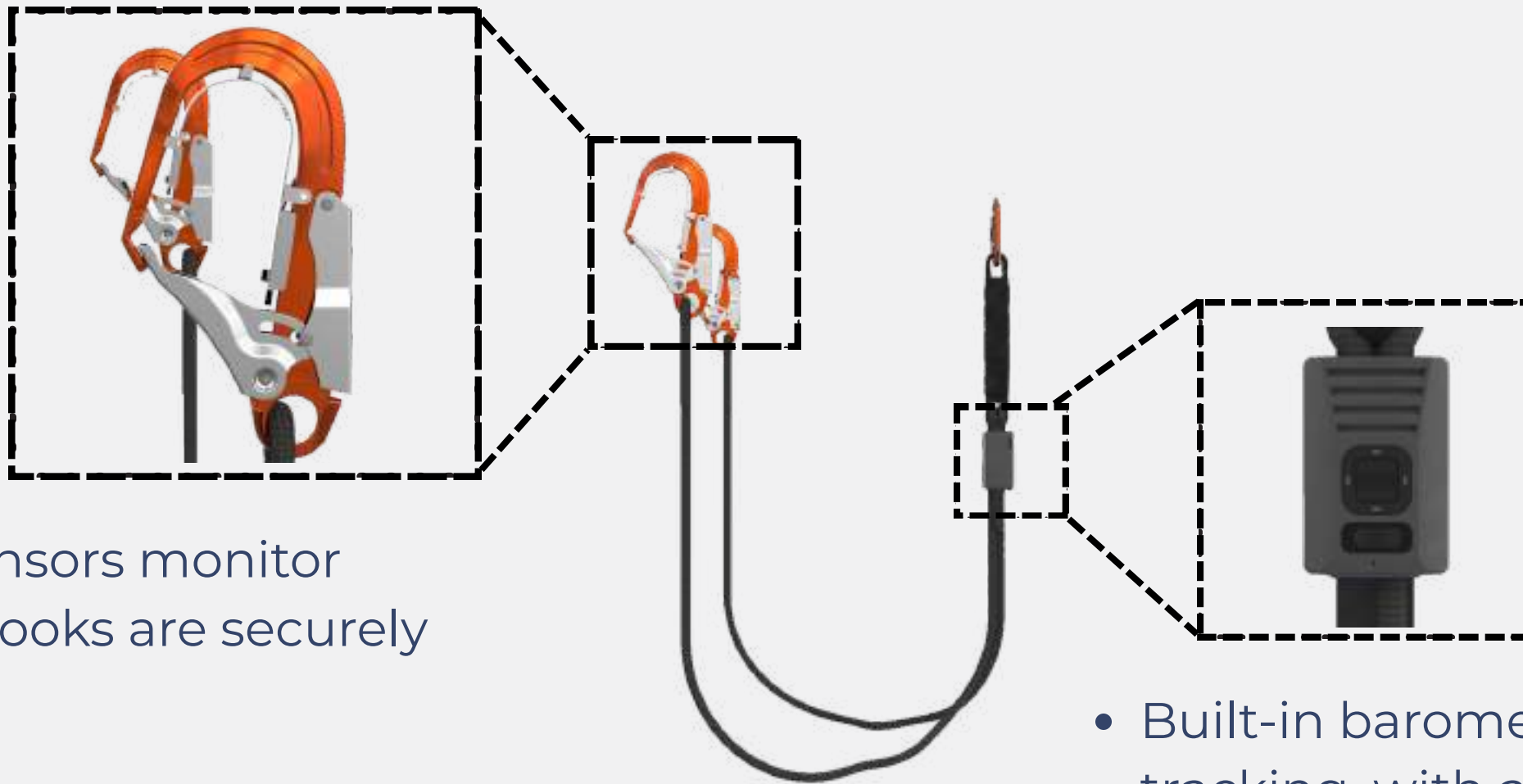
CORE SAFETY ALARMS

- Both local and on cloud
- Single & Double-unhook
- High-to-Low Tie-Off
- Fall, impact, fainting
- Low battery



SMART SAFETY HARNESS

DETAILS



- Built-in sensors monitor whether hooks are securely anchored

- Built-in barometer for elevation tracking, with algorithms for impact and fall detection
- Supports SOS warning button
- Built in 4G support



SMOKE DETECTOR

This provides early detection of smoke and potential fire risks, helping improve site safety through timely alerts and continuous monitoring.

Key Features

- Early smoke and fire detection
- Continuous area monitoring
- Cloud-based platform support and alert notification
- Helps improve site safety



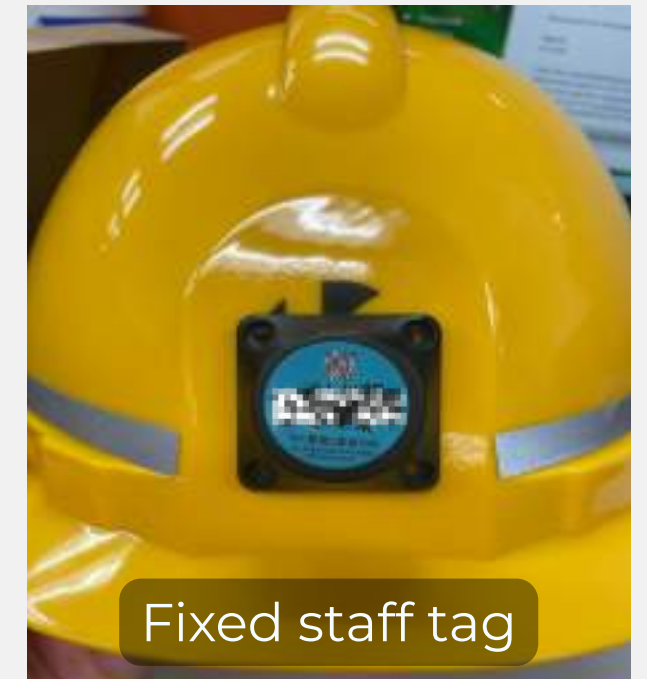
AUTOMATIC STAFF MANAGEMENT

This solution makes use of **RFID tags** and **gateways**, which are placed at entrances, work areas, and any other key locations.

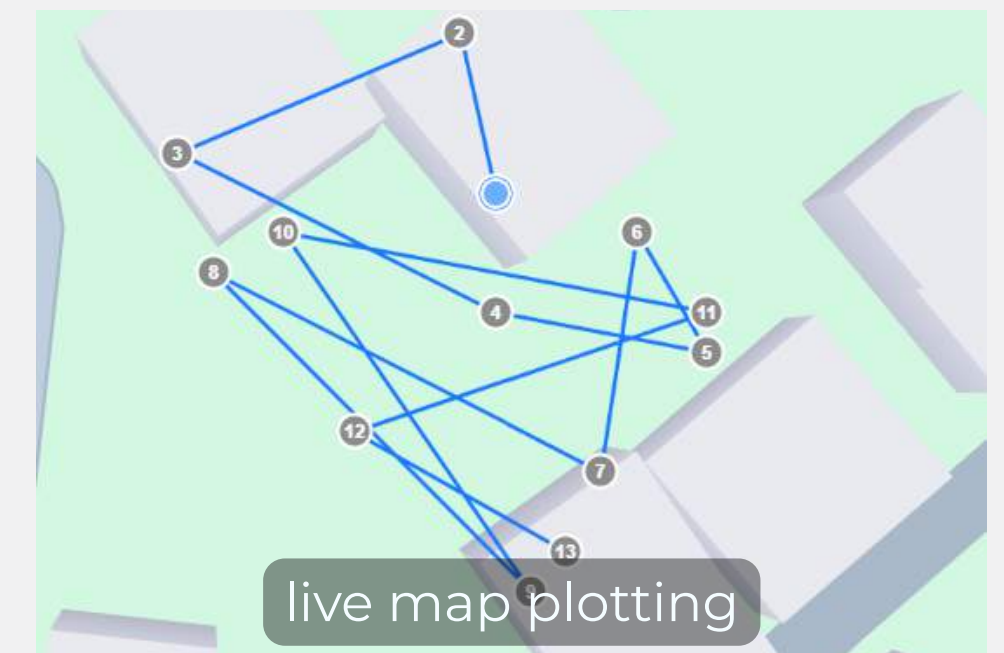
- Worker identification
- Automatic attendance tracking
- Live map plotting + movement history (on TKS platform)
- Efficient salary calculation including OT hours
- Working license expiry reminders
- Alerts for expired qualifications



Gateway



Fixed staff tag



live map plotting

AUTOMATIC STAFF MANAGEMENT

LICENSE EXPIRY REMINDERS

		CLP安全堂, 公司卡, 工人證, 綠卡, HKID, 安全帽, 已接種疫苗,	激活	證正常
		天然氣-AGW, CLP安全堂, 手牌, CS Worker, 天然氣-GRS, HW-RP, Jetty, Job Leader, 全城安全堂, LALG簽Form 1, 吊運-Supervisor, 吊運-Worker, 金屬棚架CP, 公司卡, 磨輪安全證書, 核準工人證, 工人證, HKID, 綠卡, 金屬棚架合資格人士, 索具工, 已接種疫苗,	激活	證過期
		CLP安全堂, CS-AP, CS Worker, EIC, NPS-AP-E, NPS-AP-M, Site S, 公司卡, 磨輪安全證書, 核準工人證, 綠卡, 駕駛證1, HKID, 電牌, NG (AGW) CP, NG (GRS) CP, 已接種疫苗, CP-E, CP-M,	激活	證正常

Expired license alerts

Warning:
Customizable alert period prior to license expiration

ASSETS MANAGEMENT

Utilizing **RFID tags** and **cloud-based tracking**, we monitor tools and equipment, improve movement visibility, prevent theft, and support better control of site assets.

- Real-time asset location tracking
- Tracks asset movement history
- Automated LA/LG expiry notifications
- Alerts for unauthorized movement/ tag removal



ACCESS CONTROL

This solution is also used for high risk area access control, utilizing **NFC card** or **facial recognition**.

- Verifies entry permissions
- Verifies valid and active worker licenses
- Checks PPE compliance (customizable)
- Instant database lookup

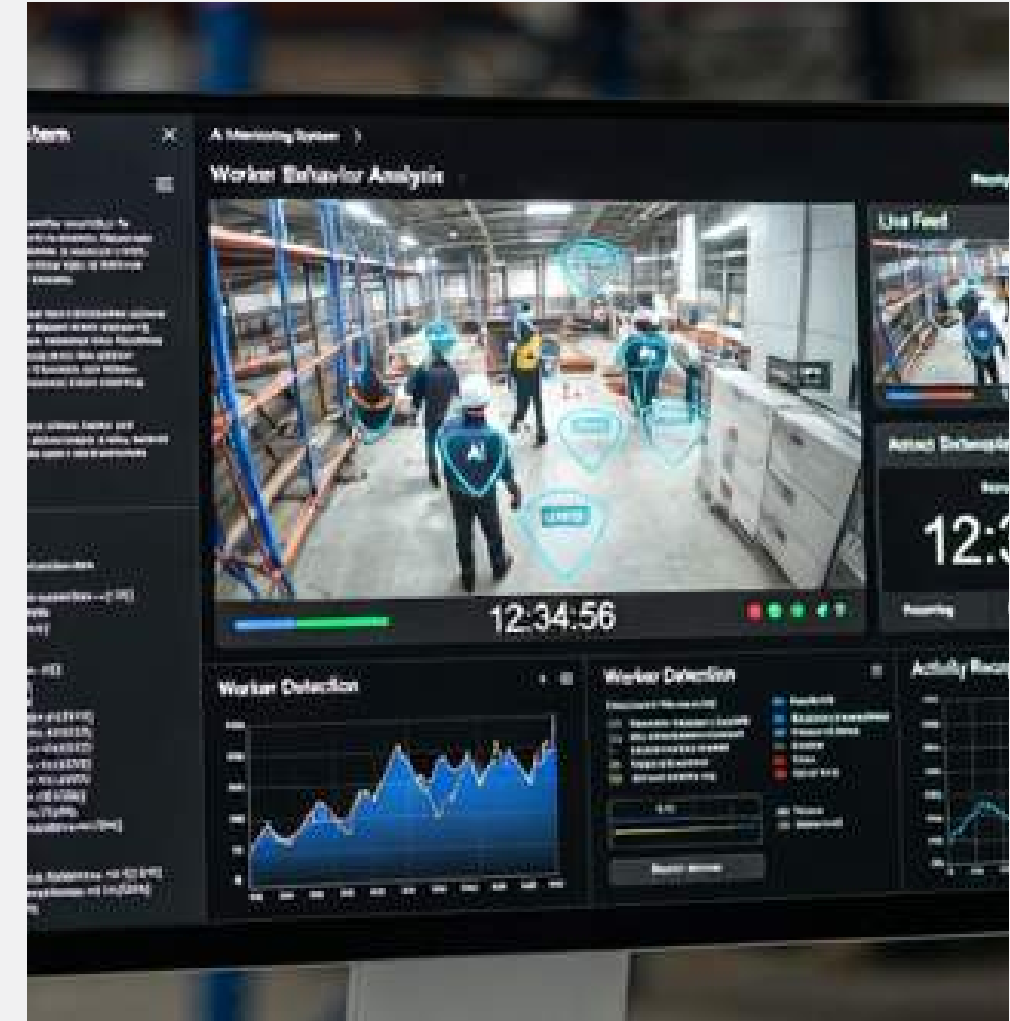


CCTV & NVR

CCTV enables continuous visual monitoring across work areas, entrances, and critical zones for better site awareness and operational control.

- Live visual monitoring
- Coverage for work areas and entrances
- Monitoring of critical zones
- Supports incident review
- Improves daily supervision
- Can be linked with alarms and AI detection
- Integrates with the TKS Centralized Platform





OUR PROJECT

The following section showcases how TKS solutions are applied across different projects to enhance safety, improve site management, and support smarter operations. Through these real-world applications, users can better understand how our products address practical challenges in diverse working environments.

Year	Nature of Work	Nature of Work	Nature of Work
2026	Provision of 4S System at CPPS Jetty	Employee Attendance Recording, Access Control	Hargreaves Industrial Services (HK) Ltd
2025	Smart Site Safety System for Removal of Asbestos Cement Slurry Pipes at CPPS & TTAL	Employee Attendance Recording, Checking Training Certificate Validity	UBW Environmental Co. Ltd
2024	Trial of RFID Technology Implementation at BPPS warehouse and strategy store	High Value Items Management	CLP Power HK Ltd
2024	Smart Site Safety System at CPPS and BPPS Outage (2024 – 2025)	Employee Attendance Recording, Checking Training Certificate Validity, Tools & LA/LG Management, Dangerous zone detection and Lifting Zone Alert	CLP Power HK Ltd
2024	RFID Warehouse Management System at CPPS & BPPS	LA/LG Management	CLP Power HK Ltd
2024	Supply of Digital Supervision System (DSS) with A.I. Camera	Unsafe Act Detection (without mask / safety helmet / reflective vest, stacked load on edges)	CLP Power HK Ltd
2024	Smart Site Safety System in BPPS C5 Outage	Employee Attendance Recording, Checking Training Certificate Validity, Tools & LA/LG Management, Dangerous zone detection and Lifting Zone Alert	CLP Power HK Ltd

Year	Nature of Work	Project Description	Client
2023	Enhancement of TKRSPS No. 7 with Video Analytics and RFID	Unsafe act monitoring (AI Cam detection with instant alarm and email pushing against helmet, reflective vest, people idling, falling, unauthorized entry into restricted areas and uncovered floor openings), AI Basket Screen Condition Monitoring System, Checking Training Certificate Validity, Tools & LA/LG Management, Environmental Monitoring, Digital permit-to-work system, Application in Confined Space	Drainage Services Department
2023	Smart Site Safety System in BPPS C8 Outage	Employee Attendance Recording, Checking Training Certificate Validity, Tools & LA/LG Management Dangerous zone detection and Lifting Zone Alert	CLP Power HK Ltd
2023	2023 Q4 BPPS B2 Outage Smart Site Management (RFID)	Employee Attendance Recording, Checking Training Certificate Validity, Dangerous zone detection and Lifting Zone Alert	CLP Power HK Ltd
2022	Cable trenching Work Site at Sha Tin	Unsafe Act Monitoring at trenching work (AI Cam detection with instant alarm and email pushing against helmet, vest, mask & heavy load at the edges of trench)	CLP Power HK Ltd
2022	Cable trenching Work at Lantau Island	Unsafe Act Monitoring at trenching work (AI Cam detection with instant alarm and email pushing against safety helmet, vest, mask & heavy load at the edges of trench)	CLP Power HK Ltd

Year	Nature of Work	Project Description	Client
2021-2023	General Civil Work and Refurbishment Project at Castle Peak and Black Point Power Station	Employee Attendance Recording, Checking Training Certificate Validity, Tools & LA/LG Management, Environmental Monitoring, Tracking Record, Application in Confined Space, Unsafe Act Monitoring	CLP Power HK Ltd
2020	Roof cladding replacement at Black Power Station	Environmental Monitoring and Alarm (wind speed, temperature, thunder warning by instant mobile phone call)	CLP Power HK Ltd
2020	Boiler House hoisting work at Castle Peak Power Station boiler area	Dangerous zone detection and on-site alarm while hoisting	Kum Shing E&M Ltd
2019	Blow Down common drainpipe replacement at Castle Peak Power Station	Employee Attendance Recording, Checking Training Certificate Validity, Tools & LA/LG Management, Environmental Monitoring (flooding and temperature), Application in Confined Space, Unsafe Act Monitoring in loading area.	CLP Power HK Ltd
2019	External wall refurbishment at Penny Bay Power Station	Environmental Monitoring and Alarm (temperature and wind speed)	CLP Power HK Ltd
2019	Spalling works at Castle Peak Power Station Jetty Area	Environmental Monitoring and Alarm (sea water level, temperature, wind speed with solar power at remote site)	CLP Power HK Ltd

Client:
CLP Power HK Ltd.

Year:
2023-Now

CUSTOMIZED PLATFORM FOR CLP

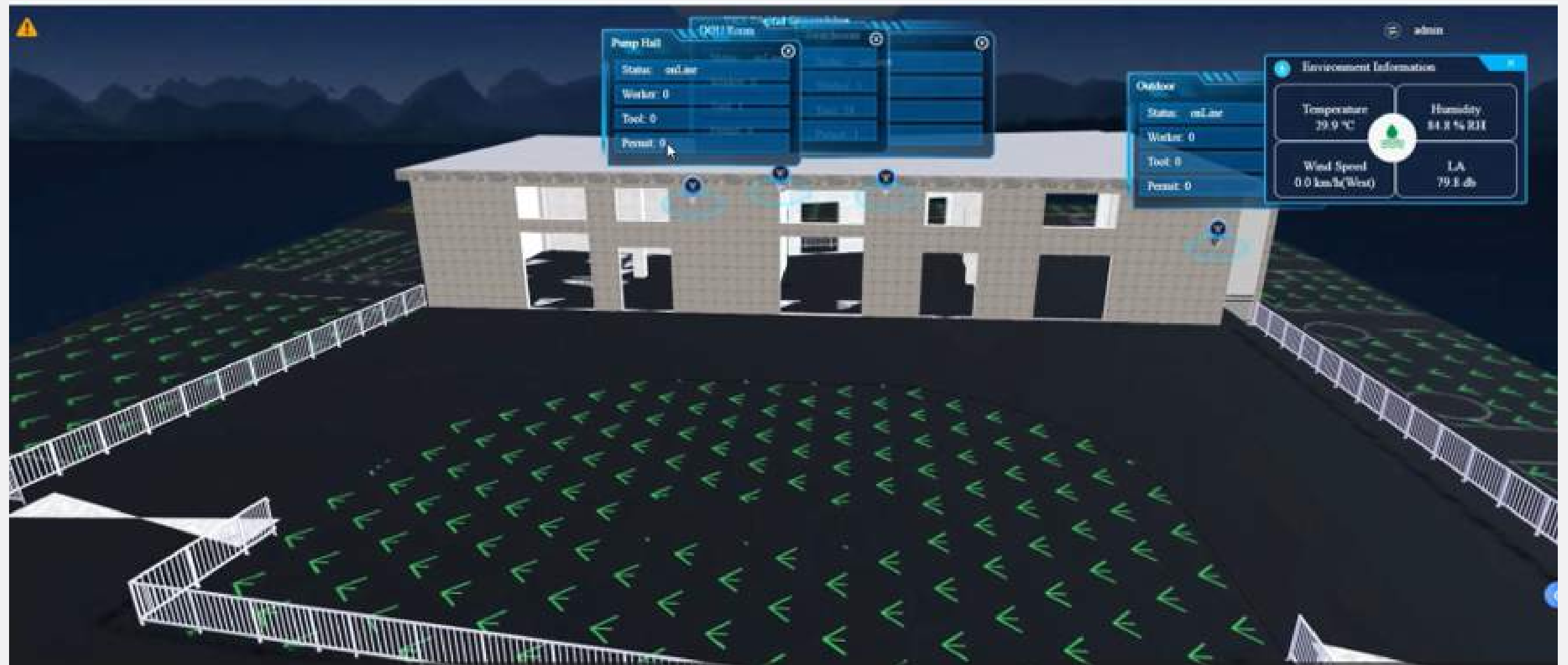


This platform consists of a custom drawn map of power plants. It unifies all the products and services we provided, including the CCTV camera feed, the environmental monitoring data, the management logs with RFID, and the warning alerts.

Client:
Drainage Services
Department

Year:
2023-2026

ENHANCEMENT OF TKRSPS NO. 7 WITH VIDEO ANALYTICS AND RFID



- Digital permit-to-work system

Client:
CLP Power HK Ltd.

Year:
2024-2025

CLP OUTAGE 2024 – 2025

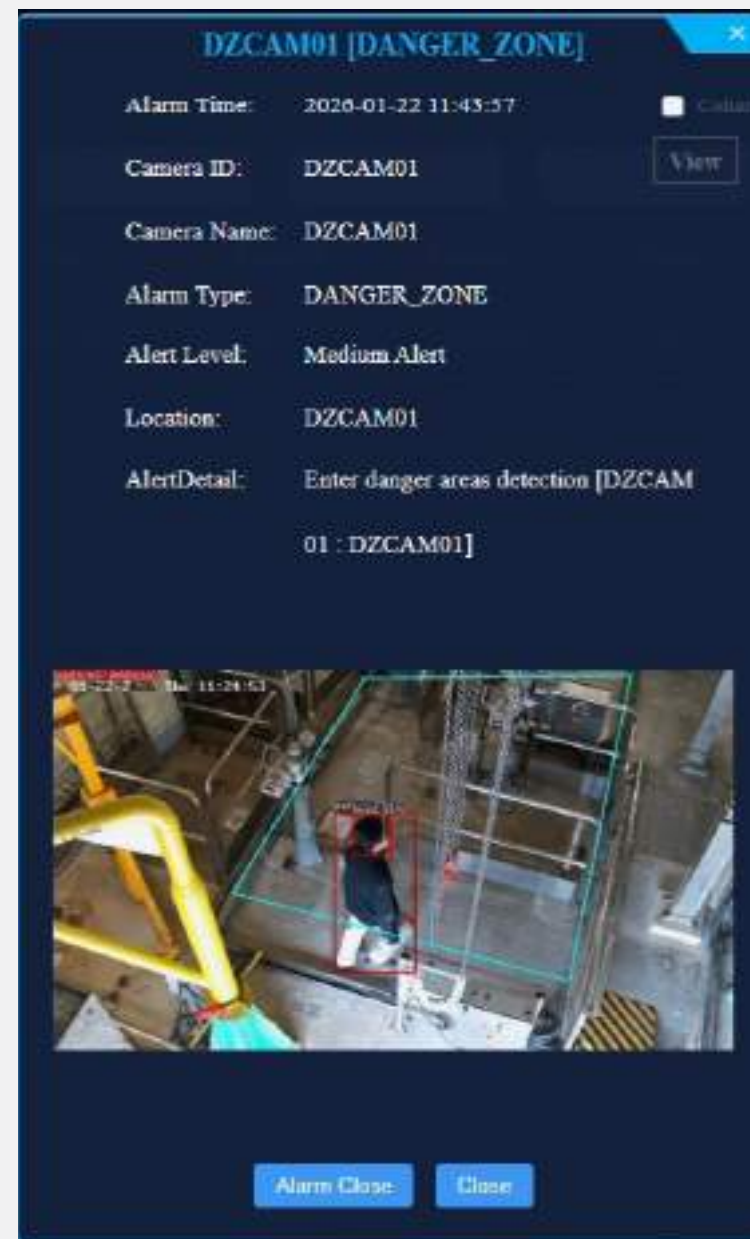


- LA/LG Management

Client:
Drainage Services
Department

Year:
2023-2026

ENHANCEMENT OF TKRSPS NO. 7 WITH VIDEO ANALYTICS AND RFID



- Entering Danger Zone

- AI Basket Screen Condition Monitoring System



Client:
Drainage Services
Department

Year:
2023-2026

ENHANCEMENT OF TKRSPS NO. 7 WITH VIDEO ANALYTICS AND RFID

- Unsafe Act Monitoring



Example: Floor Opening



Example: Falling

Client:
CLP Power HK Ltd.

Year:
2020

SO3 BURNER SKID REPLACEMENT AT CPPS



- Lifting zone control
- Setup RFID and alarm on site for unsafe act monitoring

Client:
CLP Power HK Ltd.

Year:
2025

CLP D1HL PROJECT



- Remote Fire Monitoring



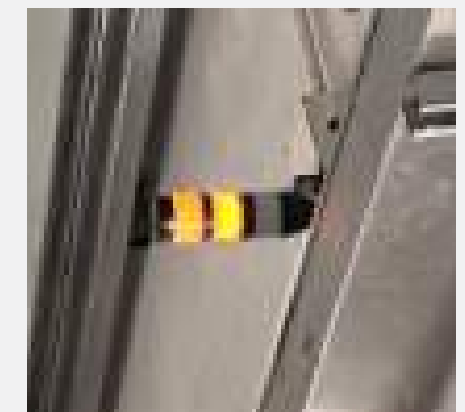
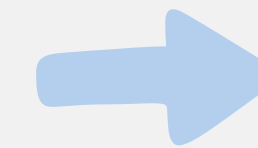
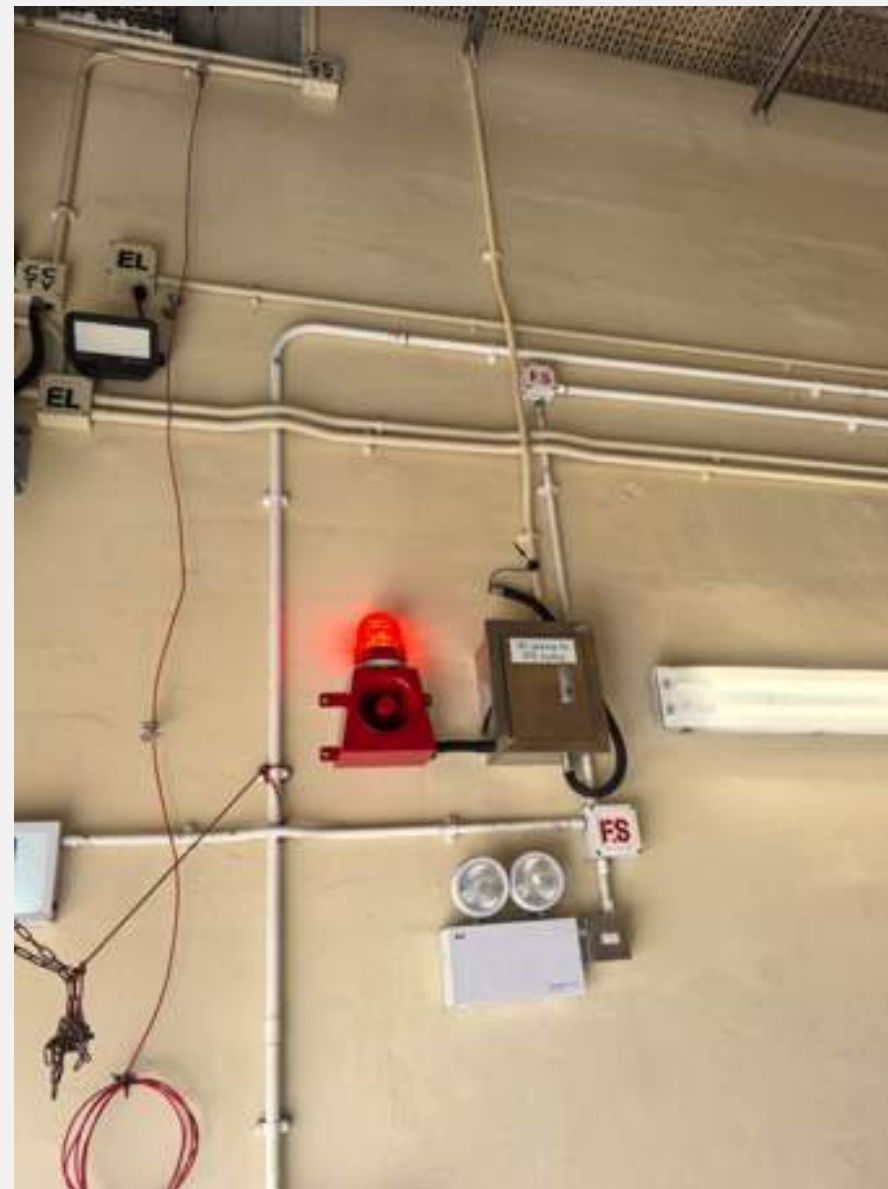
- Lifting zone control



Client:
Drainage Services
Department

Year:
2023-2026

ENHANCEMENT OF TKRSPS NO. 7 WITH VIDEO ANALYTICS AND RFID



- AI Camera and Alarm for Lifting Zone Detection
- Check for personnel trespassing danger zone

- Roof crane stops immediately when personnel are detected beneath the active crane

Client:
CLP Power HK Ltd.

Year:
2024

TRIAL PIT EXCAVATION & WORK PIT EXCAVATION AT WE STATION



- Alarm will be initiated if the worker is idling
- Provides an additional layer of protection beyond standby personnel monitoring

- Real-time 4-in-1 gas detector (old version)



- Smart watches (old version)

Client:
CLP Power HK Ltd

Year:
2020

ROOF CLADDING REPLACEMENT AT BLACK POWER STATION

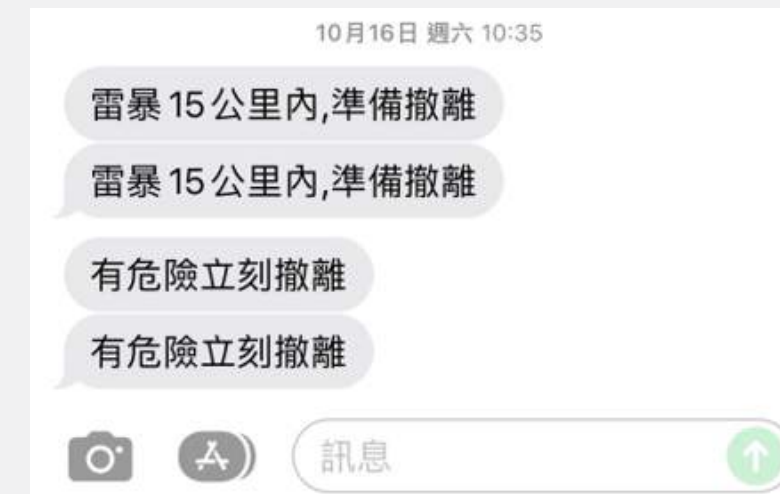
- Environmental monitoring

溫度	27.4°C
濕度	82.7%RH
風速	5.69km/h
噪音	db
水浸	

- Evacuation



- Warning for nearby thunderstorm risk



- Automated SMS

- Automated Phone calls



Client:
Kent Ho
Engineering Works
Ltd.

Year:
2025

SMART SITE SAFETY SYSTEM IN BPPPS C8 OUTAGE



- Autonomous Fire Detection & Suppression

Client:
CLP Power HK Ltd.

Year:
2024

RFID WAREHOUSE MANAGEMENT SYSTEM AT CPPPS & BPPPS



- LA/LG Management



Client:
CLP Power HK Ltd.

Year:
2024

TRIAL OF RFID TECHNOLOGY IMPLEMENTATION AT BPPS WAREHOUSE AND STRATEGY STORE



- High Value items Management



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THANK YOU

PLEASE CONTACT US IF YOU ARE INTERESTED