

Hong Kong • Singapore • Guangzhou



ONE-STOP DIGITAL TWIN APPLICATIONS FOR AEC INDUSTRY

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THE ROAD
TO A BETTER
FUTURE

CHAIN

Project Overview

🔍 Search...

Sort By

Type/Status

Type

Status

KOWLOON

Central Kowloon Route

Pavement & Bridge

70%

Kowloon City No.1 Sewage ...

Drainage

20%

West Kowloon Cultural ...

Land & Building

50%

HONG KONG ISLAND

Wah Fu PTW

Drainage

40%

Redevelopment of Queen ...

Land & Building

10%

NEW TERRITORIES

Hong Kong International ...

Transport

70%

Sai Sha Road Widening

Pavement & Bridge

100%

Tsing Kwan O Road D9

Pavement & Bridge

60%

Foot Bridges, Elevated ...

Pavement & Bridge

30%

Sha Tin STW

Drainage

30%

Pui O Water Pumping ...

Water

40%

H2OPE Centre

Water

40%

Siu Ho Wan Water ...

Water

40%

OTHER

Water Group

Environment

40%

Total Number of Projects

50+

1 2 3 4 5 ... 22

>

▶ 100+ iconic construction projects



All Packed

* Ready to Go!



01 – Centralized Management System

02 – Digitized Tracking System



05 – Mobile Plant Danger Zone



08 – AI CCTV



03 – Permit-to-work



06 – Tower Crane Danger Zone



09 – Confined Space Monitoring



04 – Area Access Control System



07 – Smart Watch



10 – Safety Virtual Reality Training

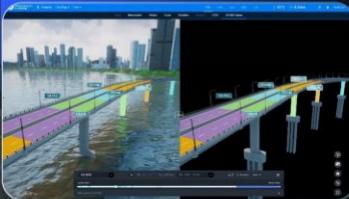


Cross-functional Synergy For Different Construction Stages

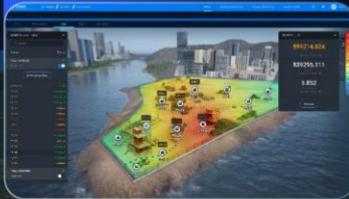
1 Digital Twin



2 4D Progress Management (SSSS + DWSS + Construction Program)



3 Geotechnical Monitoring (Settlement, Tilting, Vibration)



4 Environmental Monitoring (Air & Dust, Noise, Weather)



5 Asset Management (SCADA & MAXIMO Integration)



6 Worker Management with Smart Wearables



7 AI CCTV Monitoring



8 Mobile Chatbot & Automatic Alert Centre



9 Traffic Monitoring



10 Dashboard Summary Analytics





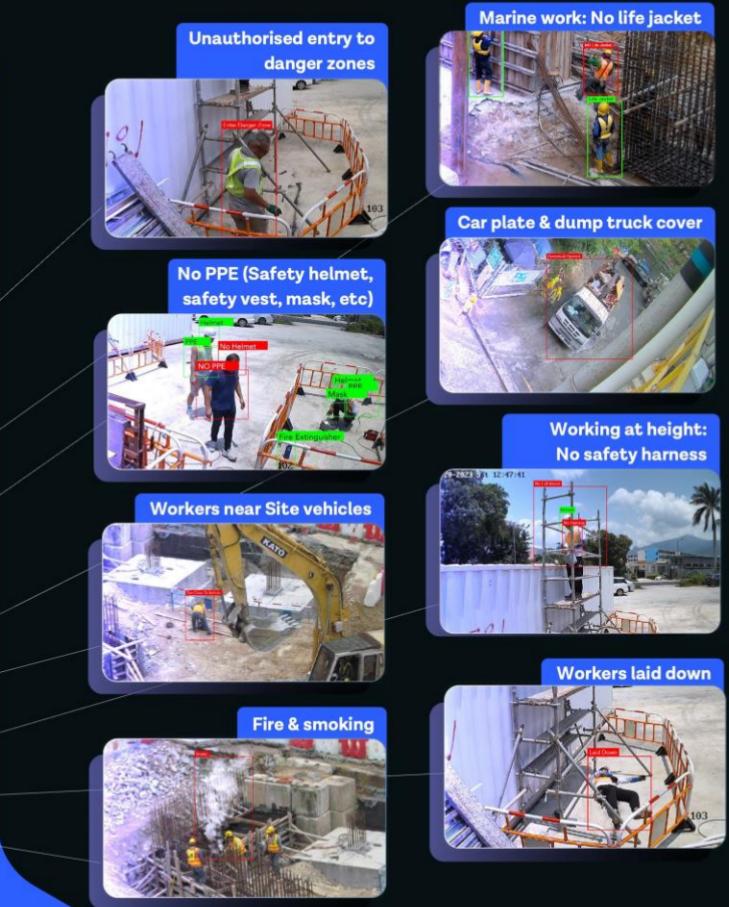
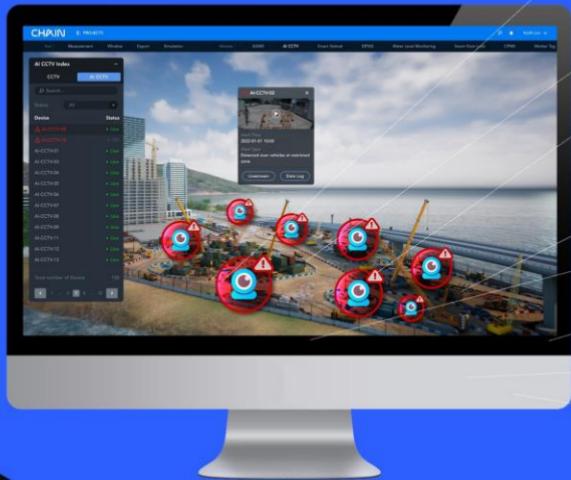
Anti-collision by UWB (Ultra-wideband) Positioning

- ▶ Trigger real-time alarm to warn both workers and the plant operator when they get too near
- ▶ Combine with onsite siren & flashing light
- ▶ Quick setup, straightforward installation



Safety Monitoring System Using Artificial Intelligence

- AI engine trained up for all-round safety, progress, traffic & environmental monitoring



Facial Recognition Gate for Check-In & Out

- Biometric access control of danger zones
- Identify the worker's name, permit and access time
- Immediate alert with video capture for any unauthorised entry



**Flexible Deployment
for Various Environments**

- Advanced integration with Site Attendance System



- Tripod turnstile
- Swing/sliding gates
- Security container

Surveillance Tower

- ▶ Real-time 24/7 CCTV streaming and AI analysis
- ▶ With in-built electricity, network, siren, speaker, accessories, etc.



Flagship

- ▶ All-in-one, robust & durable
- ▶ Best for large-scale remote civil site



Support max. 4 AI CCTVs



Adaptive power options
Eg. self-sustaining solar panels



Mobile Station

- ▶ Movable & easy relocation
- ▶ Best for temporary works & street pits



From Start to Finish: Securing Every Step in Confined Spaces

Integrate with Permit-to-work System

- Permit application and approval for certified workers
- Risk assessment report by competent persons

PPE Recommendations



Initial Gas Test



Environment Risk Assessment



Confirm

密閉空間 Confined Space

合資格人士證件
Competent Person

看守員證件
Lookout Man

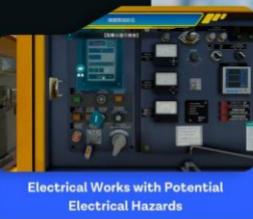
進入密閉空間前，必須將證件放在證件
Put Certified Worker's Certificate into the case before entry into confined

IN

NO ENTRY BY
EXCEPT
許可證
工作許可
PERMIT TO WORK

密閉空間工作
Work in Confined Space

VR Solutions



Cave Solutions

CHAIN

- 4D immerse yourself in human 1:1 open world.
- Customise CAVE interior & exterior for public engagement.



CHAIN

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SSSS.
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**Thank
You!**

This is a clip from the 31 July 2024 recording of the

Hong Kong Housing Authority

“Safety Forum 2024 for Works and Property Management Services”

The speaker on stage is Ms Jackie Wong

Chief Executive Officer, Chain Technology Development Company Limited

Her topic is

“One-stop Digital Twin Applications for AEC Industry”

(00:26)

Hello everyone, I am Jackie Wong

I am from Chain Technology Development Company Limited

Just now we heard from many speakers

sharing about safety culture, leadership, policy directions, etc

As an innovative technology company

I would like to share how these can be implemented

We provide a range of solutions

Our technologies can be applied to many areas on sites

including construction progress, quality control, and safety

Today I won't go into detail

I will only talk about the safety aspects

and how our products are applied in this regard

Thanks to the Smart Site Safety System (4S) Labelling Scheme

In this quarter

we've recently implemented the 4S system on many construction projects

Many of them have already been awarded the 4S label

If you are interested in learning more about this topic

feel free to have a discussion with us later

In the Smart Site Safety System

Ten components are fully equipped

encompassing both software and hardware

It is referred to as a comprehensive service

Because on construction sites, workers and management

may not be very familiar with the applications of innovative technologies

Therefore we do not want to just provide a solution

and leave after supplying a user manual

The key focus is on providing ongoing service

That is one of our selling points

I won't go through all ten components today

but I will introduce a few of them

There are demonstrations available in the exhibition hall across the way

showcasing live presentations for everyone

The central management platform includes many components

One of them, which Chairman Ho just shared

is an accident involving mobile machinery

which has been a hot topic recently

I also introduced a relevant demonstration in the exhibition

It is a simple device, installed on mobile machinery

equipped with an ultra-wideband (UWB) module

It is small, which is about the size of a router

After installation, it does not affect the driver's work

Workers have a smart label

roughly the size of half an Octopus card

affixed to their safety helmet

When a worker gets close to the mobile machinery

an alarm will sound on site immediately

Why immediately?

Because many people ask whether the Smart Site Safety System

require internet connectivity

and poor network connectivity on construction sites makes it difficult to use

I want to share this concept with everyone

hoping to bring about some change

Internet connectivity is only for

uploading system alerts to the Centralised Management Platform

to notify those who remotely control the system

This system, however, does not rely on internet

As long as a worker gets close to the mobile machinery

the alert will sound immediately, and no delay

We think this is crucial

After absorbing a lot of experiences from on-site experience

we realised some things need to be changed

Adjustments need to be made to apply on the construction site

Of course, for mobile machinery

if the network conditions are better or if a higher standard is desired

artificial intelligence can be added

A machine can be equipped with four cameras

providing a 360-degree view

There can be multiple options for everyone to choose from

Besides, as I just mentioned

For example, by utilising artificial intelligence

we not only aim for detection but also hope to implement additional measures to stop the workers

If unauthorized workers are detected, they should not be allowed to enter the confined space

We will also have a gate to prevent workers from entering

These devices can be referred to as an advanced Smart Site Safety System for the construction site

The advanced Smart Site Safety System only sets a basic direction

How can it be applied on the construction site

It is true that for every solution, new challenges arise

Regardless, workers may find ways to bypass your technology

The goal is to outsmart them

and monitor their actions as much as possible

In addition to monitoring devices

We also have some mobile devices on the construction site to prevent issues

Here are a few examples, and of course, there are variations

For instance, if there is an urgent pipe repair needed on site

we can use portable facial recognition devices

Some projects might be short-term

such as the E&M work for a bridge pier

The devices will be installed in a container

and once the construction work on the site is completed

They can be lifted and moved to the next site for use

Daily entry and exit management can be implemented

allowing for real-time monitoring of workers' locations

In addition, we also provide various power supply devices and internet connectivity solutions

We offer a one-stop service for all these needs

We also pay special attention to confined spaces

How to control who can enter these areas

Once inside, there will be various gas detection devices

This information will be uploaded to a Centralised Management Platform

allowing everyone to know if there are any toxic gases present

We comply with the Labour Department's latest requirements

with a two-level alert system

Alerts are not only triggered at the highest toxic levels

Since even low-level exposure can cause fainting

we trigger alerts earlier

These are enhancements we've made

Also, today there are audience members from property management

So beyond the application of Smart Site Safety System on construction sites

we've developed VR-based solutions

to improve safety

through training and education

This helps frontline staff such as cleaners and security staff to become more safety-conscious

Apart from VR, we also offer immersive 4D training systems

to enhance efficiency

Training sessions can accommodate not just one person

but dozens of individuals at the same time

We can also provide an immersive experience

that makes participants feel as if they are actually on a construction site

Time is almost up

If anyone has questions

you can visit the exhibition booth across the way

for additional demonstrations

Thank you all

Thank you for watching

(06:53)