CHINOINT
SENSE CONNECT

AIOT

SENSE CONNECT

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Who is ChinoINT?

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v20210601

Partners & Customers in Next Gen Smart Solution

CLP 中電

SUEZ

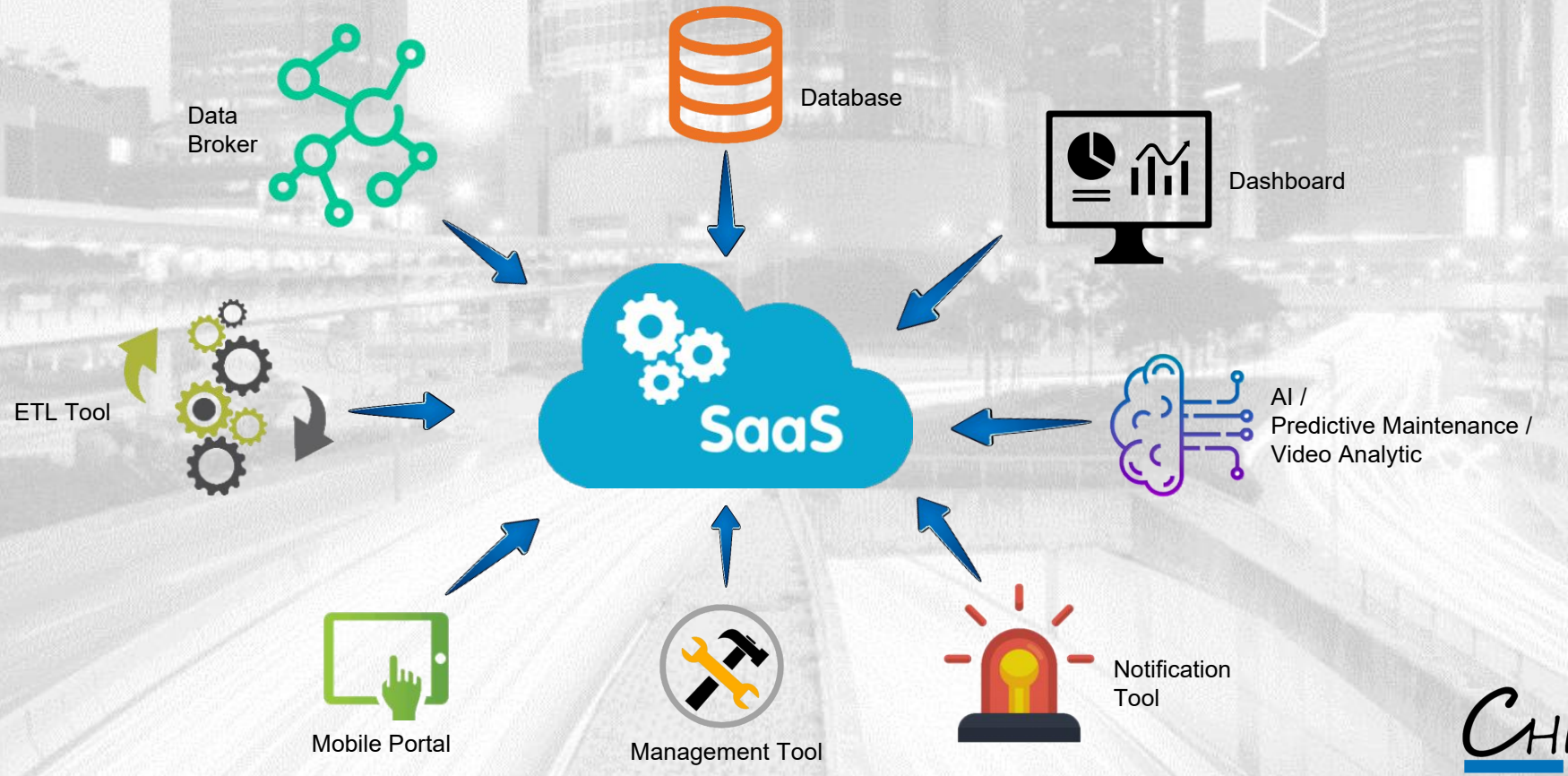
IBM

SIEMENS

ITChannel

ChinoINT SaaS

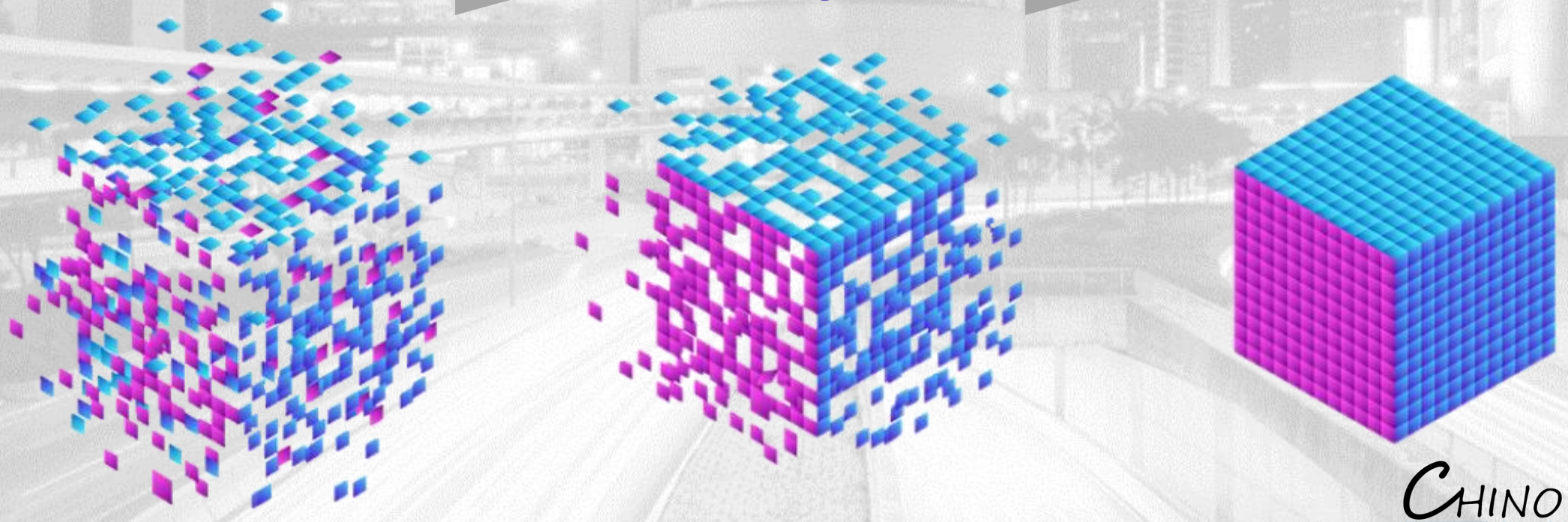
ChinoINT creates the next generation SaaS and IOT platforms.
The SaaS is a complete platform including data broker, ETL tool, Database, dashboard, management tools, mobile portal and notification tools, etc. This fulfills all your IOT needs and generates extra values to our clients.



ChinoINT Big Data Analytic

ChinoINT is the Data Expert.
Not only expert in wireless sensor design, but also in data consolidation, storage, manipulation, analytic and data visualization.
Our experts help you to drill into the hidden meaning of data, and generate insight from the data.

BIG DATA → **Analytic** → **INSIGHT**



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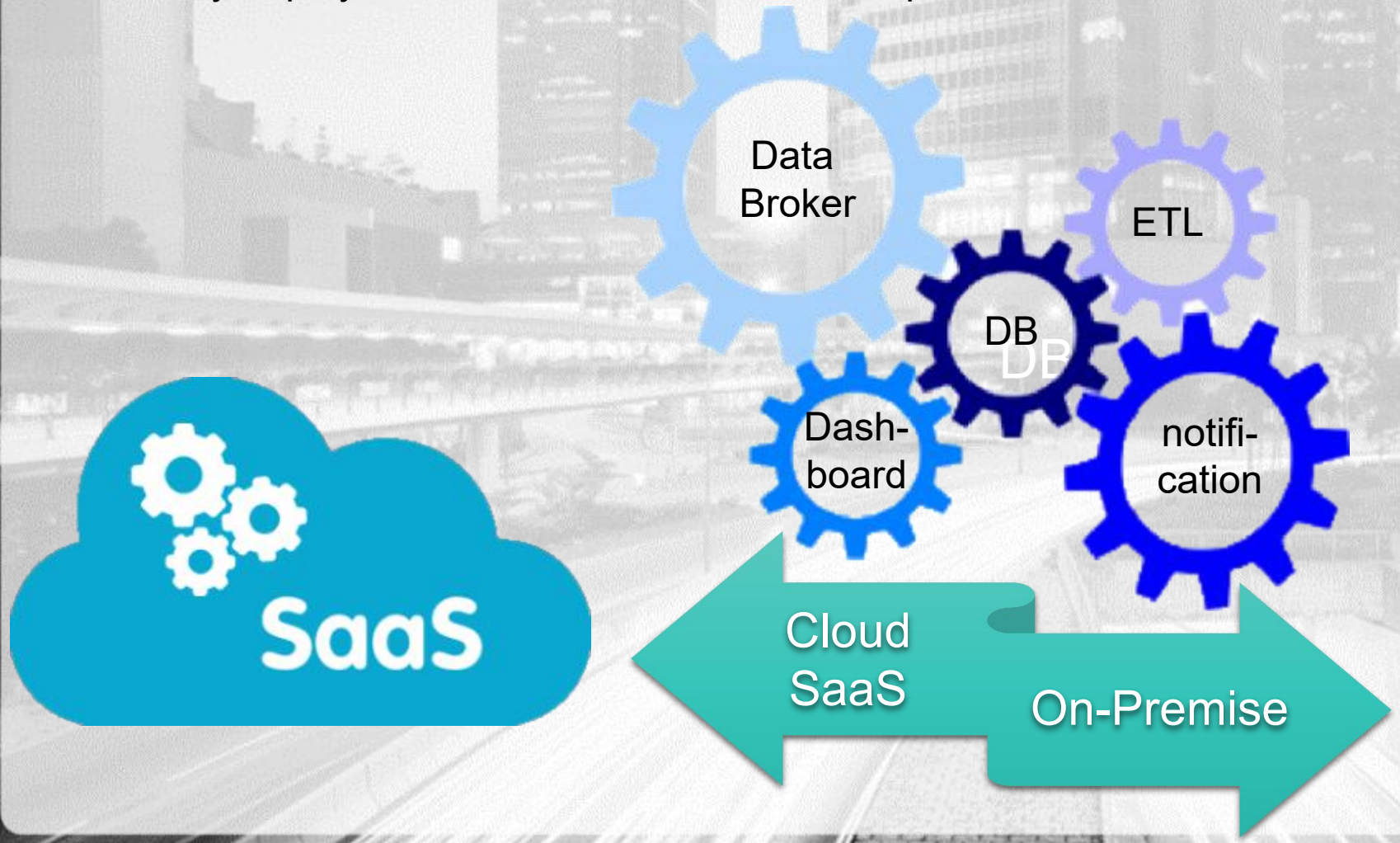
Software Platform

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



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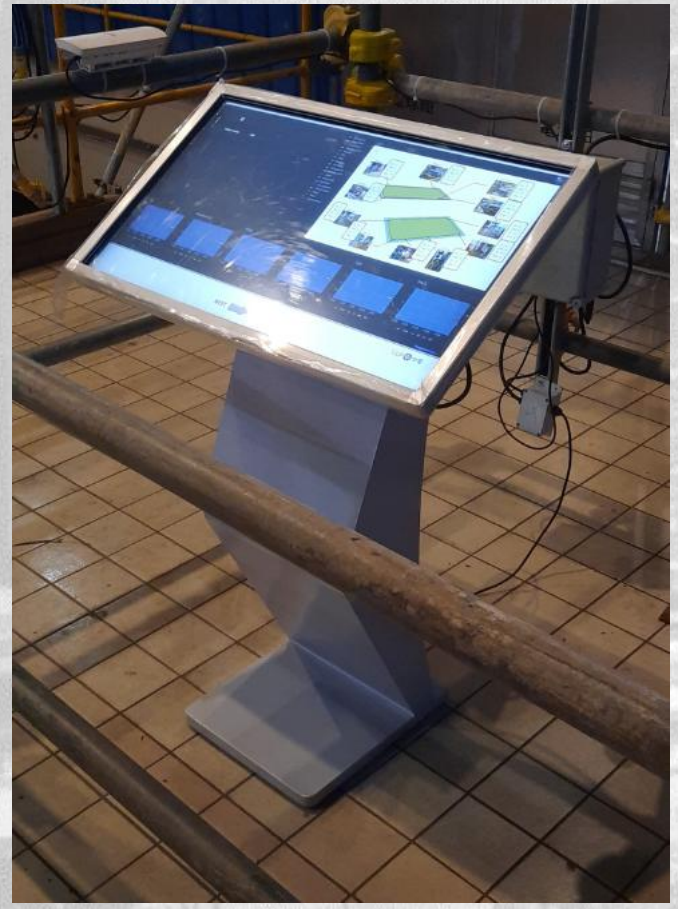
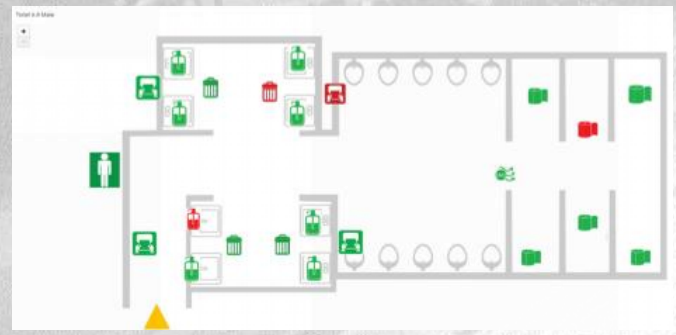
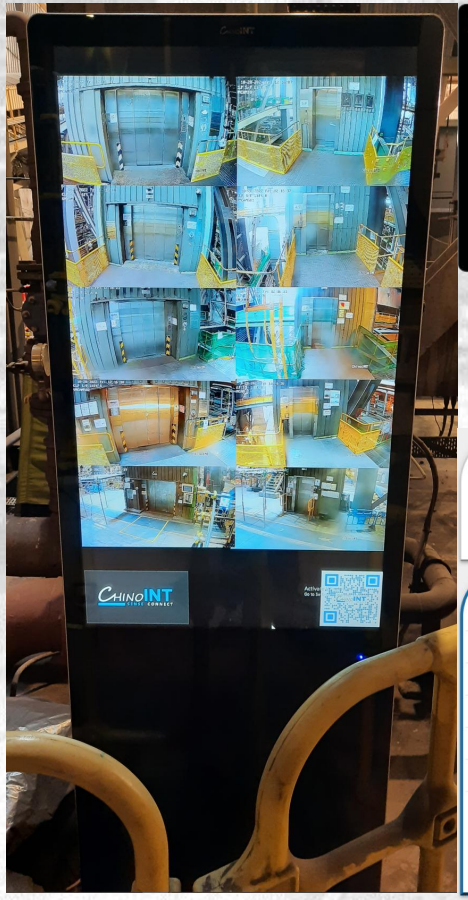
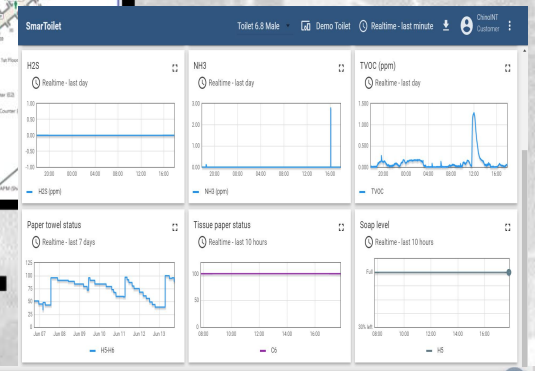
Dashboard

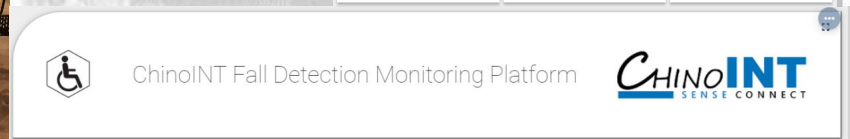
Clean and clear dashboarding is one of the key element in an IoT system. The Smart Toilet platform provides easy to use dashboard, with multi-layer user account settings. GUI Maintenance Portal is provided with the platform. Both desktop and mobile version (Android and IOS) are available.

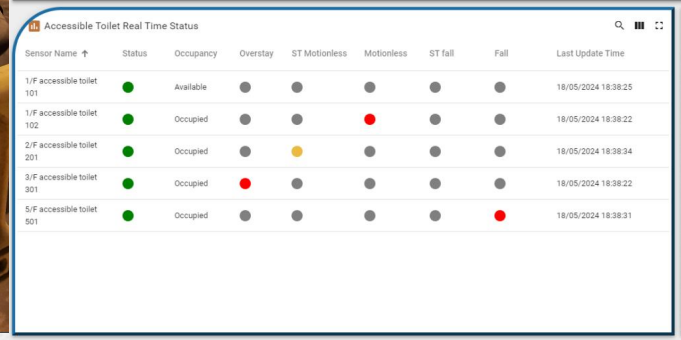












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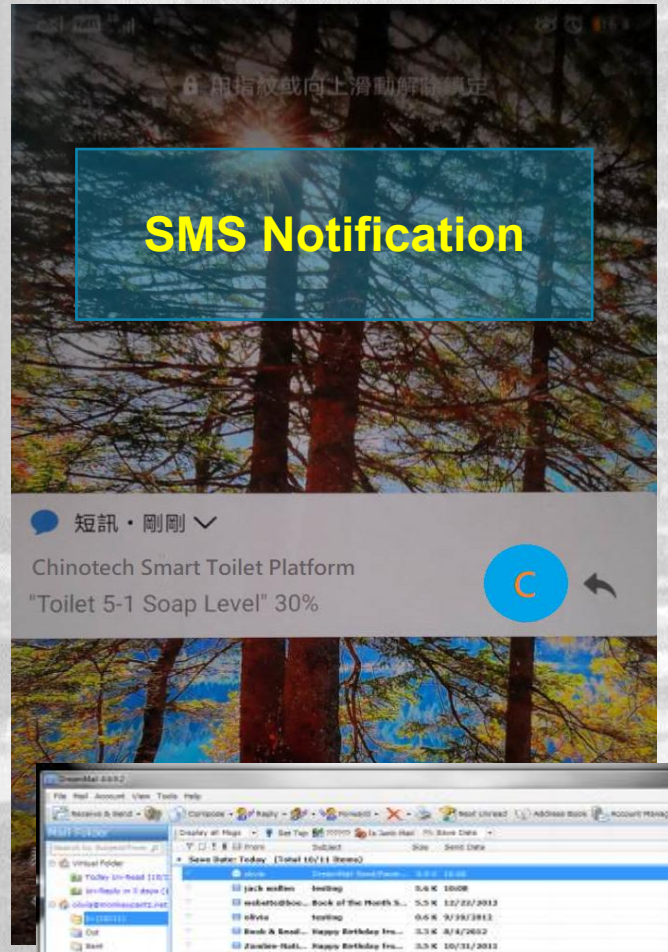
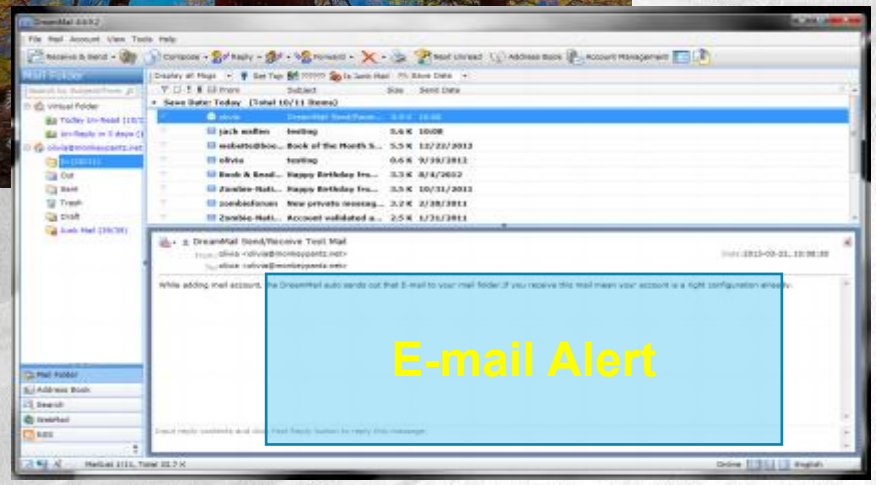
Notification

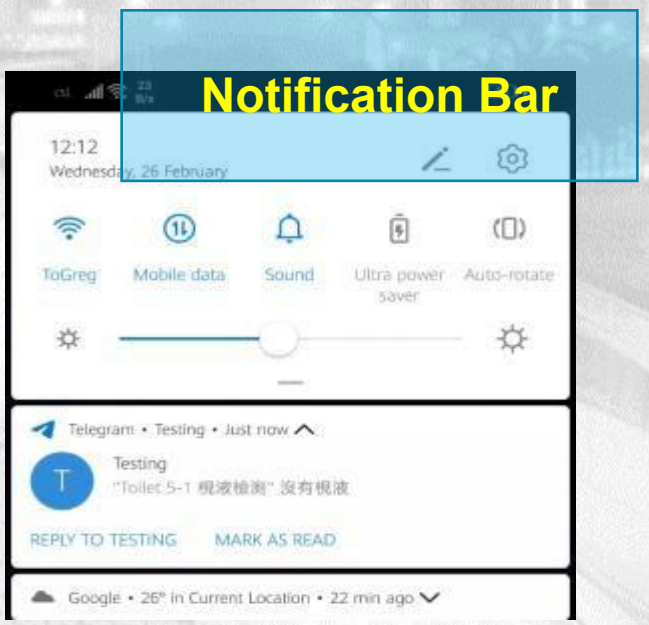
Notification is one of the crucial feature for Smart Toilet, in order to achieve on-demand cleaning and best resource utilization.

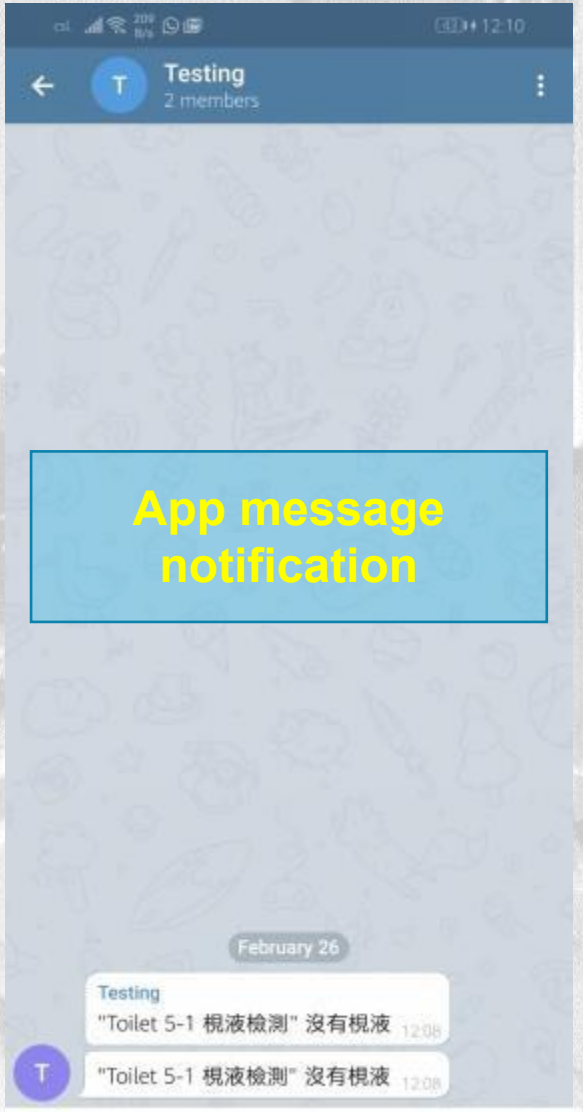
Notification can be done through app, notification bar alert, SMS and through e-mail.

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









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A.I. Flood Monitoring System

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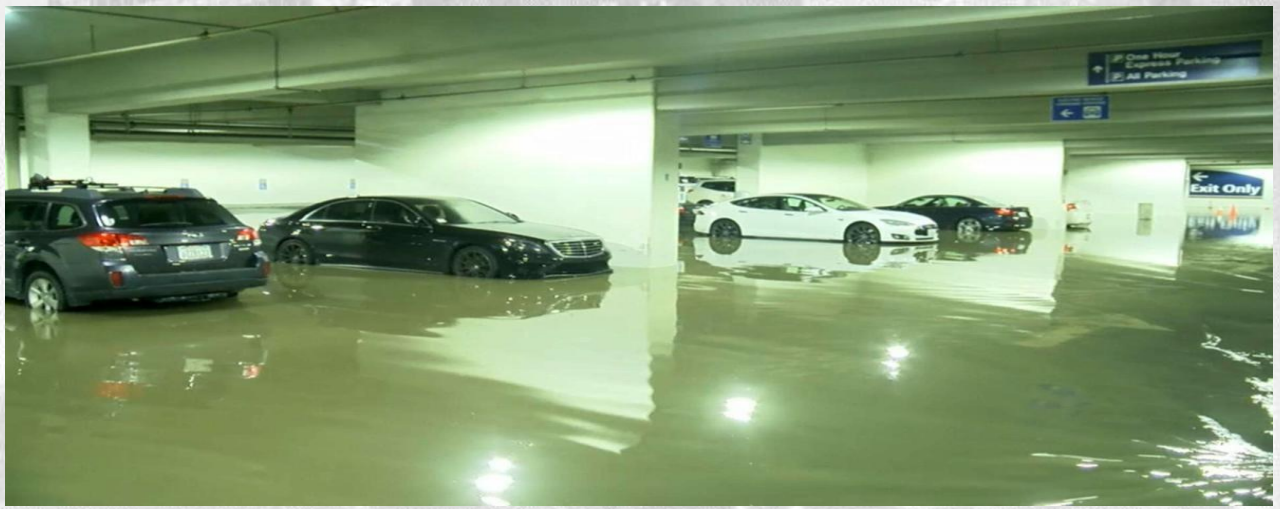
Pain Points



- Premise down time = profit lost
- property damage
- equipment damage
- huge claims from tenants / customers
- lost of goods
- lost of life

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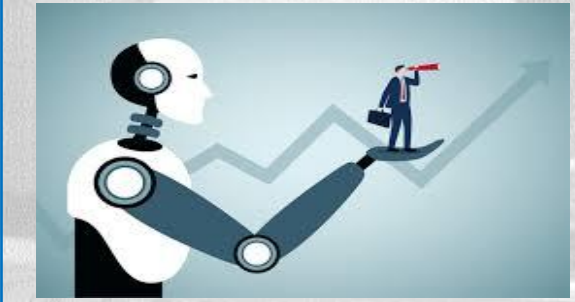
A.I. Flood Monitroing System - Prediction + Prevention + Action

Prediction & Monitoring



Pipes blocking?
Drainage blocking?
Water level rising?
The A.I. and machine learning engine can tell you when and where.

Prevention

With early insight generated by the predictive engine, disaster can be reduced and lost minimized by maintaining a healthy water system.

Action

At critical time, and at the right time, the AI system reacts to avoid further lost.

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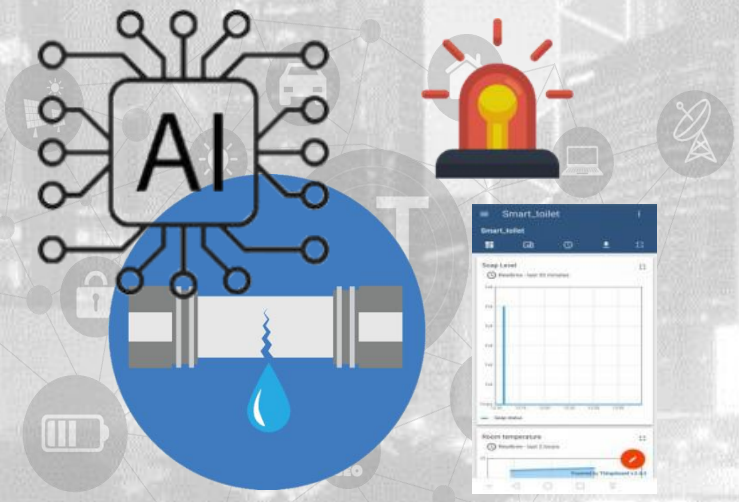
Prediction - A.I. Pipe Blockage Monitoring



With specially designed sensors and AI algorithms, we can tell you the health condition of the pipes.
Not only ONE pipe, but monitoring network of pipes about blocking pipes.
Thus, gives insight to potential flooding.

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Prediction - A.I. Drainage Monitoring

Drainage system need to be monitored on health conditions.
More than pipes, the water level of wells and drainage gives you critical info about upcoming flooding.

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Prediction - Real World Data

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HONG KONG OBSERVATORY
The Government of the Hong Kong Special Administrative Region

To enhance the model accuracy, our algorithms take into account the open data from the Hong Kong Observatory, to produce even better predictions.

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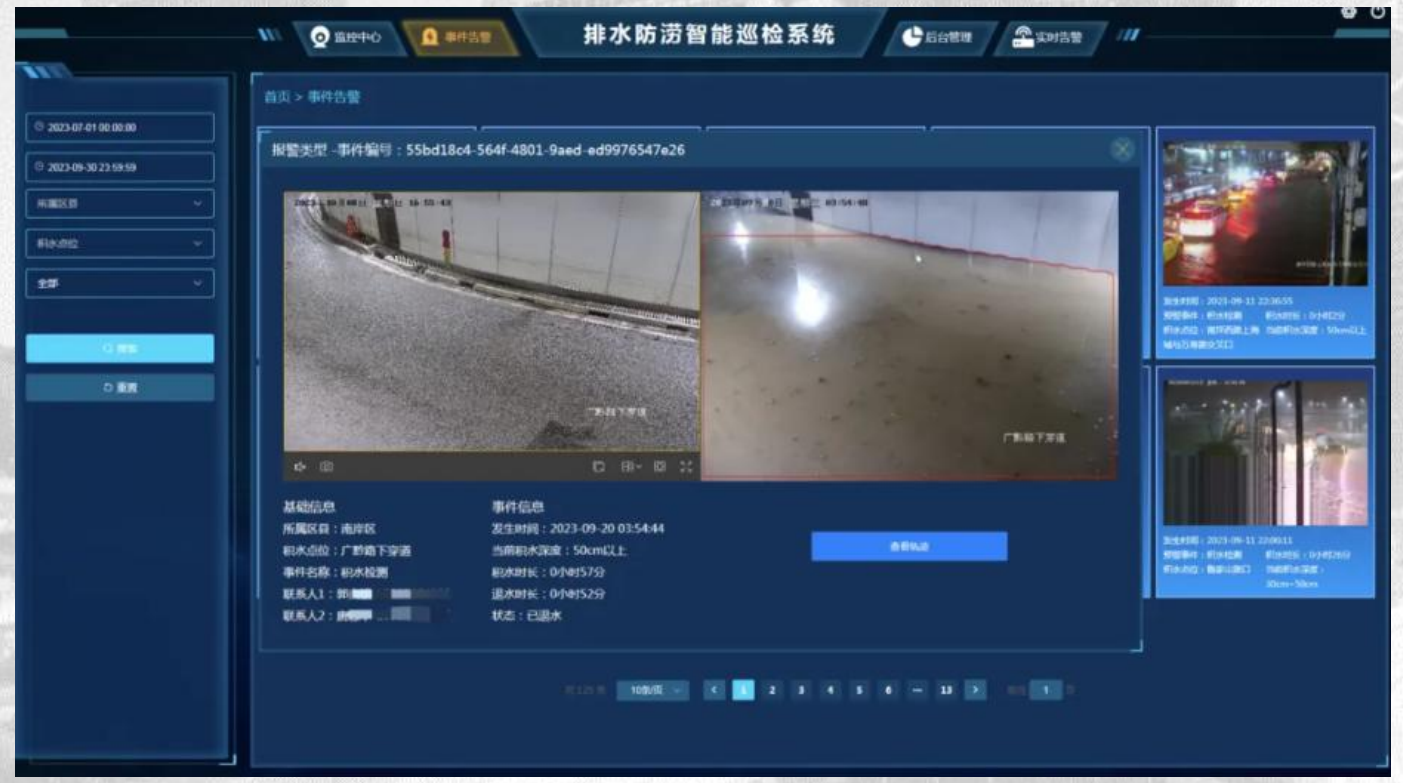
Monitoring - Computer Vision Water Level Monitoring



Drainage, river, waterway, etc can be monitored by using computer vision.
This tells the sudden increase / raise in water level.

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IOT Monitoring Sub-System - Water Leakage Monitoring

Simple yet useful.
Water leakage monitoring system offers extra bit of information on flooding.

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Prevention - A.I. Initiated On-Demand Maintenance

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Action - Reduce lost (switch off equipment, close gate)

At critical times, you may want to operate the flood gates, or switching on the pumps, or switching off some equipment to reduce lost.....

Remote Control at ease - ChinoINT Sensor Node

This little trick turns almost all of your equipment into wireless and remote controllable. It accepts protocols such as RS485, UART,I2C, SPI, 4-20mA, 0-10V dry contact, BACnet, etc.
It can also be used to control voltages, and power on/off.
The centralized control and data points are convenient for Facility Management Team.
Powered by battery makes it easy for deployment.
It is fully certified by OFCA with the HKCA1078 certification.

Parameter	Spec
Name	LoRaWan Sensor Node
ChinoInt Part Number	AECIHWSNE200
Dimension	83 x 58 x 33mm (Housing can be custom-made to fit application)
Uplink	LoRaWan 1.0.2
Max Output Power	20dBm
Receiver Sensitivity	-148dB
Sensor Protocol	RS485, UART, I2C, 4-20mA, 0-10V, GPIO x 3
Frequency	CN470 / EU433 / AS923
Battery	3.6V 3500mAh
Battery Life	10 years standby (30 min heartbeat, sensor loading excluded)
Low Power Alert	Support
Certification	FCC, HKCA1078

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ChinoINT Sensor Node - Illustration

LoRaWan Sensor Node

LoRaWAN®

ChinoINT AIoT Platform

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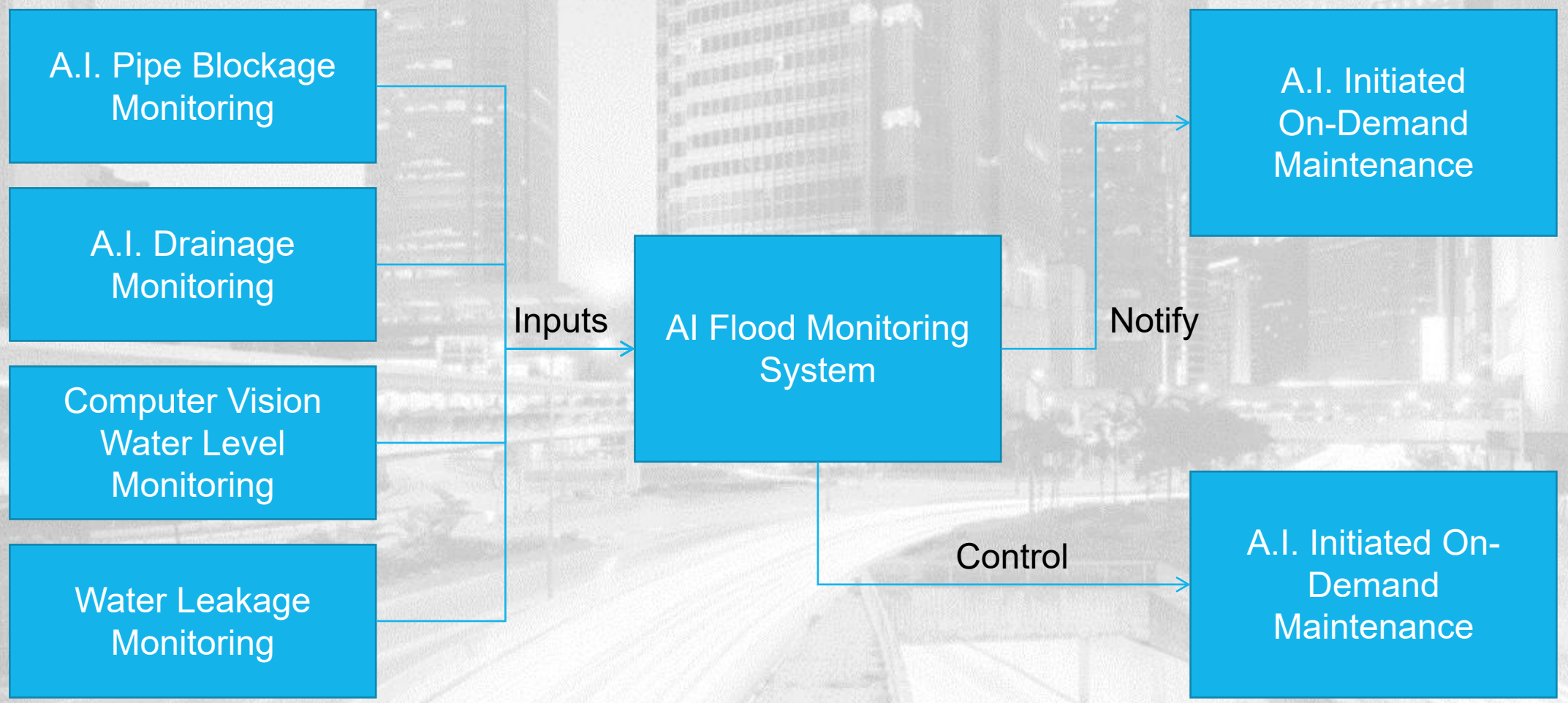
Operation Flow



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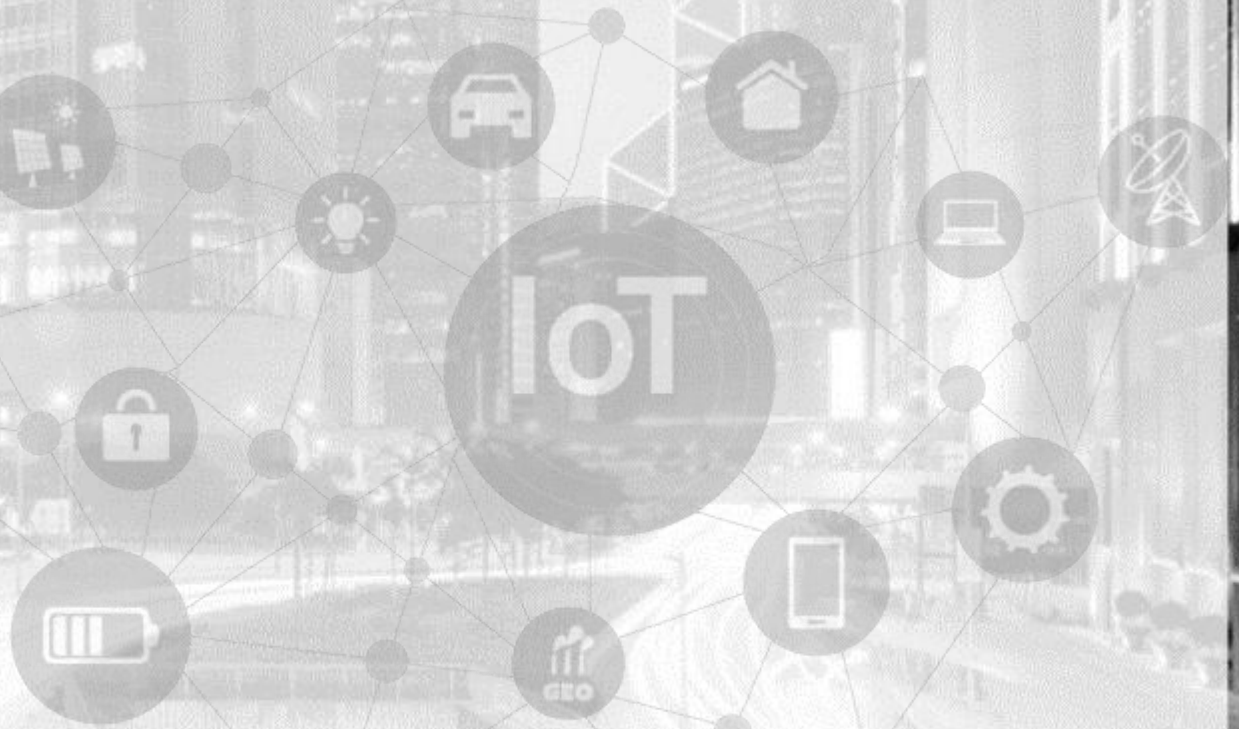
Solutions & References



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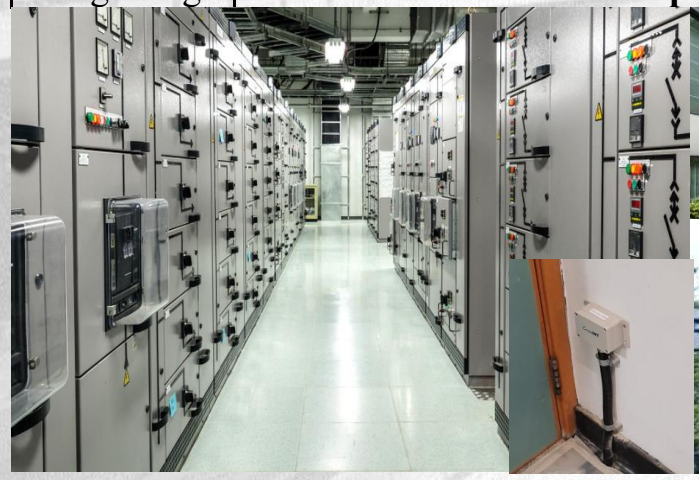
Smart Solutions Done Smartly

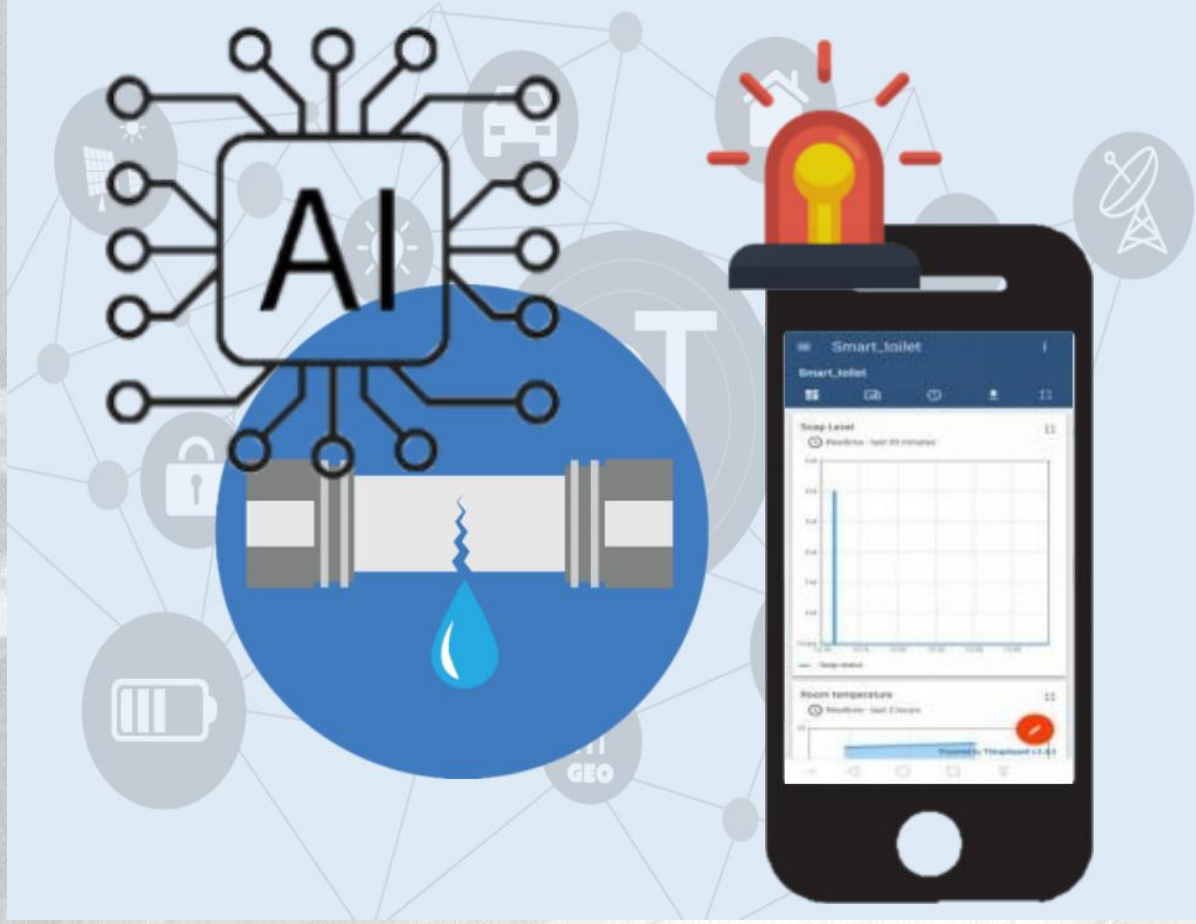
Region	Name	End user	Year of Completion
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2020
Hong Kong	SSSS - Confined Space management	CLP - Castle Peak Power Plant	2019
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2021
Hong Kong	SSSS - Confined Space 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	2023
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Por Mee Factory Building	2023
Hong Kong	SSSS - UWB-enabled Collision Avoidance System for Vehicle	SUEZ - IWTS	2021
Hong Kong	Smart Metering - LoRaWan (POC)	SUEZ - IWTS	2021
Hong Kong	Smart Toilet - LoRaWan	Hong Kong International Airport	2022
Hong Kong	Smart Toilet - LoRaWan (POC)	Poly University	2021
Hong Kong	Smart Facility Management - LoRaWan @ M+	ASD	2021
Hong Kong	Smart Facility Management - LoRaWan	Kadoorie Estates Limited	2020-2023
Hong Kong	IOT Hub	Kai Tak Sports Park	2023
Macau	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	Smart Faciliy Management Notification Platform	Queensway Government Office	2023
Hong Kong	Smart Chiller Plant Monitoring	EMSD	2022
Hong Kong	Smart Chiller Plant Monitoring	EMSD	2023
Hong Kong	Smart Chiller Plant Monitoring	Poly U	2023

Reference - Facility Management

Region	Name	End user	Year of Completion
Hong Kong	Smart Metering - LoRaWan	SUEZ - IWTS	2021
Hong Kong	Smart Toilet - LoRaWan	Hong Kong International Airport	2022
Hong Kong	Smart Facility Management - LoRaWan	M+ - ASD	2021
Hong Kong	Smart Facility Management - LoRaWan	Kadoorie Estates Limited	2020-2023
Hong Kong	IOT Hub	Kai Tak Sports Park	2023
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	**AI Pipe Blockage Detection**	Legislation Council	2024
Hong Kong	Smart Chiller Plant - Yau Ma Tei Public Cargo smart switchboard	EMSD	2022
Hong Kong	Smart Chiller Plant - Po Ning Road Clinic Smart Switchroom	EMSD	2022
Hong Kong	Smart Chiller Plant - Hong Kong Heritage Museum	EMSD	2023
Hong Kong	Smart Chiller Plant - Digitalisation of switchrooms at Lockhart Road MSB	EMSD	2023
Hong Kong	Smart Chiller Plant - Hong Kong Museum of Coastal Defense	EMSD	2023
Hong Kong	Smart Chiller Plant & **AI Pipe Blockage Detection**	Poly U	2023

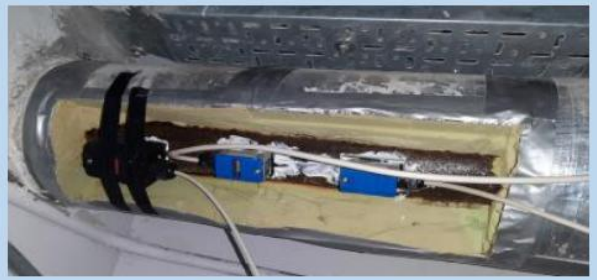


AI Pipe Blockage Detection - Legislation Council & Poly U



Readily Deployed Solution

ChinoINT Pipe Blockage Detection system has been deployed in Hong Kong, including local university and commercial buildings



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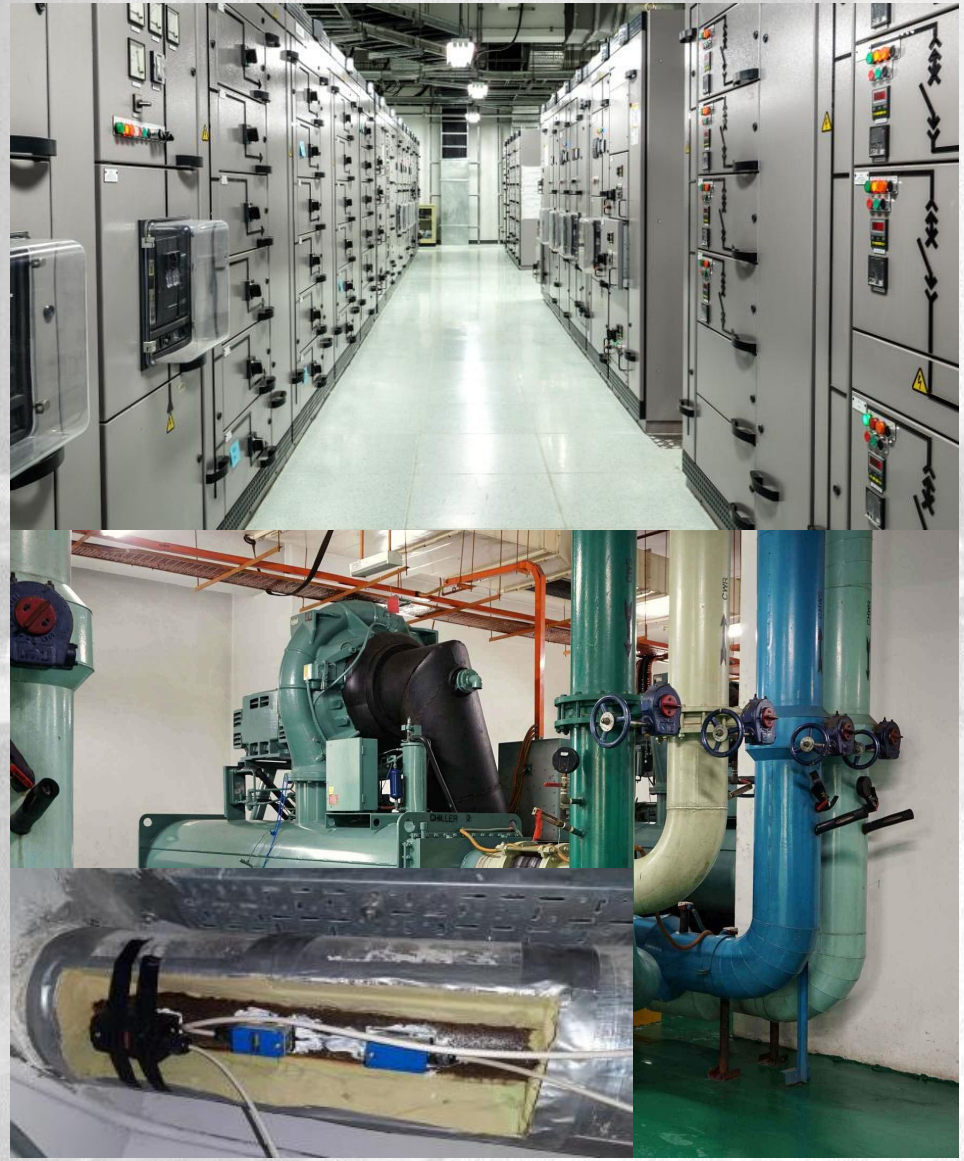
Smart Chiller Plant and Switch Room Monitoring - EMSD & Poly U



Project Background

To maintain the environment safety and real time monitoring

Project Description

LoRaWan air quality sensors including Chlorine sensors are deployed. LoRaWan sensors such as people counter, water leakage, piep monitoring are being installed.

ChinoINT successfully deployed a LoRaWan infrastructure and achieved the above goals.

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Smart Facility Management - Kadoorie Management

Project Background

A Hong Kong Real Estates Company would like to deploy a IoT system to collect the building alarms from remote sites (services apartment)

Project Description

LoRa sensors/LoRa Nodes for dry contact are deployed at their main building and remote site buildings to collect the alarm for water leakage, temperature & RH, water level, CT. pipe pressure, etc and transfer the alarms to main office via Internet.

ChinoINT successfully deployed a LoRaWan infrastructure and achieved the above goals.

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Queensway Government Office -
Water Leakage Detection & GWIN Integration

Project Background

To deply water leakage sensors and data integration to GWIN

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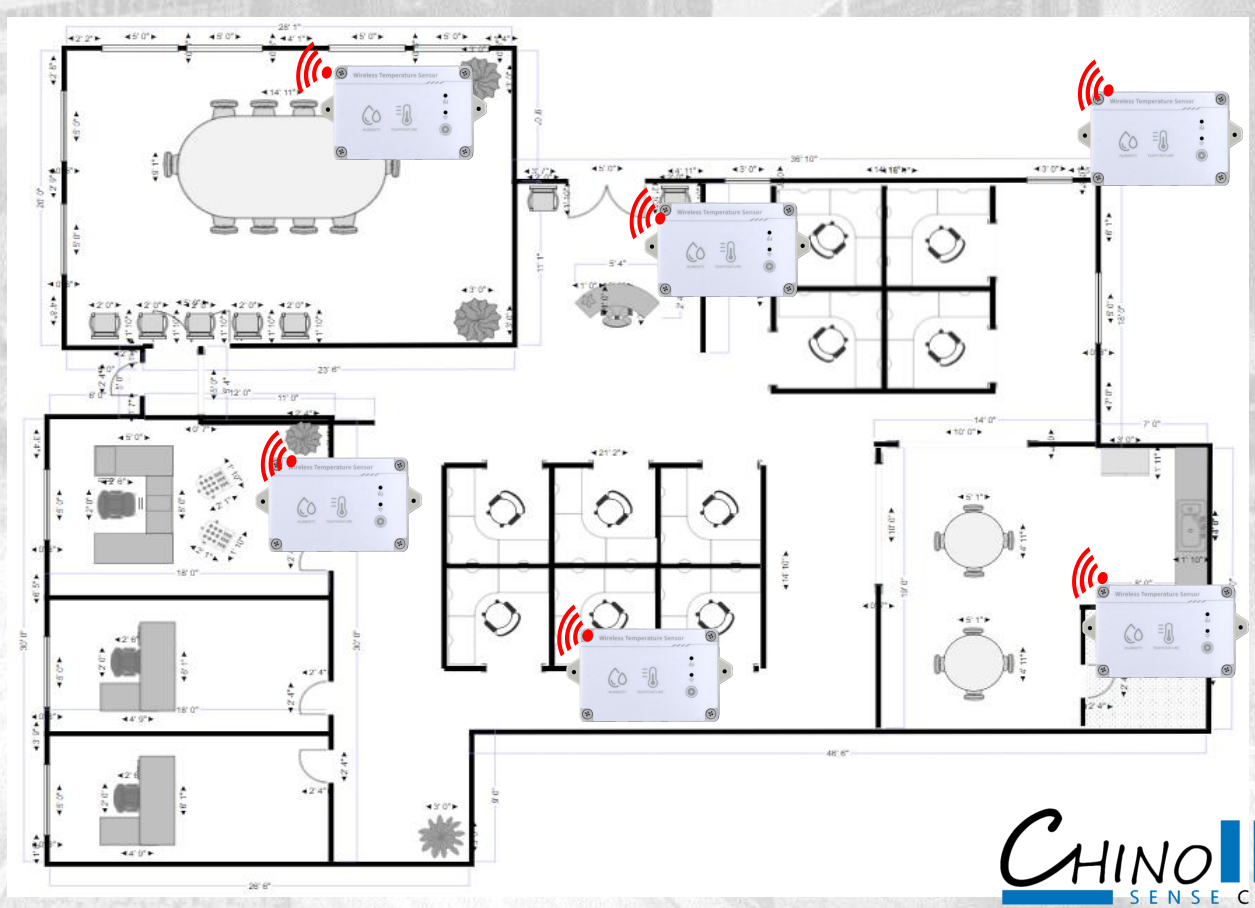
Automated Air/Con Automation @ M+

ChinoINT masters on wireless technology.
Temperature and humidity feeds to the IoT gateway.
Feedback to BMS and control HVAC locally

SIEMENS

LoRa



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IOT Hub @ Kai Tak Sports Park

CCMS + IOT Gateway

Error Handling Module

WebServic e Client

RESTful API Client

IOC

FMP

Error Handling Module

Error Handling Module

ETL

BACnet

PSIM

CCMS / BMS

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Smart Metering @ Transfer Station

ChinoINT has show-cased our strengths in IOT technologies
We have enabled smart metering solution in Transfer Station in Hong Kong
Not only providing IOT metering with fully integrated dashboard with dashboard for real time and historical data, and also enabling real time analytic and alerts with extra values

LoRaWan Meter
Battery powered
(4.5 years battery life)

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Reference - SSSS

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
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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
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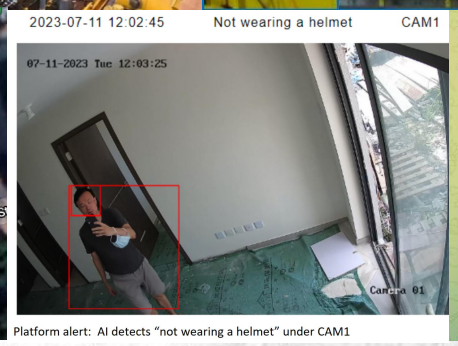

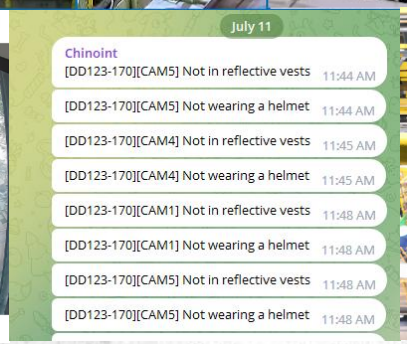

Video Analytic of SSSS - CLP

SSSS - Confined Space Management @ Power Plant & University

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SSSS - Collision Avoiding System @ Transfer Station

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

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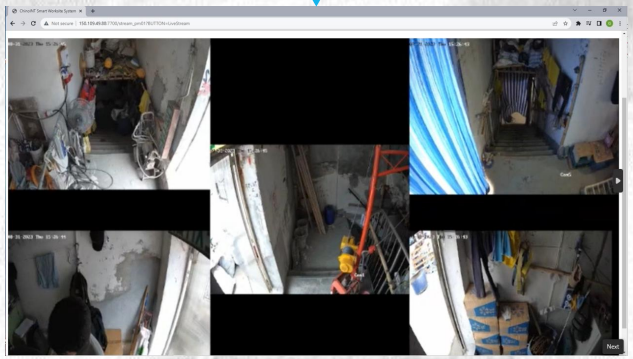
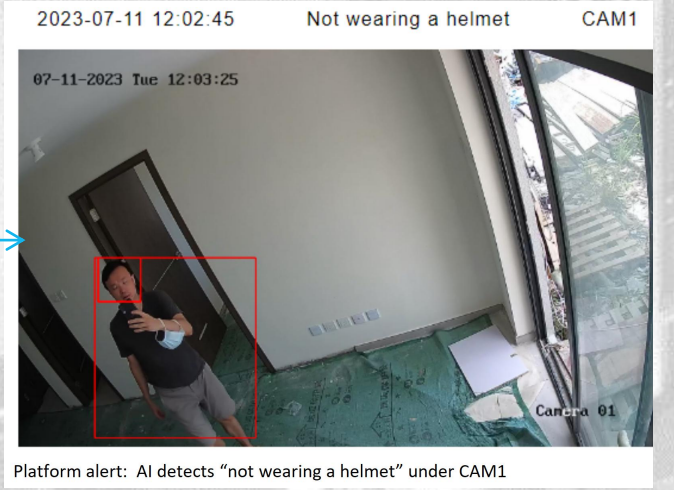
SSSS - 5G AI Safety Monitoring

Rich functionality

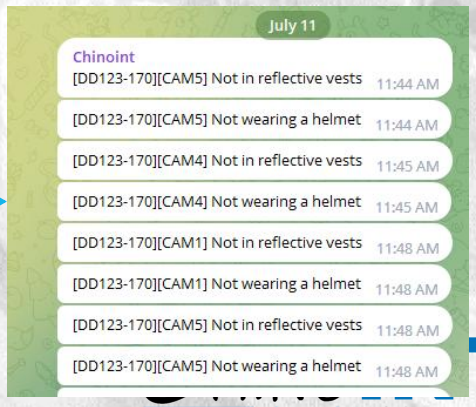
- Human face recognition
- human body recognition
- license plate recognition
- smoke and flame recognition
- helmet recognition
- phone calling recognition
- cigarette smoking
- gathering of people recognition
- work clothes recognition
- leaving work and sleeping recognition
- zone intrusion warning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





Platform alert: AI detects “not wearing a helmet” under CAM1

- Real time streaming
- APP Notification
- Evidence with photo



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Reference - Smart Toilet & Air Quality

Region	Name	End user	Year of Completion
Hong Kong	SSSS - Confined Space management	CLP - Black Point Power Plant	2021
Hong Kong	SSSS - Confined Space management	CLP - Castle Peak Power Plant	2021
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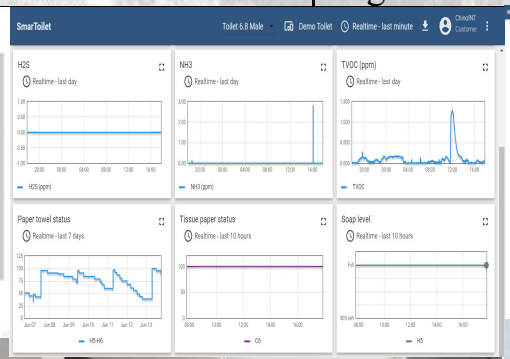
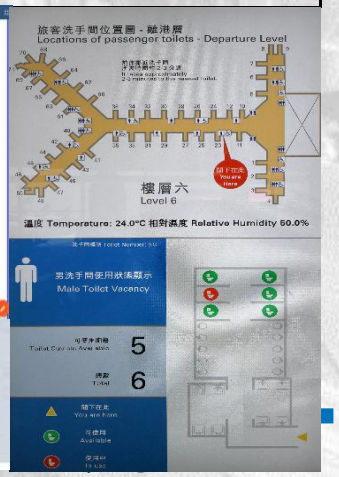
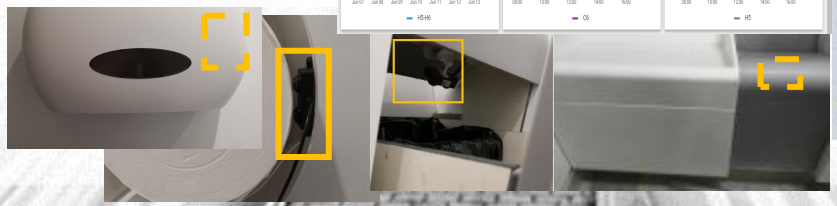
Hong Kong	Smart Chiller Plant - Digitalisation of switchrooms at Lockhart Road MSB	EMSD	2023
Hong Kong	Smart Toilet	Advance Manufacturing Center - HKSTP	2023
Hong Kong	Smart Chiller Plant Monitoring	Poly U	2023
Hong Kong	Air Quality Monitoring	Legistration Council	2025







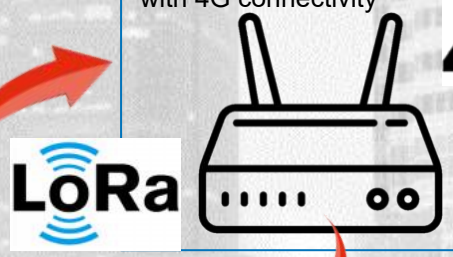
SENSE CONNECT

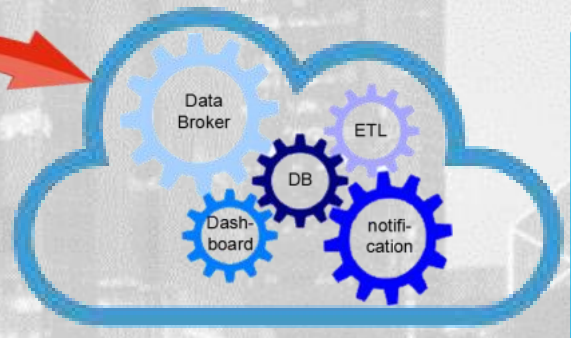
HKIA Smart Toilet over LoRaWan

All-in-One IAQ sensor:
℃, Humidity, H2S, NH3, TVOC, PM2.5,
with HCHO, CO2, CO, O2, stc as options

Connection :
RS485/LoRaWan

Edge computing
LoRaWan Gateway
with 4G connectivity

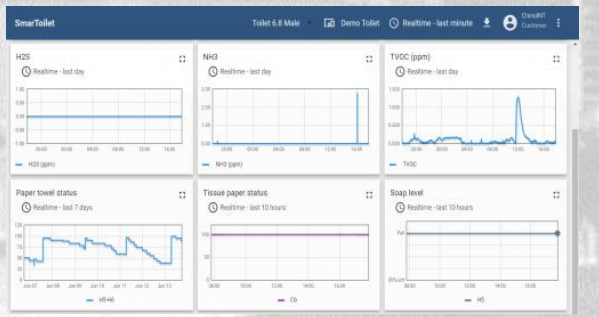




Benefits
- Latest long range low power wireless technology
- Tailor-made, fully integrated design to fit into existing equipment style
- Real time status for consumables, air quality
- On-demand cleaning to save > 60% of resource
- Clear dashboard for management team
- Real time notification for operation team
- Performance data for maintenance team
- Clean and neat on-site dashboard for airport users

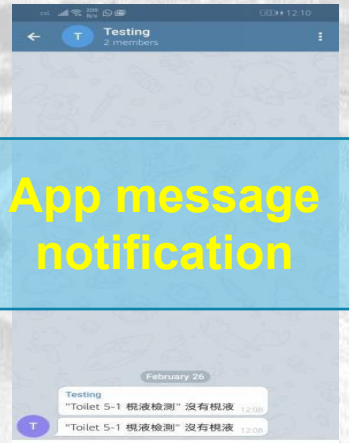
Tailor-made, fully integrated, implicit design
LoRaWan sensors
running on battery with long battery life
for consumable status detection

On-site dashboard



Real time alert for rubbish bin,
consumable, air quality, etc

App message notification



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PolyU Smart Toilet

System Component:

- IOT Edge Computing Gateway
- Odor gas sensors
- People Counting solution
- RFID auto attendance system

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Smart Toilet

Shared dashboard
for real time status

Lighting Control

IAQ

Occupancy

Soap level sensor

People counting
statistic for toilet usage analysis

Edge Computing
AIOT Gateway + 4G

Door sensor

SOS Button

Flood sensor

Equipment Control

Rubbish bin /
Tissue sensor

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Reference - Real Time Tracking & Counting

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	2023
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Por Mee Factory Building	2023
Hong Kong	SSSS - UWB-enabled Collision Avoidance System for Vehicle	SUEZ - IWTS	2021
Hong Kong	Smart Facility Management - LoRaWan	Kadoorie Estates Limited	2020-2023
Macau	Smart Elderly Center - Zigbee	Vila Medalena Macau	2019
Hong Kong	Smart Toilet	Poly U	2022
Hong Kong	Smart Visitor Management - People Counting	Hong Kong U	2020
Hong Kong	Smart Toilet	Advance Manufacturing Center - HKSTP	2022

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Smart Elderly Center - Macau

Indoor Location

The Indoor Location system locates patients, nurses within the coverage of the Smart Hospital system.

Anti-Wanderer

The Anti-Wanderer system alerts when specific people gets out of the Smart Hospital area. This prevents from missing patients and elderly.

Nurse Call

Whenever in need, the patients, nurses and doctor are able to get immediate help by using the Nurse Call system, together with the Indoor Location system.
No false alarm!!

Fall Prevention

Some patients and elderly are not quite mobile. The Fall Prevention system protects them by alerting related personnel to offer assistance when they need to move around.

Remote Home Care

Home pension is getting traction. The Remote Home Care system allows family and nurses to learn the status and needs from the home pensions.

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Reference

ChinoINT RFID Family has been deployed successfully.Our RFID devices have been integrated into the Smart Worksite solution invented by ChinoINT at a power plant in Hong Kong, to raise the worksite safety to the next level.

Reference - LoRaWan

Region	Name	End user	Year of Completion
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
Hong Kong	Smart Metering	Poly U	2020
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	Smart Faciliy Management Notification Platform	Queensway Government Office	2023
Hong Kong	Smart Chiller Plant Monitoring	EMSD	2022
Hong Kong	Smart Chiller Plant Monitoring	EMSD	2023
Hong Kong	Smart Chiller Plant Monitoring	Poly U	2023

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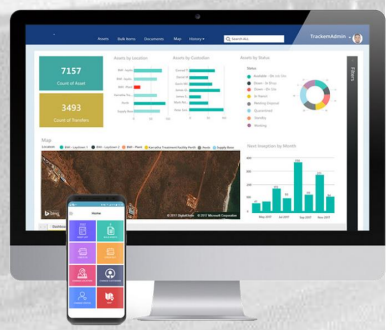
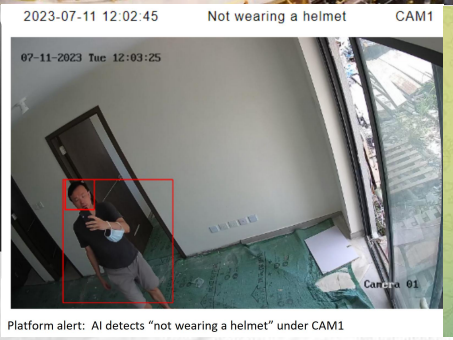
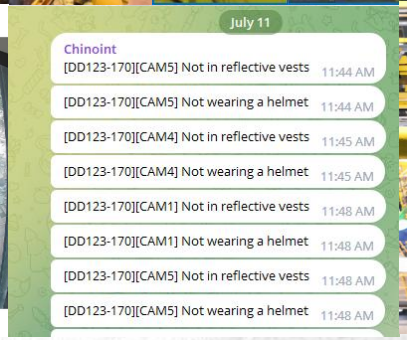
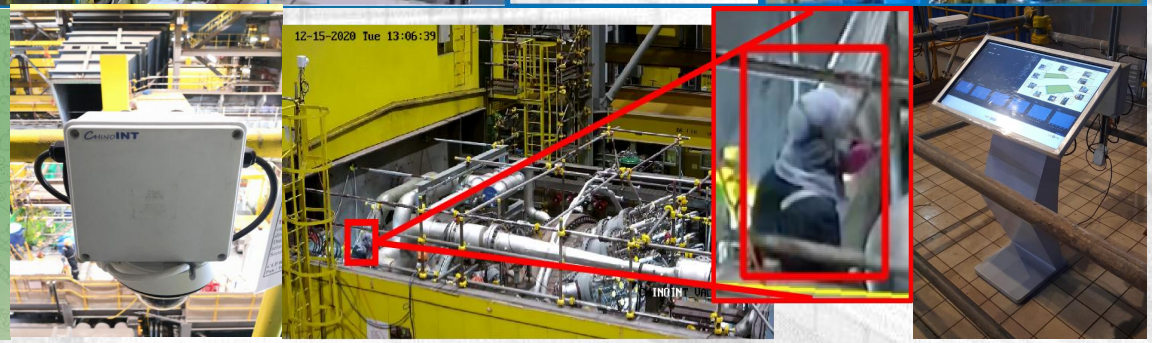
Reference - Video Analytic

Region	Name	End user	Year of Completion
Hong Kong	SSSS - Turbine Work Safety Video Analytic	CLP - Black Point Power Plant	2021
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Nga Ying Decoration Ltd	2023
Hong Kong	SSSS - 5G enabled Smart Construction Site Monitoring	Por Mee Factory Building	2023
Hong Kong	Facial Recogntion Terminal with fever detection	Siemens Hong Kong	2020









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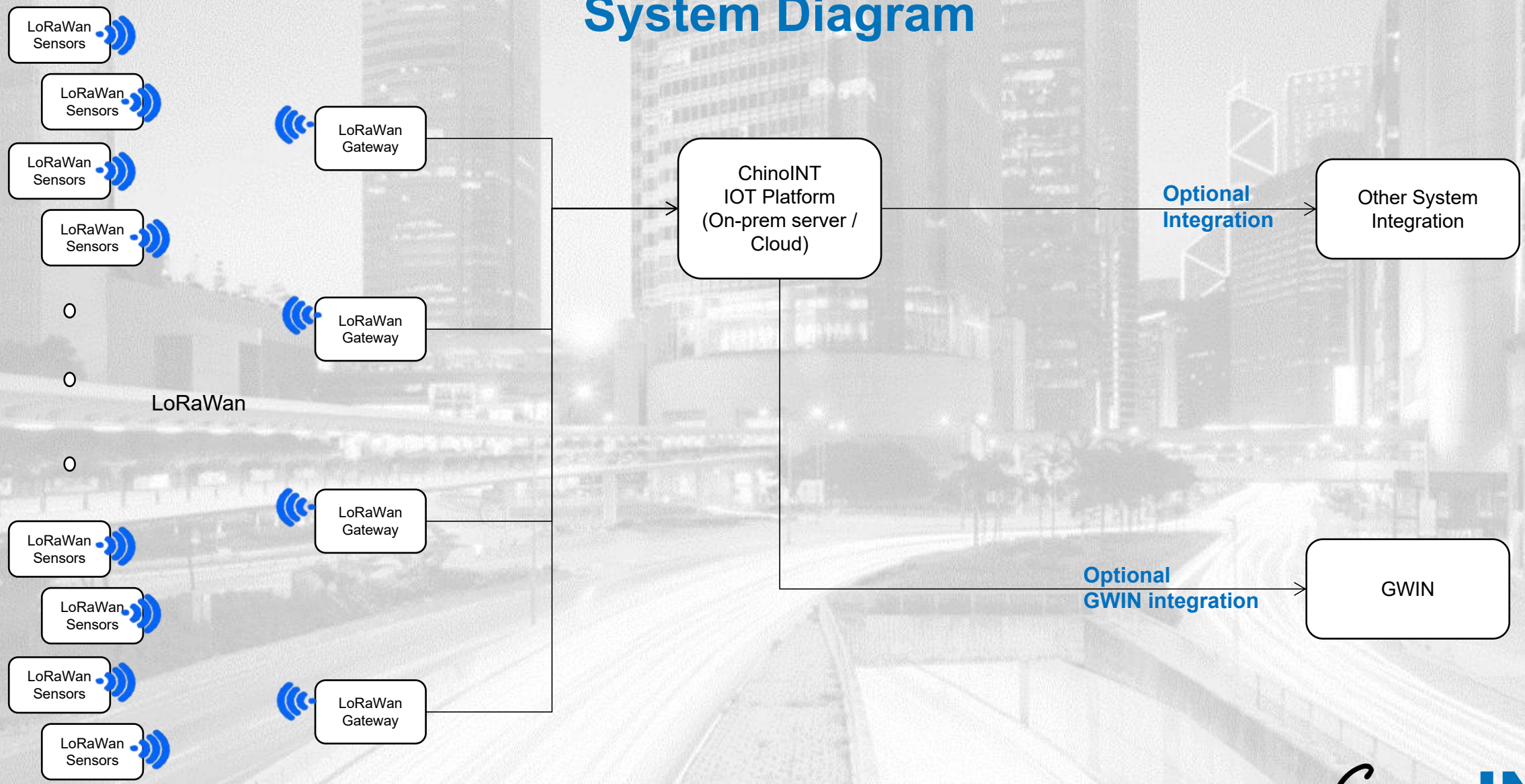
Thank You

sales@chinoint.com

System Diagram