



AIOT



SENSE CONNECT

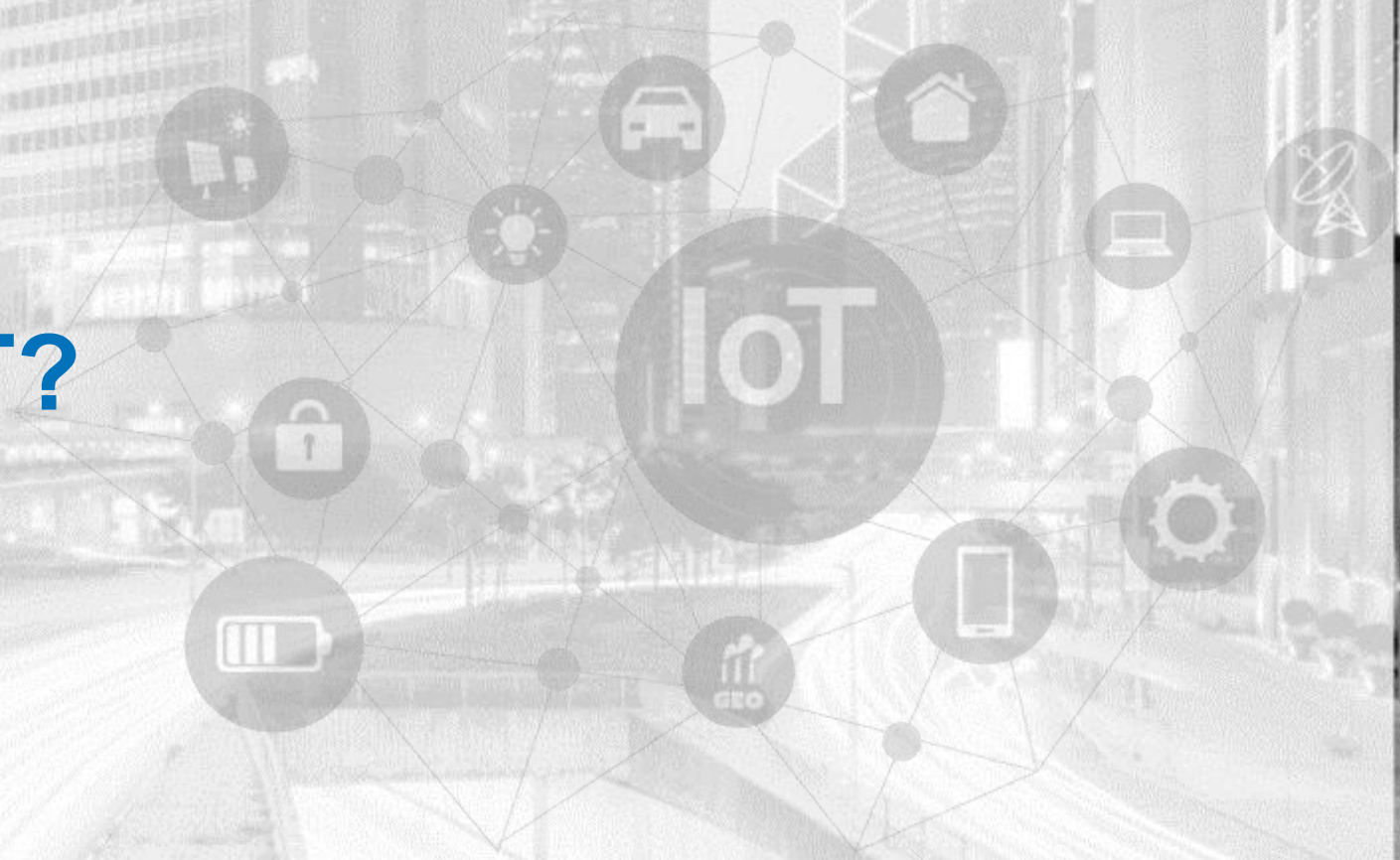
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Who is ChinoINT?



Customers & Solutions

IOT Smart Facility Management	Smart Site Safety System	AI + Predictive Maintenance
 <p>建築署 Architectural Services Department</p> <p>機電工程署 EMSD</p> <p>THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學</p> <p>香港國際機場 HONG KONG INTERNATIONAL AIRPORT</p> <p>SIEMENS</p> <p>DSV</p>	 <p>CLP 中電</p> <p>suez</p> <p>Nga Ying Decoration Ltd</p> <p>Por Mee Factory Building</p>	 <p>THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學</p> <p>CLP 中電</p> <p>仁安醫院 UNION HOSPITAL</p> <p>SIEMENS</p> <p>ITChannel</p>

ChinoINT Know-How & Strengths

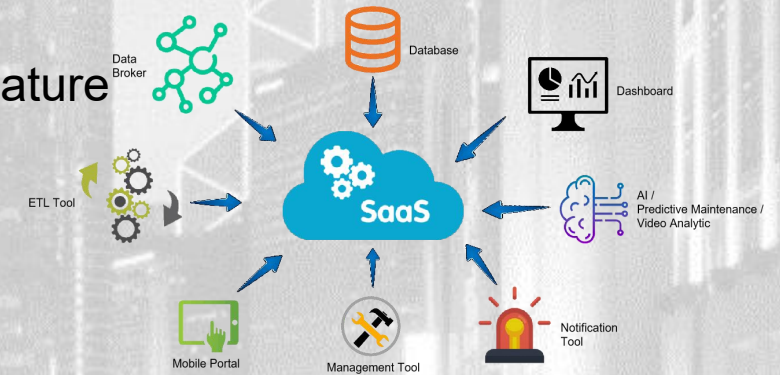
Hong Kong R&D

- local R&D team
- local expert support
- Chartered Engineer



Software Capability - AIOT Platform

- Complete Feature
- Deployed
- AI-integrated



Hardware Design Capability

- IOT sensor design
- Gateway design
- NRE cabability

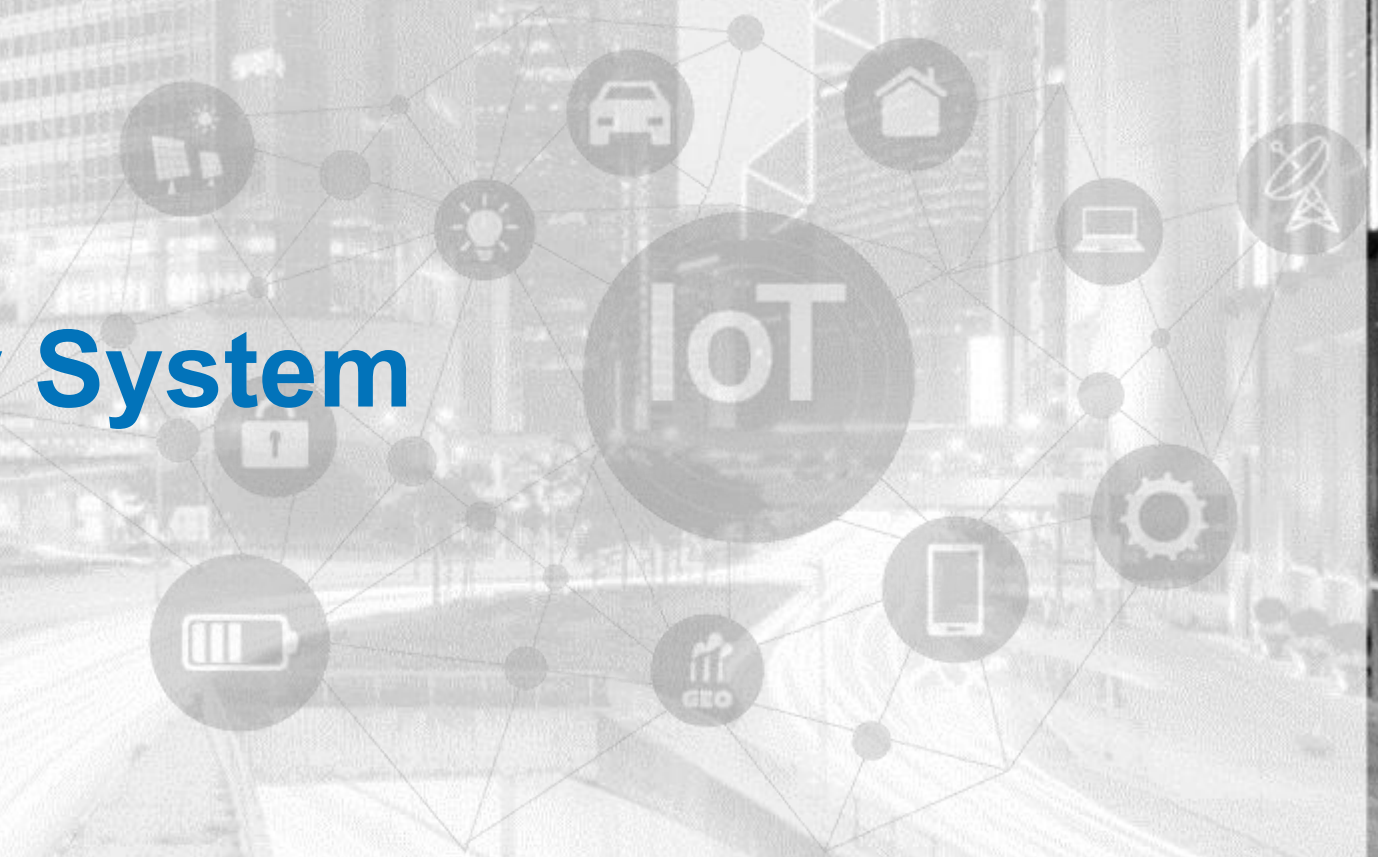


AI & Algorithms Development

- 11 innovation patents owned by executives
- deployed 4S with AI
- deployed AI solutions at local univeristy, and government building



Smart Site Safety System SSSS



安全智慧工地系統10個主要類別 10 Main Categories of SSSS Products :

1 中央管理平台

Centralised Management Platform

2 數碼化追蹤系統 (工地機械, 電動工具及梯架)

Digitised tracking system for site plants, powered tools and ladders

3 數碼化工作許可系統 (高風險工作)

Digitalised permit-to-work system for high risk activities

4 危險區域進出管制 (電子鎖系統)

Hazardous areas access control by electronic lock and key system

5 移動設備操作區域的不安全行為/危險情況警報

Unsafe acts / dangerous situation alert for mobile plant operation danger zone

6 天秤吊運區域的不安全行為/危險情況警報

Unsafe acts / dangerous situation alert for tower crane lifting zone

7 前線工人智能監控設備

Smart monitoring devices for workers and frontline site personnel

8 人工智能安全監察系統

Safety Monitoring System using Artificial Intelligence

9 密閉空間監控系統

Confined Space Monitoring System

10 虛擬實境安全培訓

Safety Training with Virtual Reality Technology

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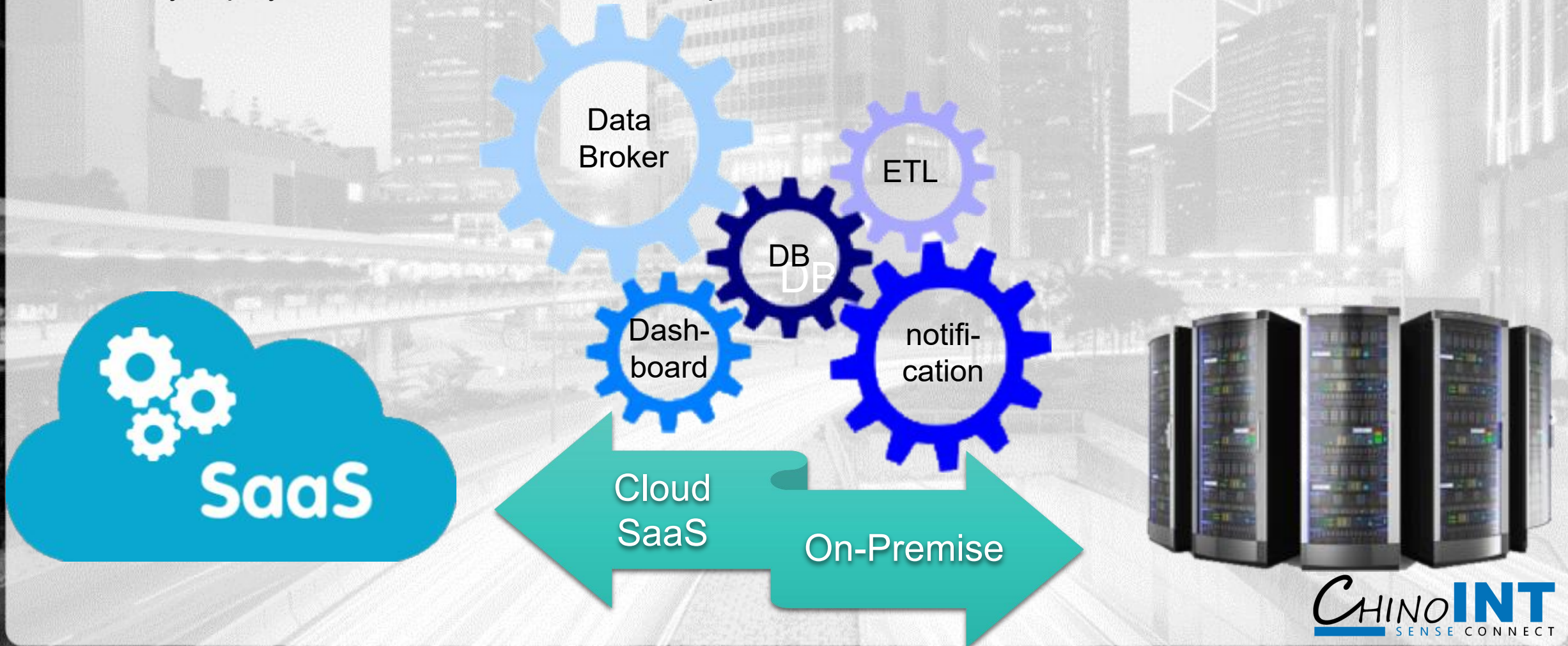
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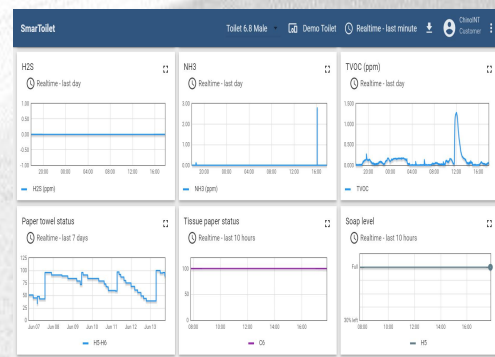
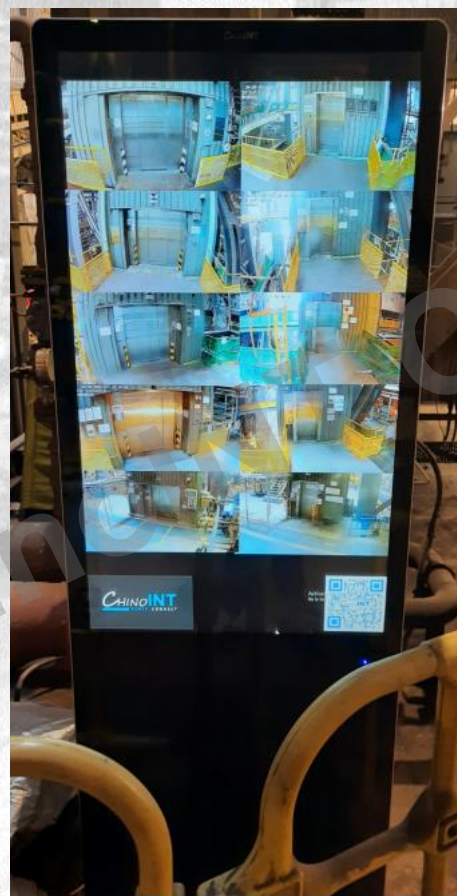
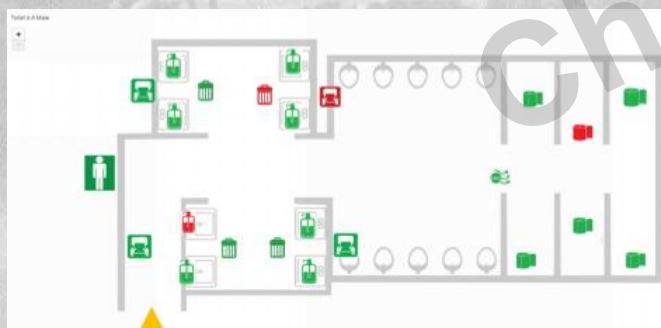
Centralized Management Platform

The Software Platform consists of Data Broker, ETL tool, Database, Dashboard and notification modules. For easy deployment, both Cloud SaaS and on-premise version is available.



Dashboard

Clean and clear dashboarding is one of the key element in an IoT system. The Smart Toilet platform provides easy to use dashboard, with multi-layer user account settings. GUI Maintenance Portal is provided with the platform. Both desktop and mobile version (Android and IOS) are available.



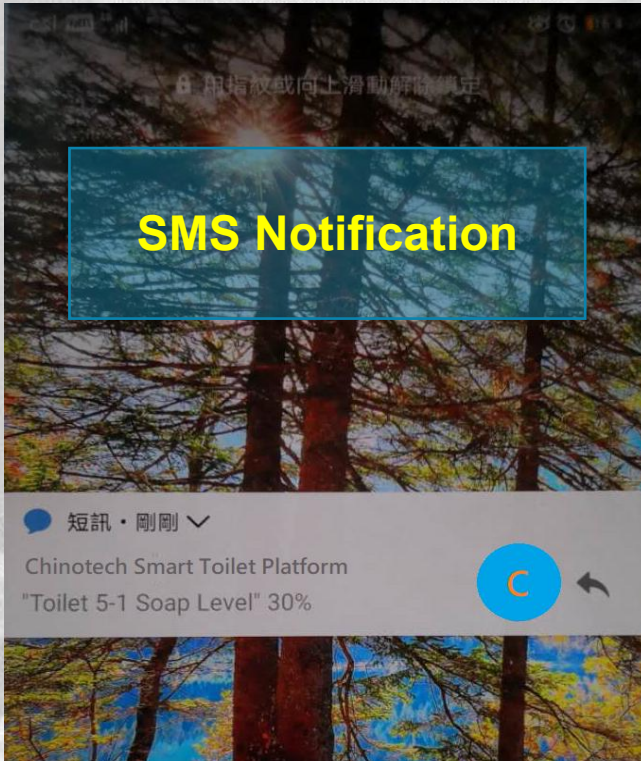
Notification

Notification is one of the crucial feature for Smart Toilet, in order to achieve on-demand cleaning and best resource utilization.

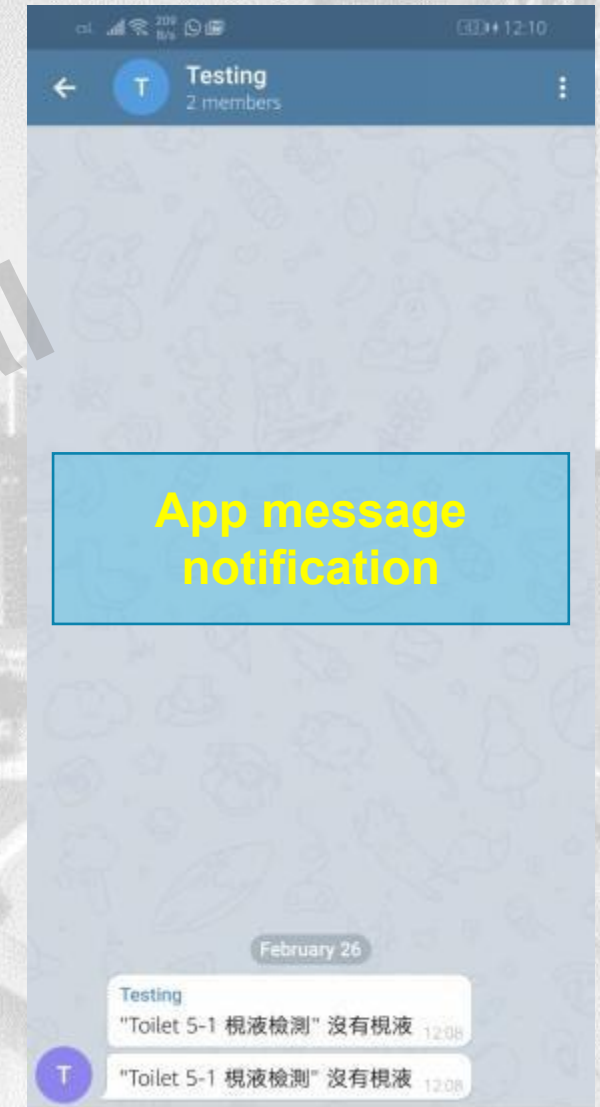
Notification can be done through app, notification bar alert, SMS and through e-mail.

App message notification can be configured as group alert, and individual alert.

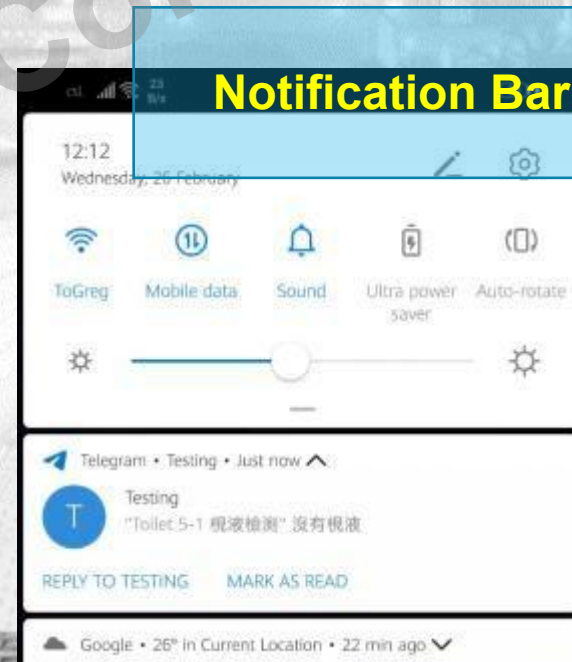
SMS Notification



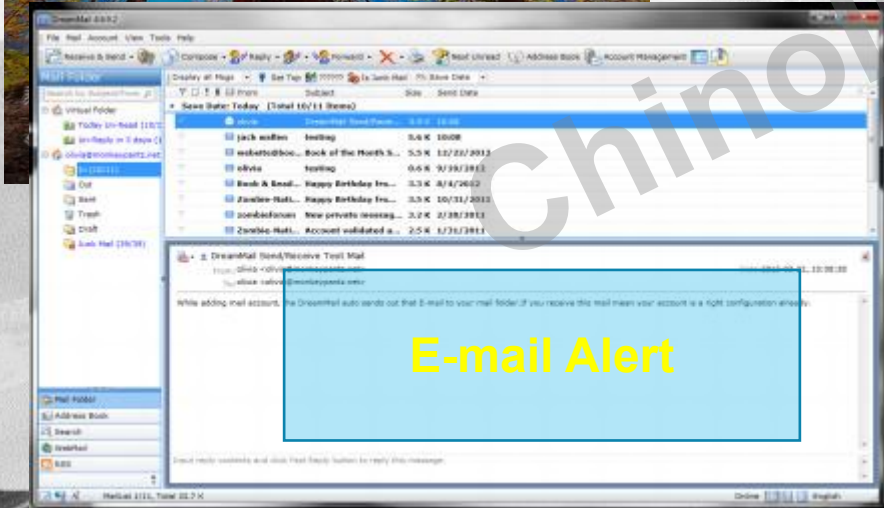
App message notification



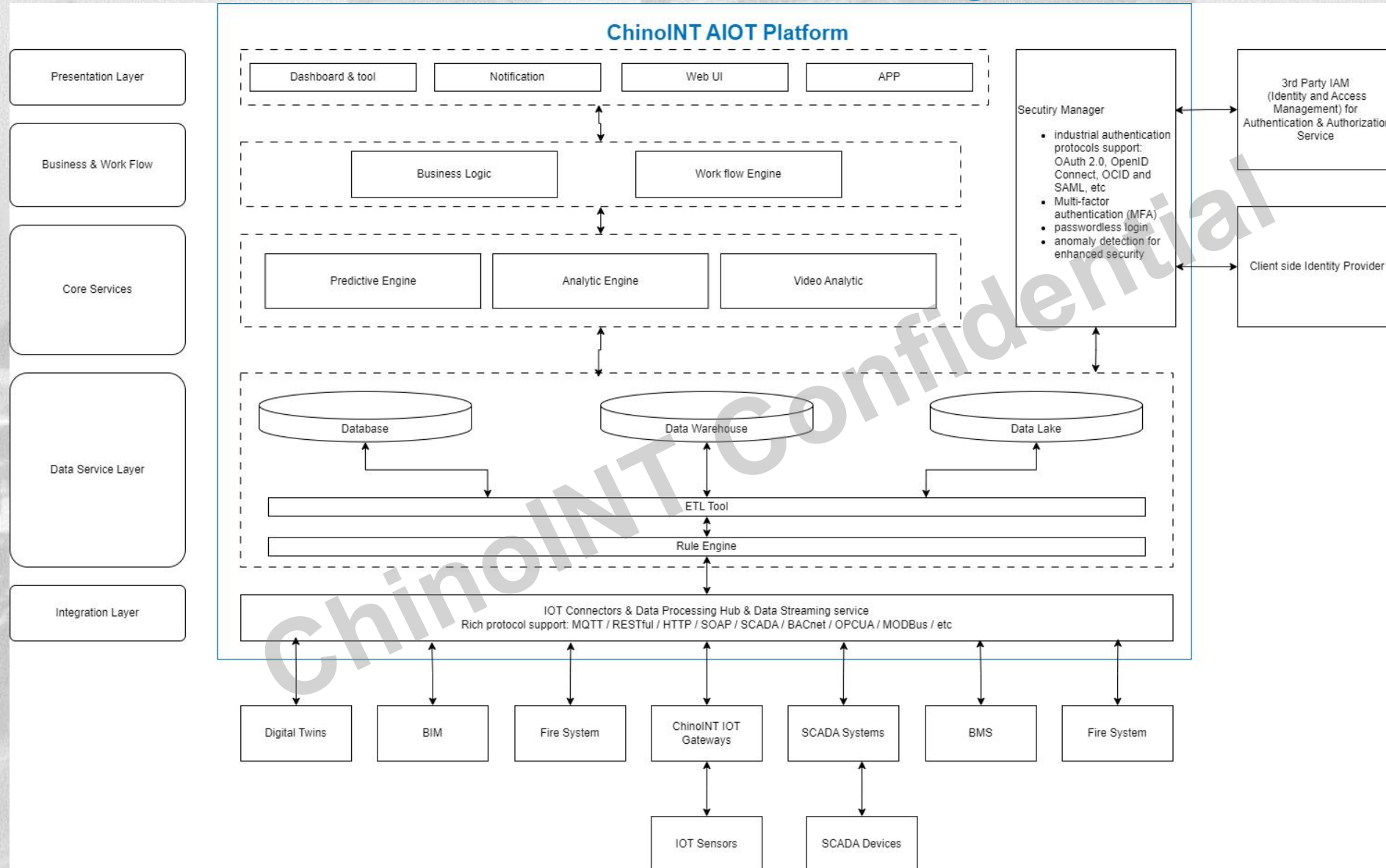
Notification Bar



E-mail Alert



Architecture Diagram



Smart Worksite Control Center



2 數碼化追蹤系統 (工地機械, 電動工具及梯架)

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Digitized Tracking System



3 數碼化工作許可系統 (高風險工作)

Digitalised permit-to-work system for high risk activities

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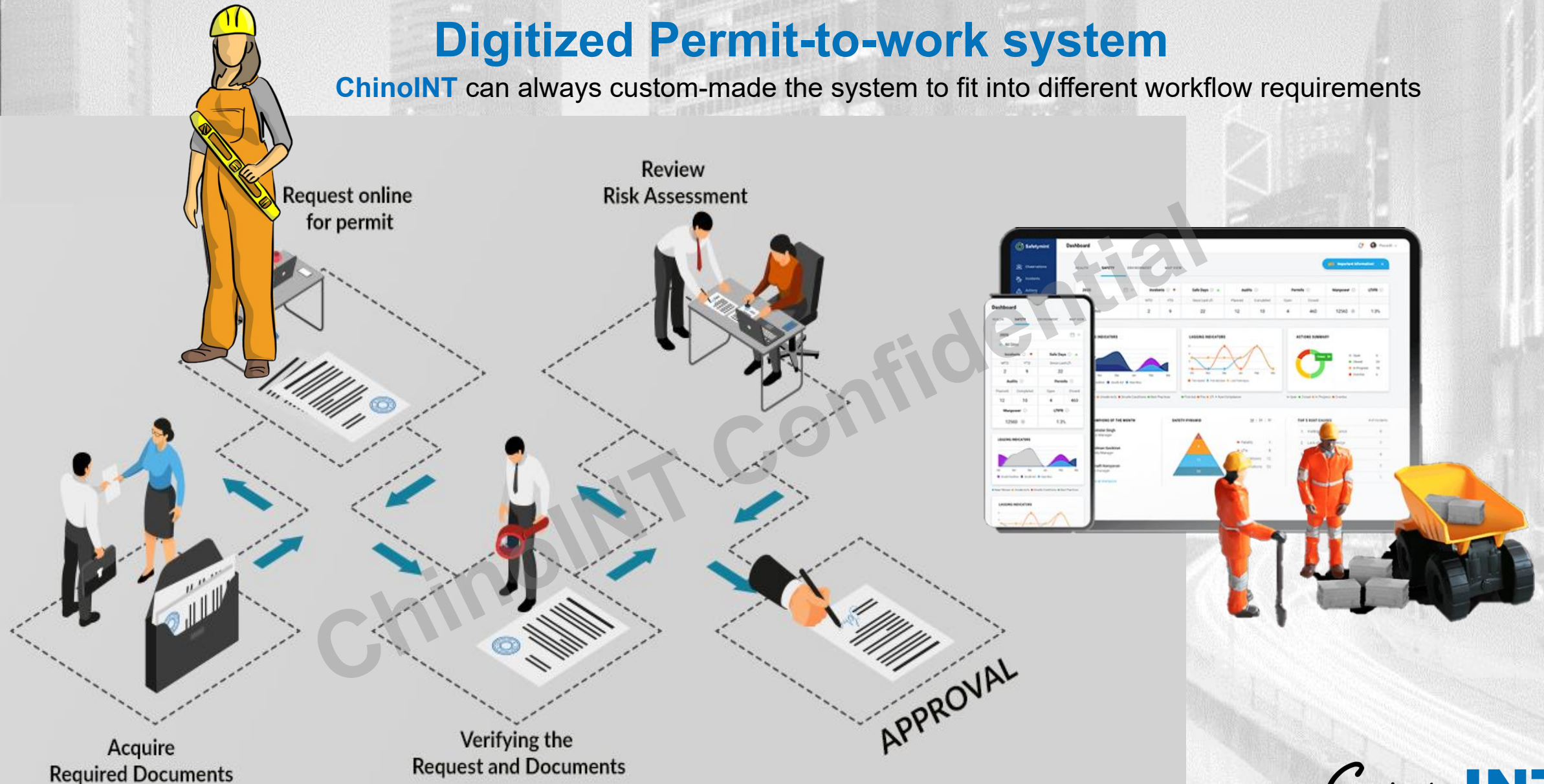
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Digitized Permit-to-work system

ChinoINT can always custom-made the system to fit into different workflow requirements



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Hazardous areas access control by electronic lock and key system

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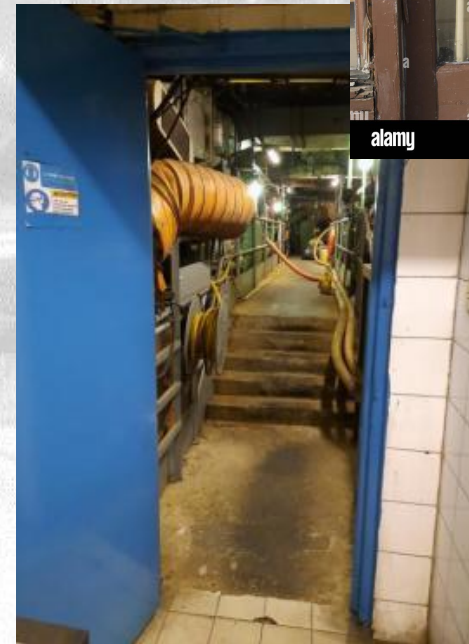
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Hazardous Area Access Control

System controlled lock

- white list
- black list
- expired key alert
- trespassing attemp alert



5 移動設備操作區域的不安全行為/危險情況警報

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5-I - Unsafe Acts / Dangerous Situation Alert for Mobile Plant operation danger zone (AI based operation zone alert)



Dangerous Zone
monitoring



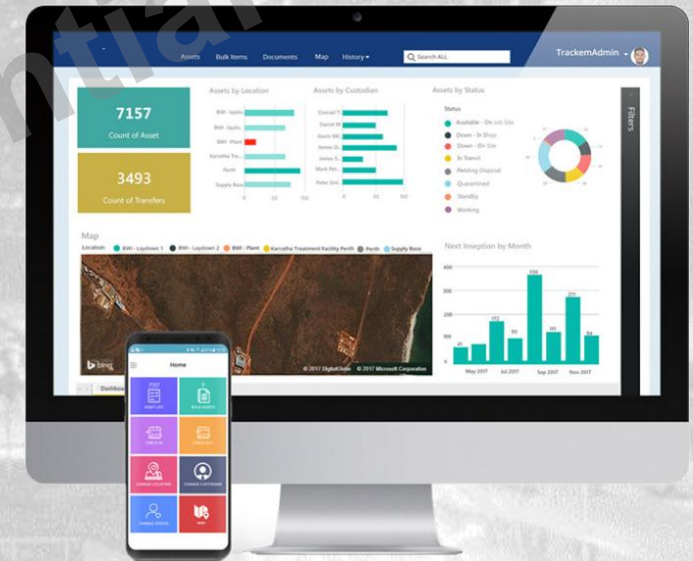
Equipment Collision
Monitoring



Trespassing
Monitoring



Work-at-height
monitoring



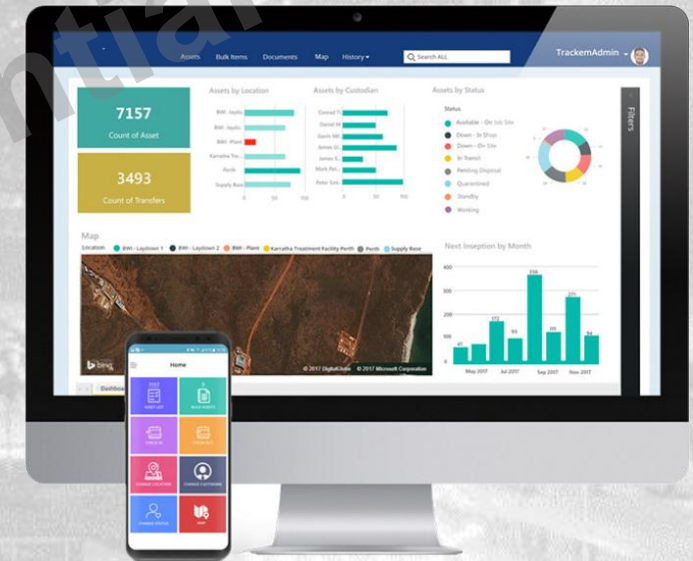
5-II - Unsafe Acts / Dangerous Situation Alert for Mobile Plant operation danger zone (sensor based zone intrusion)



Siren to alert operator

Sensor system on equipment

To protect the
operation area



6 天秤吊運區域的不安全行為/危險情況警報

Unsafe acts / dangerous situation alert for tower crane lifting zone

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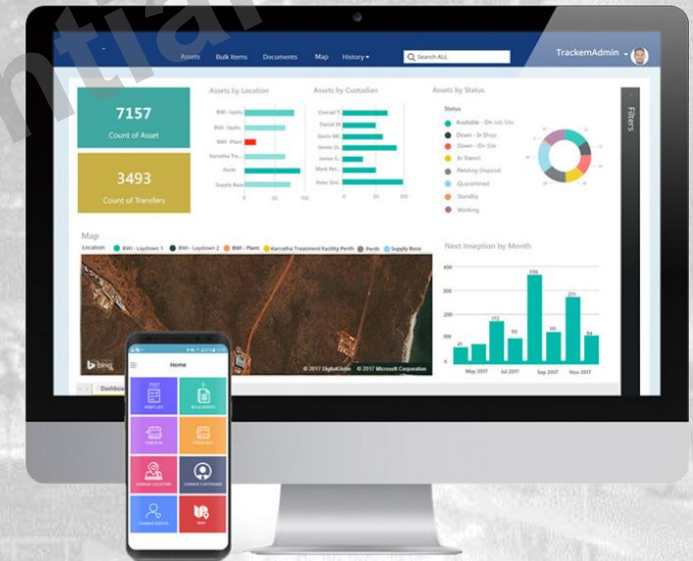
Unsafe Acts / Dangerous Situation Alert for tower crane lifting zone (AI based height detection)



Dangerous Zone
monitoring



Trespassing
Monitoring



7 前線工人智能監控設備

Smart monitoring devices for workers and frontline site personnel

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7-I - Smart Monitoring Devices for personnel, asset, machinery (UWB based personnel and asset tracking)



7-1 - Smart Monitoring Devices for personnel, asset, machinery (UWB based personnel and asset tracking)

Devices for human

Siren for real time alert



7-II - Collision Avoiding System (UWB based vehicle proximity alert)



8 人工智能安全監察系統

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A.I. Monitoring



Safety Belt
Monitoring



Equipment Collision
Monitoring



Safety Helmet
Monitoring



Trespassing
Monitoring



Work-at-height
monitoring



Dangerous Zone
monitoring

9 密閉空間監控系統

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9-I - Confined Space Monitoring System (RFID based CSMS)

Features:

- Count the number of **authorized** people getting into and out of the confined space
- Count the number of **unauthorized** people getting into and out of the confined space
- Safety Helmet enforcement
- Real time alert for unauthorized people
- Identify foul behavior, such as getting into the area through undefined path
- Prolonged stay alert in confined space
- IAQ monitoring

Benefits:

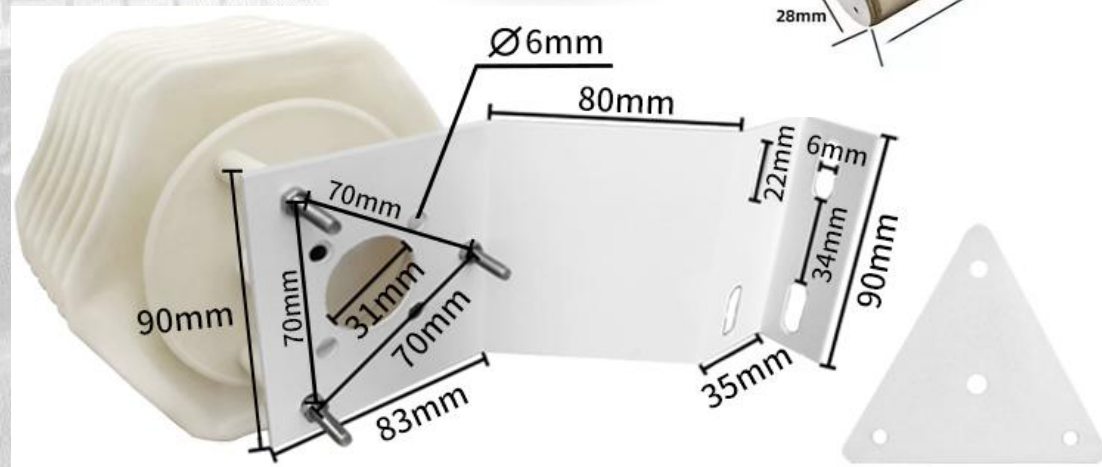
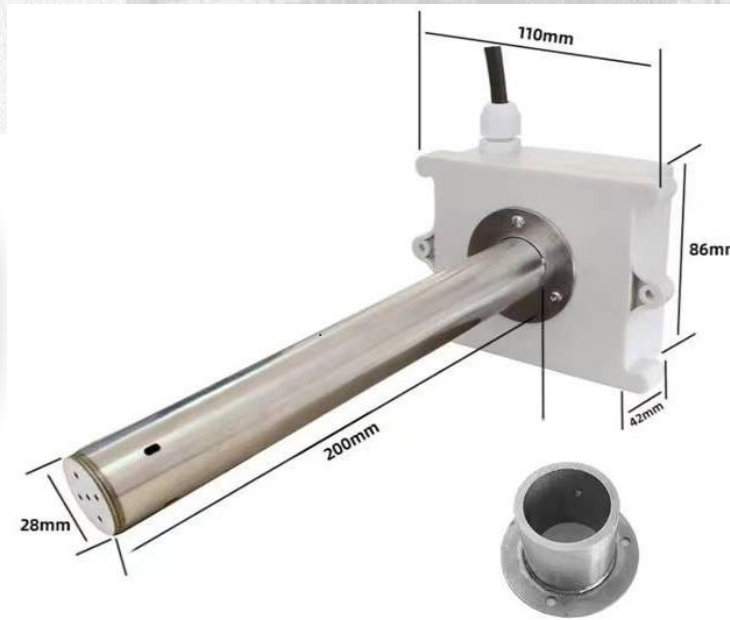
- Reduced site monitoring staff at each site
- Real Time alert system for Safety monitoring
- Remote monitoring at Control Room
- Dashboard for Management Review
- Attendance Record for different contractors
- Analytic data for work site safety and usage





Air Quality Sensors

Different housing for different needs



Shock-approval Certification	Ex d IIC T6 Gb
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LoRaWan Manhole Monitoring



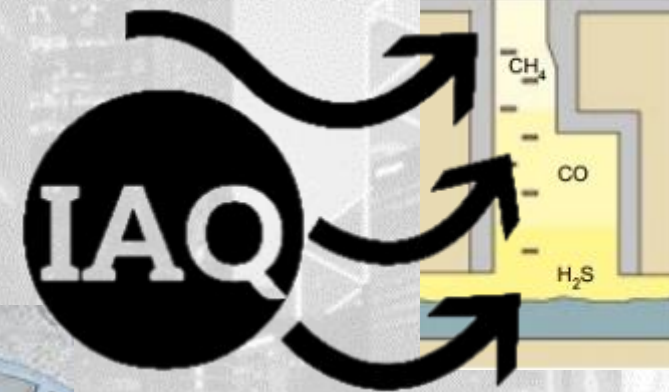
ChinoINT provides both indoor / outdoor edge computing LoRaWan gateway to simplify and ease the installation



Immersible water level monitoring



Simple & effective cover monitoring



Air Quality monitoring

ChinoINT specializes in wireless customization to overcome signal transmission issue due to manhole structure

9-II - Health Monitoring for personnel (LoRaWan based personnel health track)

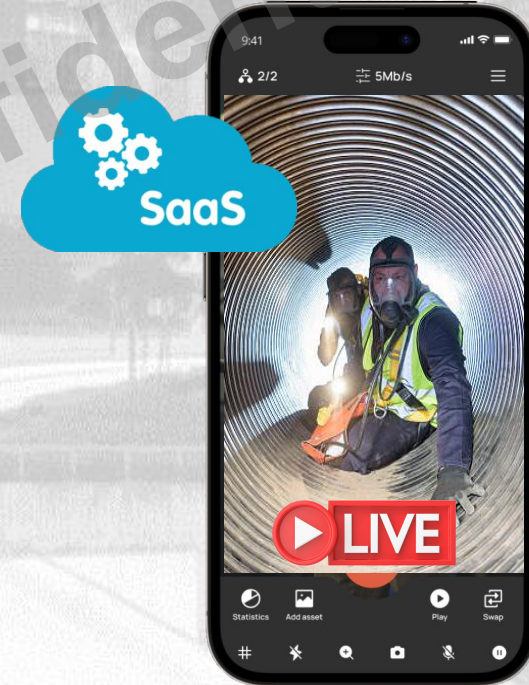


9-III - Real Time Monitoring at Entrances (Latest requirement)

First level of monitoring:
7/24 always on camera monitoring
with local storage



Second level of monitoring:
Real time streaming integrated with CMP



IOT sensors & Monitoring (anti-burst is a must)

dissolved H₂S

- detect illegal sumping of waste



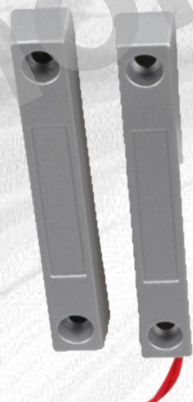
Air Quality

- confined space gases detection
- H₂S
- CO
- Methane



Cover Status Monitoring

- detect lost or stolen
- avoid danger



Water Level

- detect abnormal rise of level
- Potential AI application with real time data from HK Observatory



10 虛擬實境安全培訓

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Unsafe acts / dangerous situation alert for tower crane lifting zone

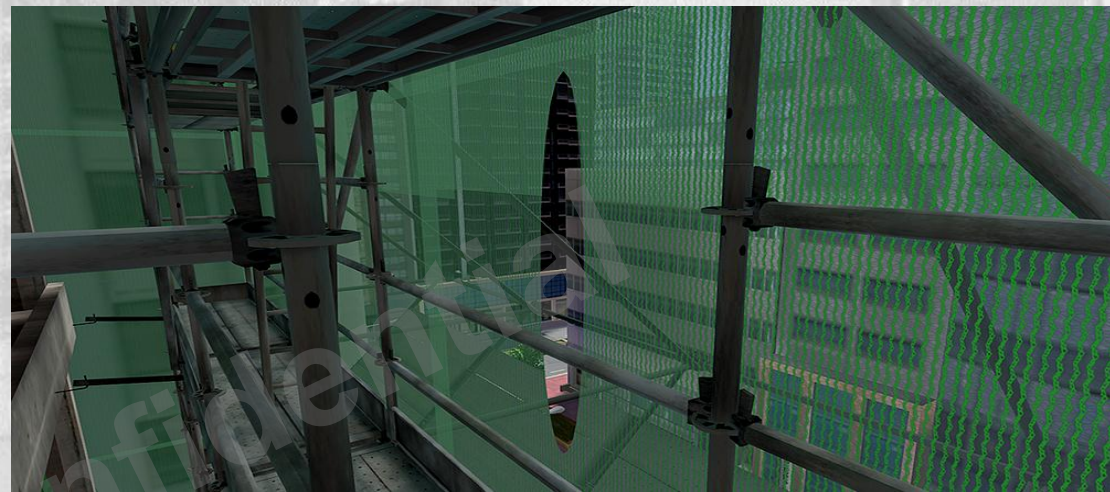
7 前線工人智能監控設備
Smart monitoring devices for workers and frontline site personnel

8 人工智能安全監察系統
Safety Monitoring System using Artificial Intelligence

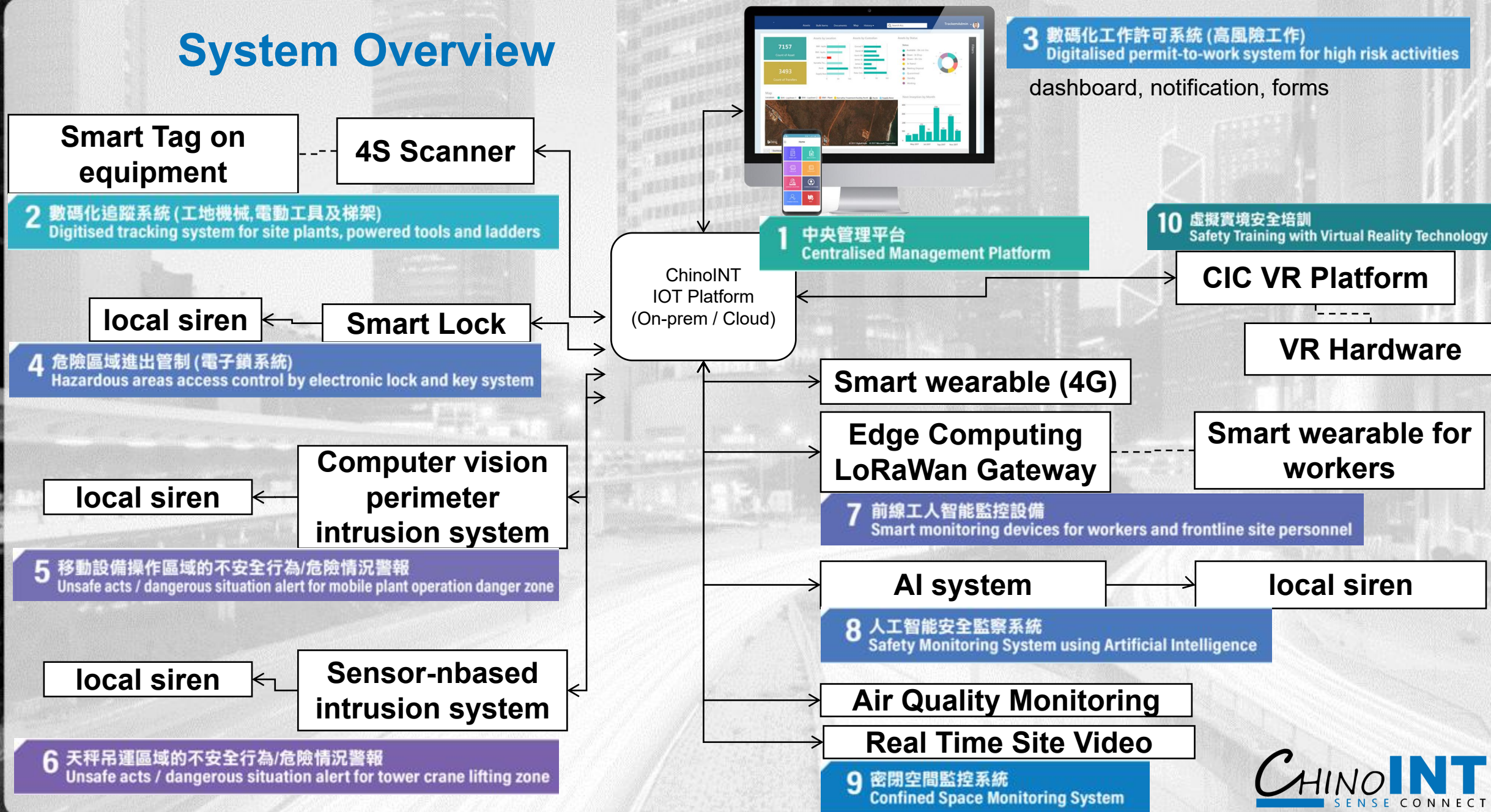
9 密閉空間監控系統
Confined Space Monitoring System

10 虛擬實境安全培訓
Safety Training with Virtual Reality Technology

VR Training



System Overview



CIC Pre-Approved Solutions

PA24-102

AI construction site monitoring Box



- accuracy >95%
- upto 32 computer vision modules
- slim design
- all-in-one
- simple installation



Nga Ying Decoration Ltd
Por Mee Factory Building

PA25-023

Vehicle Collision Avoidance System



- accuracy $\leq 10\text{cm}$
- detection range 0.1 to 100m
- easy installation
- local + APP notification



PA-698

Confined Space Management System



- helmet detection (non-video)
- prolonged stay detection
- real time location
- contractor attendance system



Solutions & References



Smart Solutions Done Smartly

Region	Name	End user	Year of Completion
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2020
Hong Kong	SSSS - Confined Space management	CLP - Castle Peak Power Plant	2019
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2021
Hong Kong	SSSS - Confined Space management	CLP - Castle Peak Power Plant	2021
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2022
Hong Kong	SSSS - Confined Space management	CLP - Castle Peak Power Plant	2022
Hong Kong	SSSS - Turbine Work Safety Video Analytic	CLP - Black Point Power Plant	2021
Hong Kong	SSSS - Personnel management for containers during COVID	CLP - Castle Peak Power Plant	2021
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Nga Ying Decoration Ltd	2024
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Por Mee Factory Building	2024
Hong Kong	SSSS - UWB-enabled Collision Avoidance System for Vehicle	SUEZ - IWTS	2021
Hong Kong	SSSS - Ming Ying College Maintenance	Chun Wo / EMSD	2025
Hong Kong	Smart Metering - LoRaWan	SUEZ - IWTS	2021
Hong Kong	Smart Toilet - LoRaWan	Hong Kong International Airport	2022
Hong Kong	Smart Toilet - LoRaWan	Poly University	2021
Hong Kong	Smart Facility Management - LoRaWan @ M+	ASD	2021
Hong Kong	Smart Facility Management - LoRaWan	Kadoorie Estates Limited	2020-2023
Macau	IOT Hub	Kai Tak Sports Park	2023
Hong Kong	Smart Elderly Center - Zigbee	Vila Medalena Macau	2019
Hong Kong	Smart Metering	Poly U	2020
Hong Kong	Smart Toilet	Poly U	2022
Hong Kong	Smart Facility Management - Water leakage Detection	Queensway Government Office	2022
Hong Kong	Smart Visitor Management - People Counting	Hong Kong U	2020
Hong Kong	A.I. / ViGiSense - AI Fall Prevention System	Pine Care Point	2025
Hong Kong	AI Pipe Blockage Detection	Legislation Council / ASD	2025
Hong Kong	Smart Chiller Plant Monitoring	EMSD	2023

Video Analytic of SSSS - CLP

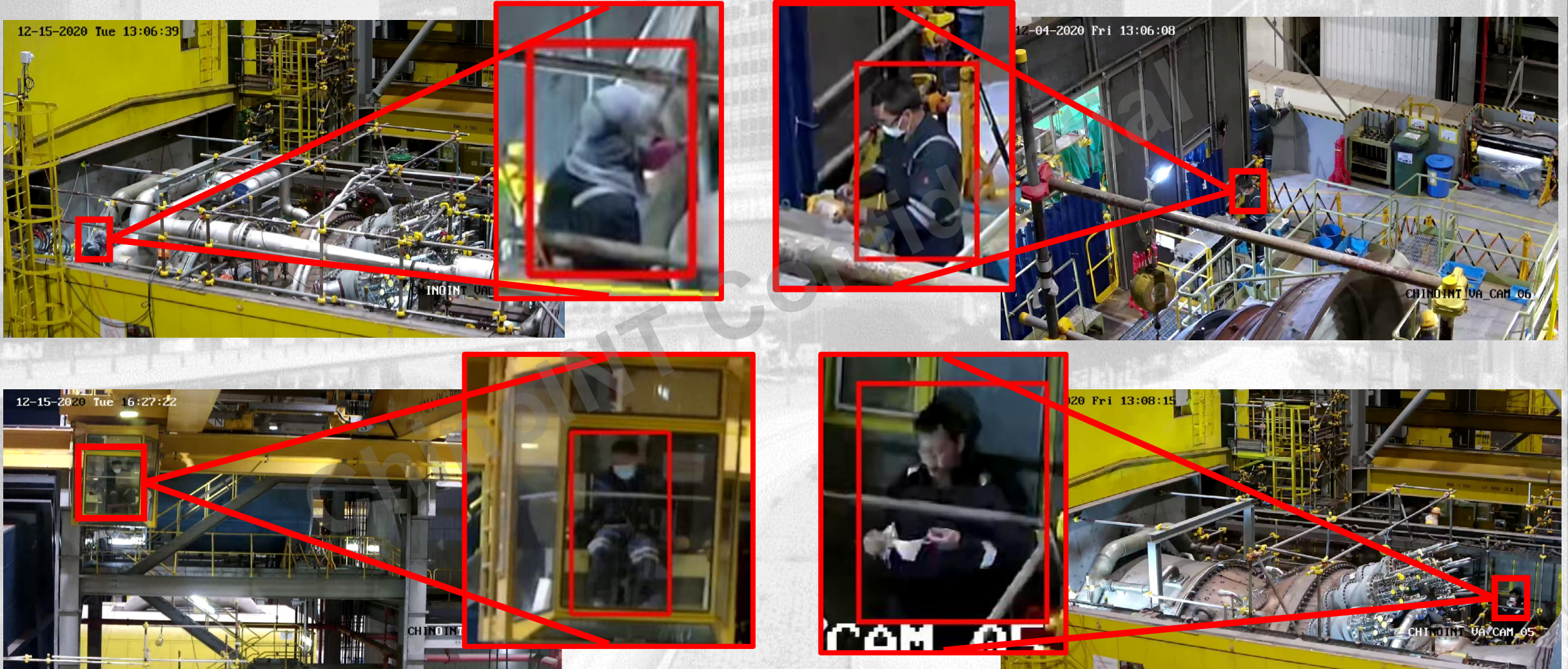


SSSS - Confined Space Management @ Power Plant & University



Safety Helmet Recognition

Able to catch workers without safety helmet onsite, safety issues have no way to hide



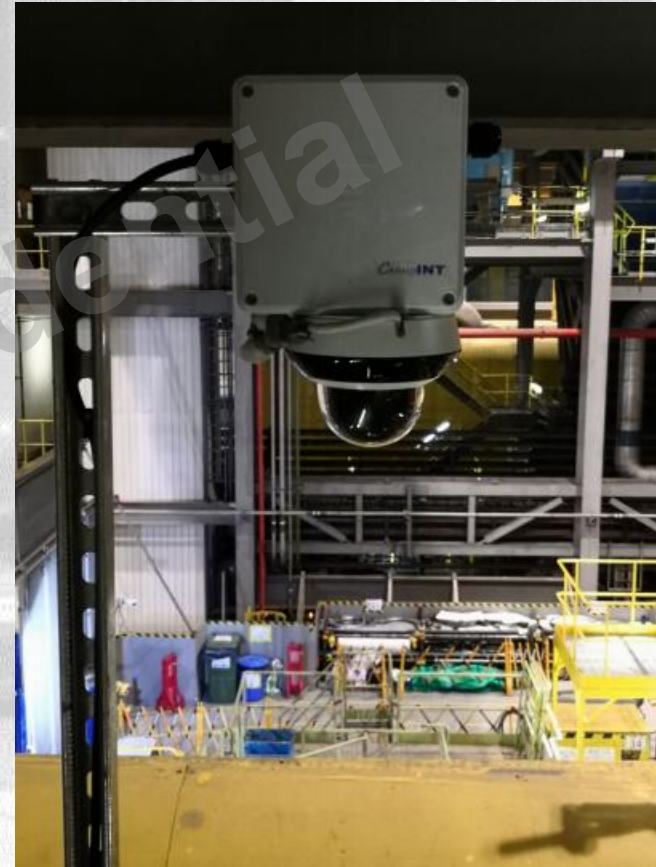
Safety Belt Recognition

Able to catch workers without safety belt onsite, no alert for those with safety belt



Simple and Neat installation

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SSSS - Collision Avoiding System @ Transfer Station

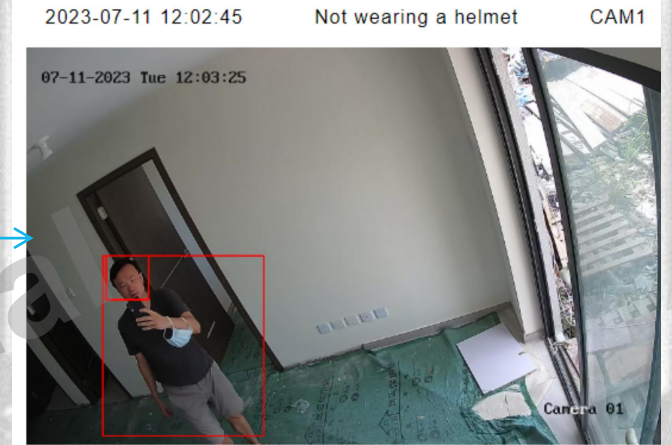
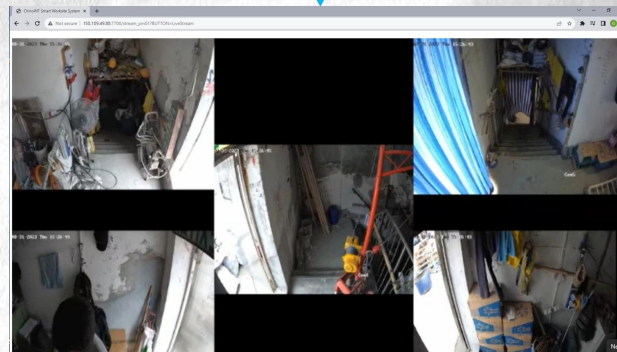
ChinoINT also masters on latest technology such as UWB to design real time monitoring system to raise safety to the next level



Rich functionality

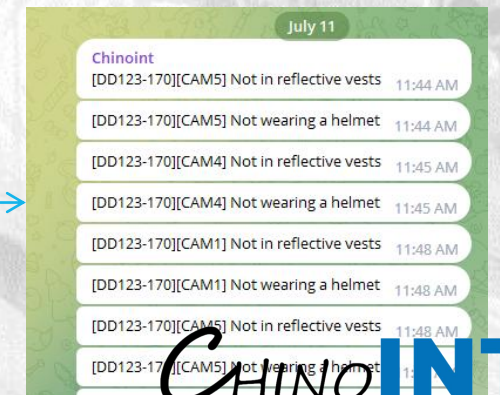
- Human face recognition
- human body recognition
- license plate recognition
- smoke and flame recognition
- helmet recognition
- phone calling recognition
- cigarette smoking
- gathering of people recognition
- work clothes recognition
- leaving work and sleeping recognition
- zone intrusion warning
- human fall recognition
- running recognition
- clothes color
- Fire escape blockage identification
- etc

SSSS - 5G AI Safety Monitoring



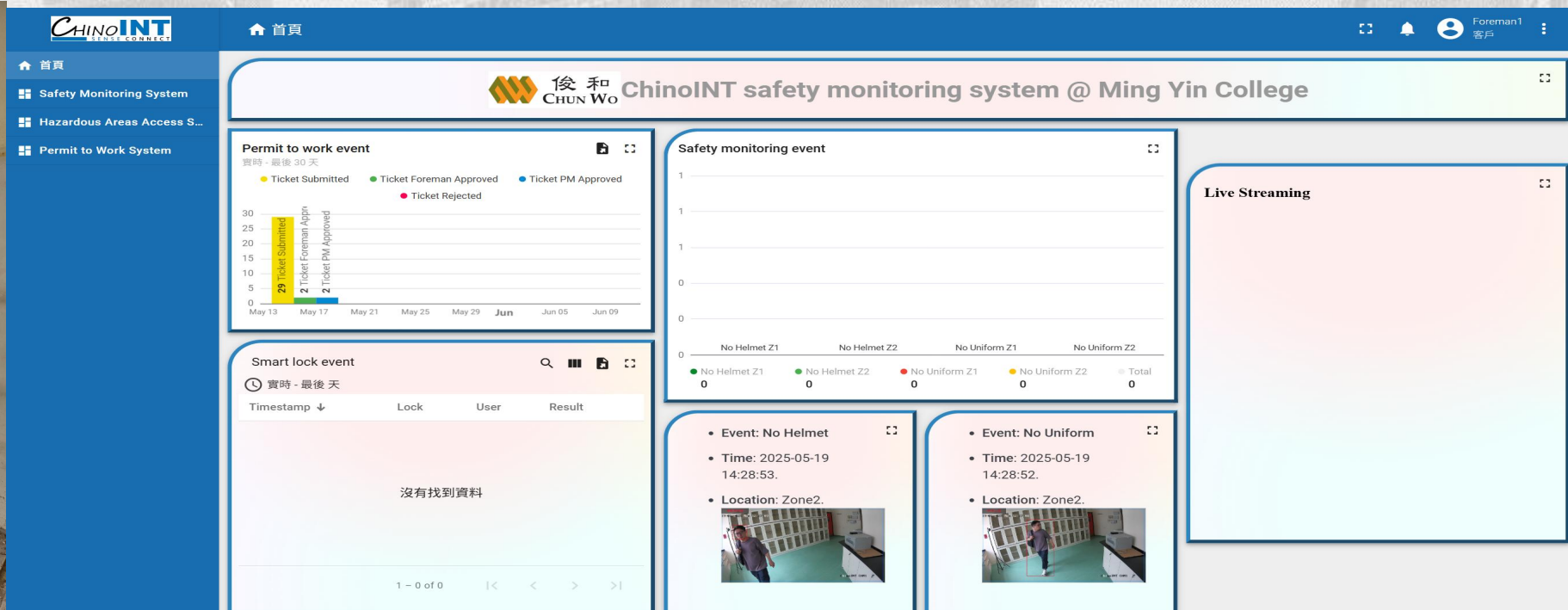
Platform alert: AI detects "not wearing a helmet" under CAM1

- Real time streaming
- APP Notification
- Evidence with photo

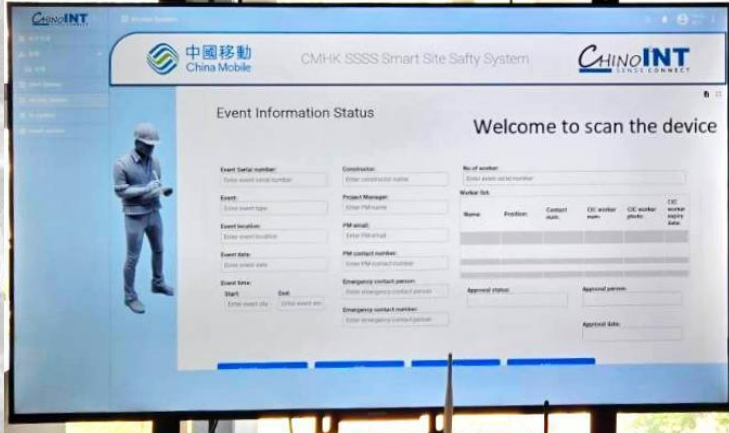
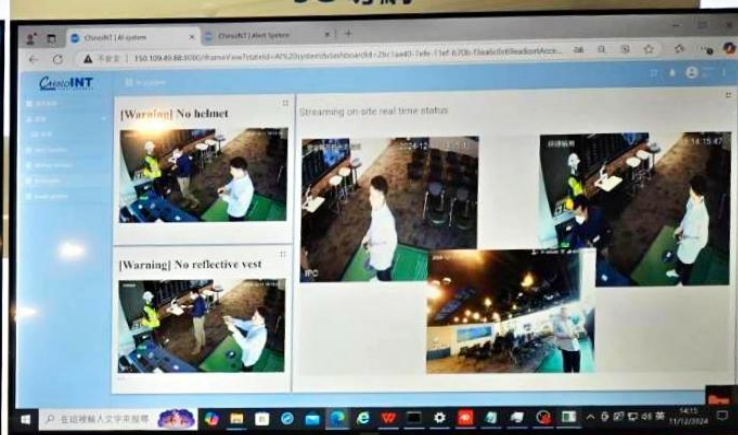
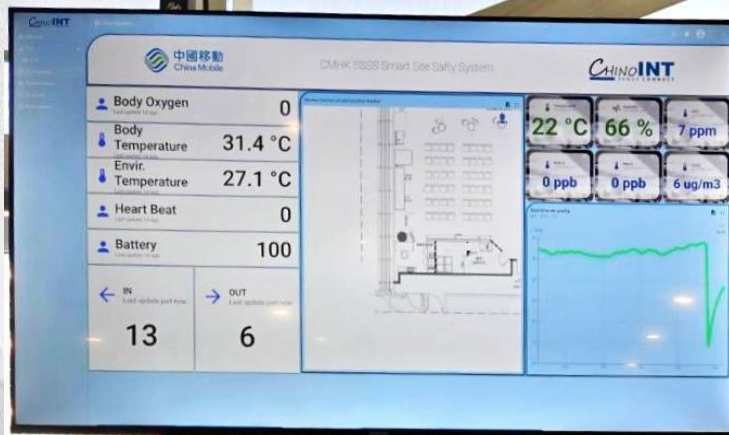
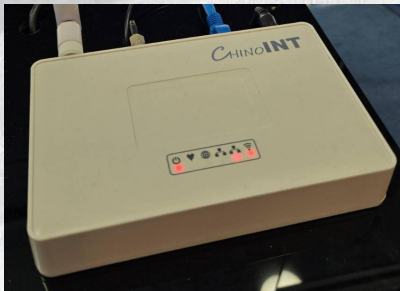
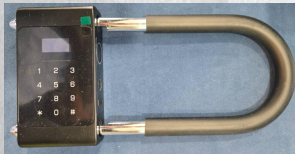


CHINOINT
SENSE CONNECT

SSSS - ChunWo CMP & Maintenance Project



ChinoINT X CMHK: SSSS with 5G Open Lab @ HKSTP





Thank You

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