

An aerial photograph of Kaohsiung City, Taiwan, featuring a dense urban landscape with numerous high-rise buildings and a harbor area with ships. The image is overlaid with a futuristic smart city theme, including vertical teal lines, glowing blue circles, and a network of dots connected by lines. The sky is blue with scattered white clouds.

# Kaohsiung Smart City

 Kaohsiung City Government



# Smart Transportation Real-Time Integration Improving Kaohsiung's Traffic

- ✓ Develop **ITS**(Intelligent Transport Systems) and Service Platforms
- ✓ **IOT** Real-time Data Collection
- ✓ **GUI** Intelligent Dashboard for Data Monitoring and Management
- ✓ **AI** for Road Network Signal Control and Event Response Decision

Multi-Info  
Integration

Traffic  
Performance

Cross-Unit  
Info exchange

Real-time  
Road Condition

Special Event  
Notification

Smart  
Signal Control



機車  
更新時

(PA-1)民生路

(PA-6)(備用)

(PC-12)監理所

(PA-2)河東路

(PA-A)高雄橋

西橋

西橋

西橋

西橋

西橋

西橋

西橋

西橋



# Concert Transportation

## Better traffic dispersion

✓ Attendances doubled, transport time halved

ED SHEEREN

Nearly **95K** audience and MRT frequent intervals of **3** minutes

**270K** MRT passengers per day, dispersion completed in **90** minutes

MayDay, MEGAPORT and A-Mei performing

Three events of transportation nearly **150k** people,

Completed dispersion in **1** hour

Mass Crowded Event Transportation Time

In 2021  
2.5 hour  
45K audience



In 2024  
1 hour  
90K audience

Time shortened

**60%**



累計到訪人次  
資料時間：2023/03/18 21:00

**85,874**

活動場地累計到訪人次  
資料時間：2023/03/18 21:00



# MaaS (MeNGo)

## Mobility as a Service Platform

- ✓ First in Asia promote MaaS
- ✓ Integrating hospitality and Carbon economy



Most Multi-Model Transportations Integration:  
MRT, Light Rail, Bus, Ferry, shared-Bike

1<sup>st</sup> in Taiwan

Public Transportation Ticket All-in-one

1<sup>st</sup> in Taiwan

Net-zero Transformation:  
Carbon footprint with Carbon reduction discounts

1<sup>st</sup> in Taiwan

ESG Green Card Cooperated with Enterprises

1<sup>st</sup> in Taiwan

Registered Members and AI-based Consumption patterns Analysis

Multi-Model Transport Information Integration: Customized Travel-Plan



# Smart Parking

Saving **928** M  
parking tickets every year

Equals a reduction of  
**11.7** metric tons of carbon emissions

**↑100%** parking space turnover rate

Detect parking  
occupancy and offer  
real-time available  
parking space data to  
public





# Uninterruptible Power Supply UPS Traffic Signal



When a disaster causes a power outage, the intersection UPS can immediately supply the power needed for the traffic signals, ensuring the normal operation of the traffic lights for at least 4 hours to maintain traffic safety.

Until the end of 2024.

Total **280** sites





# Emergency Vehicle Priority Signal & Intersection Anti-Collision System



Using "C-V2X Technology", already POCs  
in 4 intersections at Fung Shan district.



Average  
Travel Time **28%** ↓  
From 109.4s to 79.3s



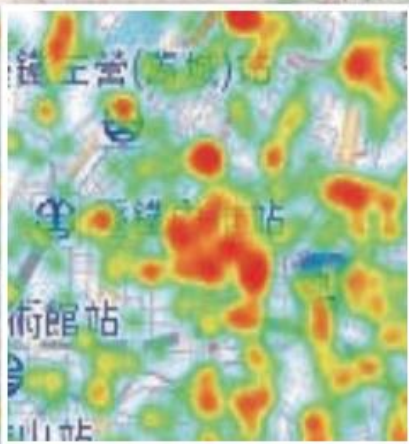


# Traffic Accident Hotspot and Safety-Improved system

Integrating GIS information, Generate Traffic accident hotspots/thermal maps, Visualized Traffic accident data and trends



Accident Hotspot Prevention



Emergency Team Planning Ambulance Routes and Medical Resources



# Smart Evacuation

2.73M registered populations  
with **7,523** Air Defense shelter,  
Capacity up to **6.11M** people

Supply  
Demand ratio

2





# KAOH AUS

## Scenic Balcony

Rest Platform  
with Overhead  
Cover



## Universal Design Space

Bathrooms,  
Lounge,  
Elevators,  
etc.



## Green Energy Facilities

Environmentally  
Friendly Smart  
Living Technology





# Mango Tree Office Base

## Net zero energy building

- ① Create an architecture integrating **People, Trees**, and the **Environment** in harmony.
- ② Local materials, eco-friendly building materials, and resource-efficient construction.
- ③ Monitoring the microclimate for one year to propose solutions for the **Environment** and **Architecture**.
- ④ **Collecting rainwater** to irrigate the mango trees.
- ⑤ Install **solar energy** storage systems for self-sufficient power supply.



# Drone+GPS Tax Assessment

Pre-flight checklist and  
drone equipment inspection

Self-built drone inspection  
application screen

高雄市無人機清查應用系統

1. 輸入拍攝地點座標  
2. 拍攝照片，照片取得地座標資訊  
3. 輸入拍攝地座標高度  
4. 繪製與計算多邊形區域  
5. 點選「存檔」儲存於本機下載目錄（所存檔案為土標）

高度：112.01 公尺，拍攝高度：60 公尺，量測高度：0，CHOS sensor V2



- Better** Make up for overdue tax payments
- Instant** Discovery of changes in the use of agricultural land and new constructions
- Instant** Notification of a change in land use and a reassessment of the land value tax
- Guidance** Establishment of property tax registration
- Reduction** Reducing public complaints about the retrospective imposition of taxes



# 5G Smart Patrol Mobile-Police AI License-recognition system



- ✓ Integrate criminal and lost vehicles data
- ✓ Criminal and lost vehicles notification
- ✓ Uploading identification results, time and location data to cloud
- ✓ Analyzing missing vehicles
- ✓ Retrieve performance hotspots and trends





# Real-time Warning 3D Security Patrol Inspection

- ✓ Crowd gathering/sound volume criteria
- ✓ Rapidly search for event recording
- ✓ event-Trigger instant notifications
- ✓ Remote real-time hi-quality monitoring
- ✓ Remote control for broadcast deterrence
- ✓ gathered-Vehicle license plate recognition



# AI Speed Calculation From Accident Footage



Analyzing traffic accidents takes a lot of time to review footage repeatedly.



AI speed calculation from accident footage

## Automated analysis

Original  
processing time

**40** minutes

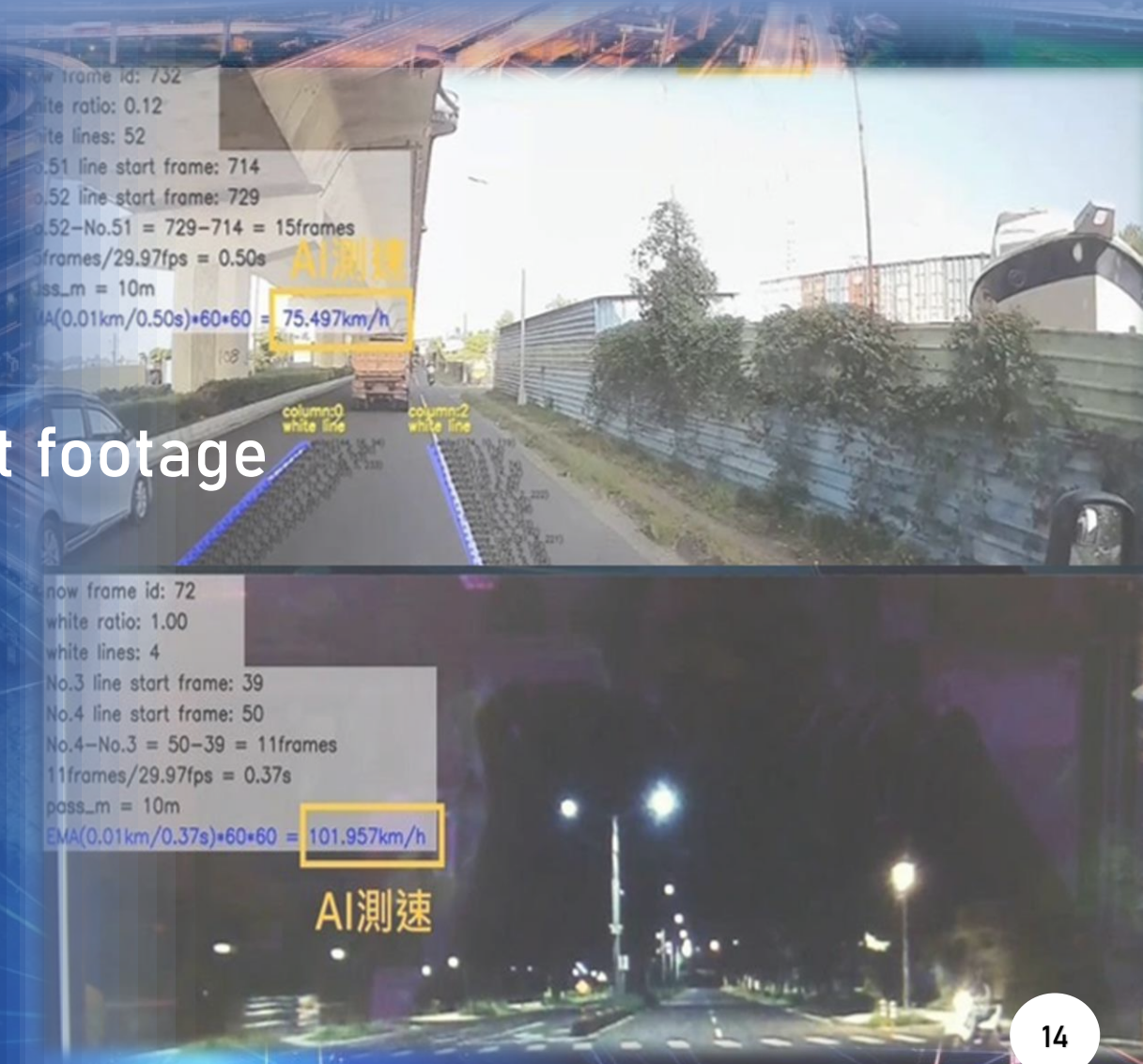


**Revised**  
processing time

**5** minutes

Time shortened

**88%**





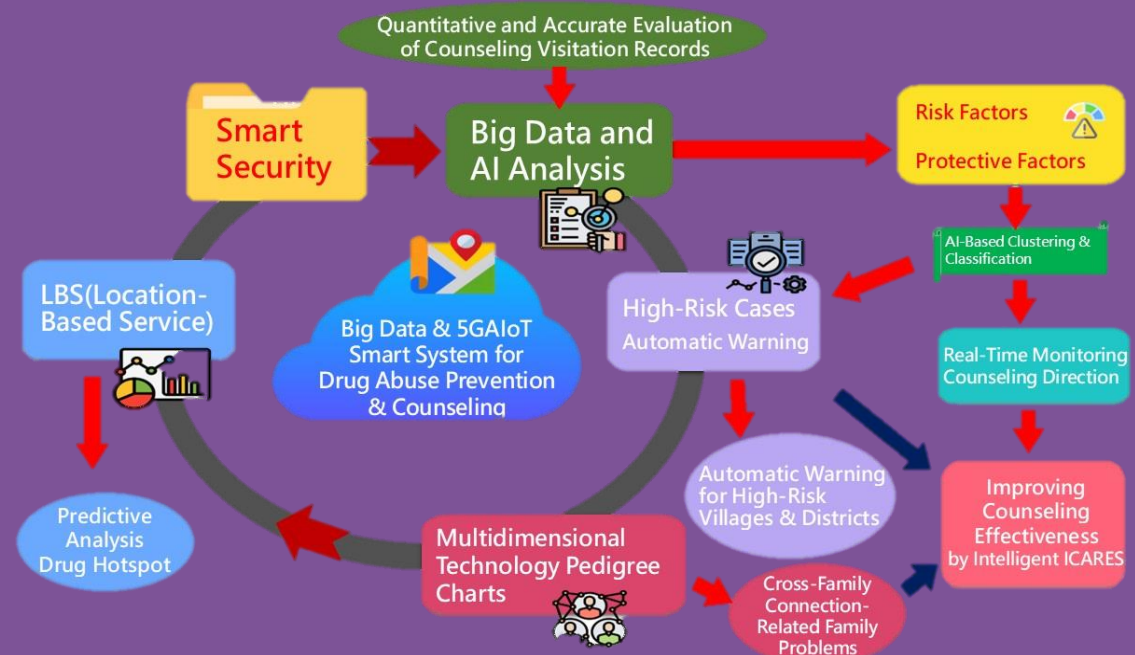
# The Nation's First 5GAIoT Smart System for Drug Abuse Prevention & Counseling



Leveraging AI radar charts to analyze risk and protective factor trends in drug addiction cases, enabling intelligent and targeted counseling.

Buliding an automated high-risk early warning system and multi-dimensional technology pedigree chart to strengthen risk prevention.

Transformation for counseling through technological enhancement, and reflection on the values of sustainable development in SDGs and ESG.



毒品防制



The first IoT-connected in Taiwan

# Firefighting Robots



- >> Infrared Detection Lens
- >> Remote control distance 300 meters
- >> Pre-Explosion Warning
- >> Dangerous gas detection alarm
- >> Transmit Detect info, remote monitoring
- >> Effective Range up to 80 Meters





# Disaster site Information collection Drone



**Enhance**

Info from 2D to 3D,  
expanding field of view

**Efficiency**

Real-time image feedback  
shortens manned review time

**Precision**

With thermal camera for  
accurate fire scene assessment

Professional drone pilot

Drones collect disaster  
scene information

風速較大，請謹慎飛行。

ISO 400 Shutter 1/800 F 7.1 EV WB 自動 JPEG 狀態 SD卡已滿 AFC/MF

D 216 m H 268 m



# Seamless Emergency Rescue

Mass casualty incidents(MCIs) First-aid Management system



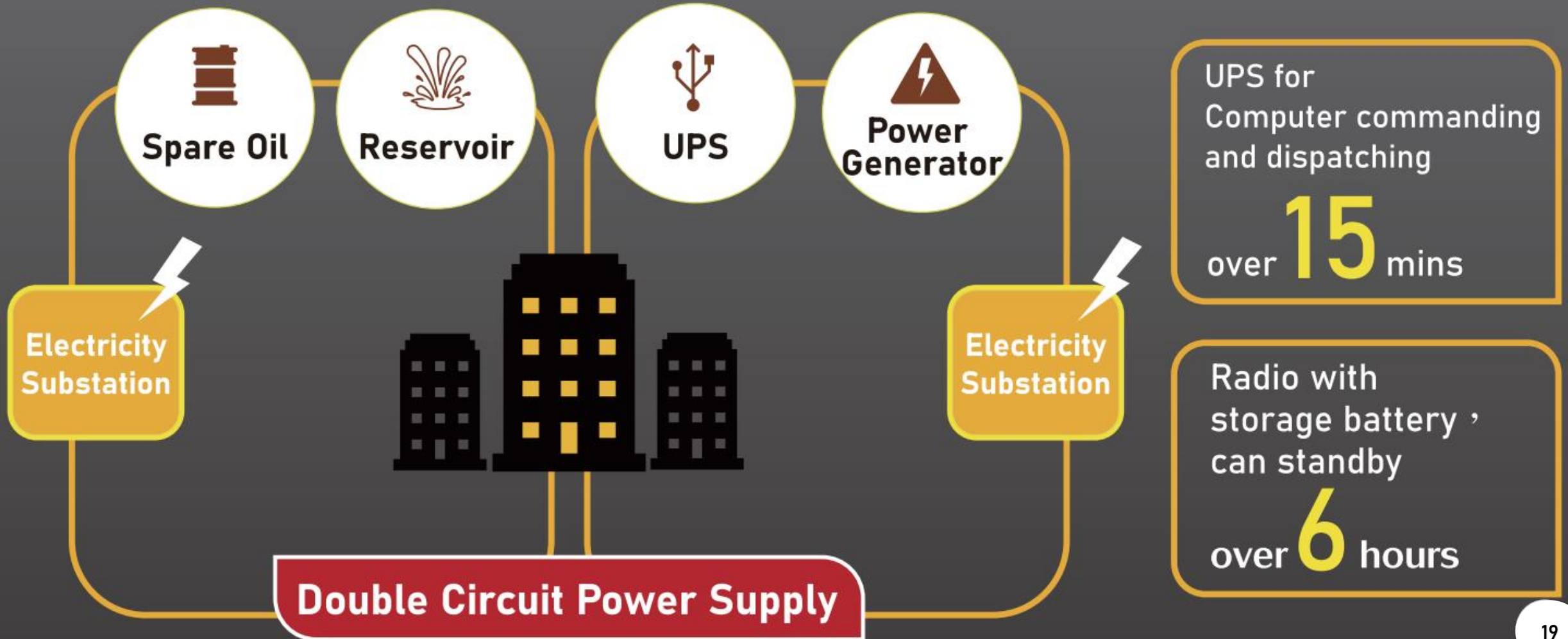
Equipped with 12-Lead EKG

- ✓ Rescuing an AMI patient
- ✓ EKG can be sent to cloud for AI interpretation





# UPS for Disaster Relief





# Rural Electrification Network Energy Storage and Efficiency

## ⚡ High School Campus Smart Microgrid

Storing Electricity enough for **3** days      Annual Cost Saving **400**κ

## ⚡ Renewable Energy Storage System

- ✓ Clustered Household Energy Storage Management System
- ✓ Power Stability Technology for Community Energy Storage Systems
- ✓ Power Dispatch Technology



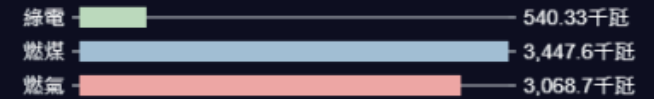
# Green Energy Management Information integrating



<https://kems.kcg.gov.tw/dashboard>

本市台電發電機組即時淨發電量 ⓘ

單位: 千瓩



本市台電太陽能即時發電量 ⓘ

單位: 千瓩



漁電共生案場即時發電量

單位: 度



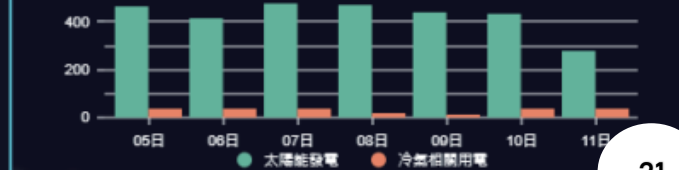
校園太陽光電即時發電量

單位: 度



校園太陽光電逐日發(用)電資訊

單位: 千度





# Smart Streetlight Smart Management



Digitalization  
Streetlight Data

Integration with  
Geographic Information

Real-time Fault  
Information Reporting

Swift Dispatch and  
Trajectory Tracking

Repair Documents  
Cloudification





- 核准施工日期: 114/02/13~114/03/13
- 連絡電話: 0910713156
- 許可證號: E11400098
- 路權機關: 高雄市政府
- 施工影像: [施工影像連結](#)
- 管線類別: 電力
- 建造字號: 112743
- 備註: 新設工程

高雄市政府版權所有©2024



# Pipeline-digging Dashboard

## Catchup for engineering projects

## Real-time Monitoring of Construction Images

- 》 Avoid construction areas
- 》 Understand the status of pipeline-digging worksite
- 》 Public oversight and share municipal achievements



# Road Excavation Administration Center

## Engineering Situation Control

- Year-round Protection
- Real-time monitoring of citywide pipeline excavation project construction activities on regular days
- Utilizing pipeline mapping data to assist on-site firefighting or construction units in emergency response and management



▲ Real-time construction site monitoring



▲ Public pipeline map information inquiry



# OPS

(Office of Pipeline Safety)

- ✓ Disaster Prevention on Industrial Pipeline
- ✓ Analysis on Contingency Decision and Response for Pipeline Disaster
- ✓ Guidance and Verification by Experts
- ✓ Hazard Risk Assessment
- ✓ Risk Management



# Securing Citizen Safety **First in Taiwan**

## Landslides' Emergency Response



Within **2** hours,  
Ensure residents evacuate completed



Preventive Evacuation Message Sending



Landslide Alert and Response Information  
<https://drpress.geekers.tw/>





# Confined Space Operations Safety

## Confined Space

- Long-Term confinement with restricted entry and exit methods
- Unable to maintain adequate clean air through natural ventilation

## Operations Safety

- Ventilation Equipment
- Gas Detection
- Education and Training
- Daily Supervision and Auditing

Gas Detector



# AI Air Quality Monitoring

## Smart Video Surveillance And Inspection Platform

Total

**41** Case

Compared to  
previous years

**50%** 

Total Fines

**25.23**M

Real-time Image  
Feedback and  
Recognition

Fully Prevent  
Emissions

Real-time Notification  
and Response

Compile Abnormal  
Information

Weather  
Monitoring



# Fortified Water Management Network Enhanced Disaster Resilience

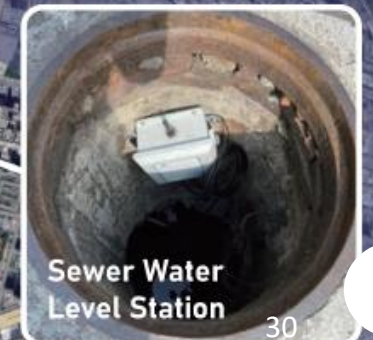
3D Real-time Water Resource Management

Sewer System

Rivers and Drainage, surface

Weather Information

✓ AI Analysis of Overall River system data  
and Disaster Prevention Notification





# City Digital Twin Platform

## Smart Governance

- » Taiwan's 1<sup>st</sup> city construction management and decision support platform
- » First integration of Digital Twin, Big Data, and AIoT
- » A 1.5 square kilometer triangular area in Zuoying District

Enhance

Management efficiency

Strengthen

Smart decision-making

Effective

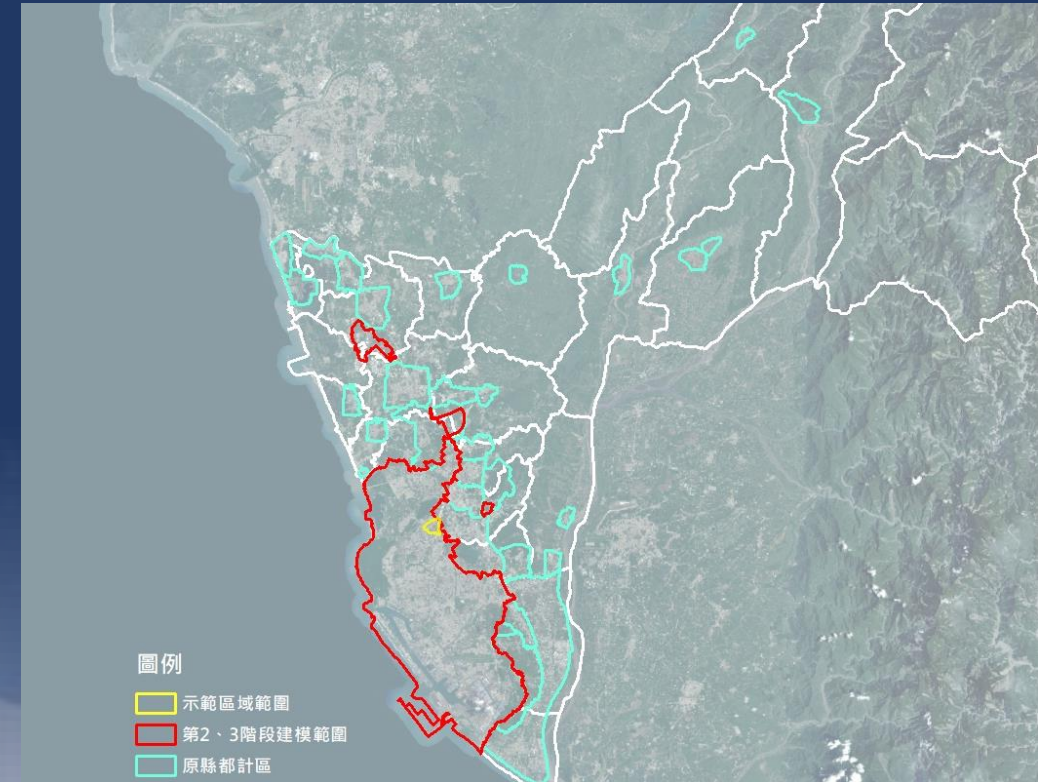
Apply disaster response strategies

Smart Governance

Smart Disaster Prevention

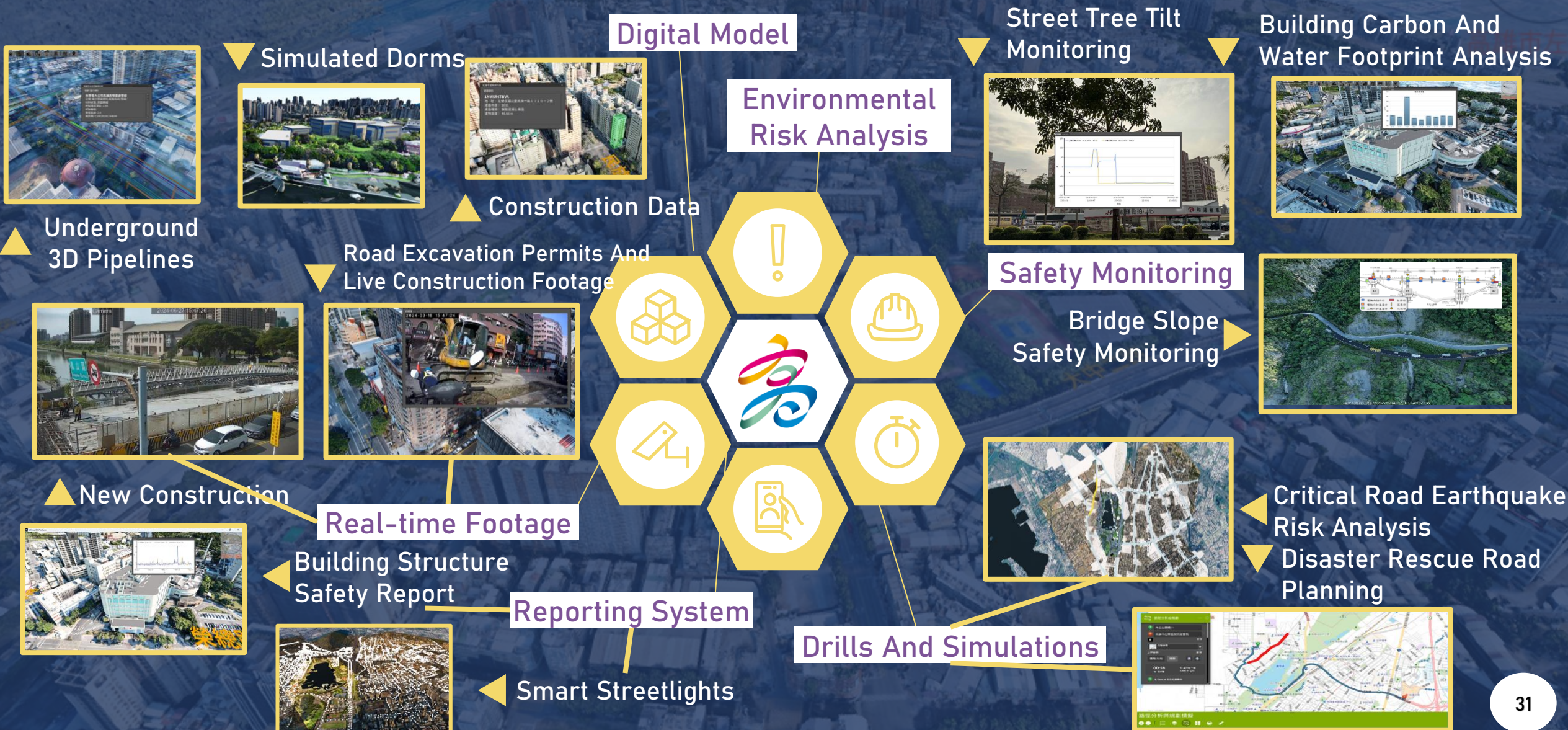
Smart Engineering

Smart Decisions





# City Digital Twin Platform-Diverse Domains







# Waste Water Monitoring Center

Smart  
Central  
Monitoring

Online  
Data

Equipment  
Refurbishment

Energy &  
Water  
Automation

Real Time  
Control

Visualization

Specialization

Infrared Automatic  
Following CCTV

Wireless Transceiver/  
Receiver Module

Smart Inspection



# Fengshan Water Resources Center Remote Monitoring System

- ✓ **24/7** Continuous Monitoring
- ✓ Prevent Fengshan sewage sewer system from inflow of waste oil

Smart Manhole  
Cover Sensors

CCTV Car-Plate  
Recognition System

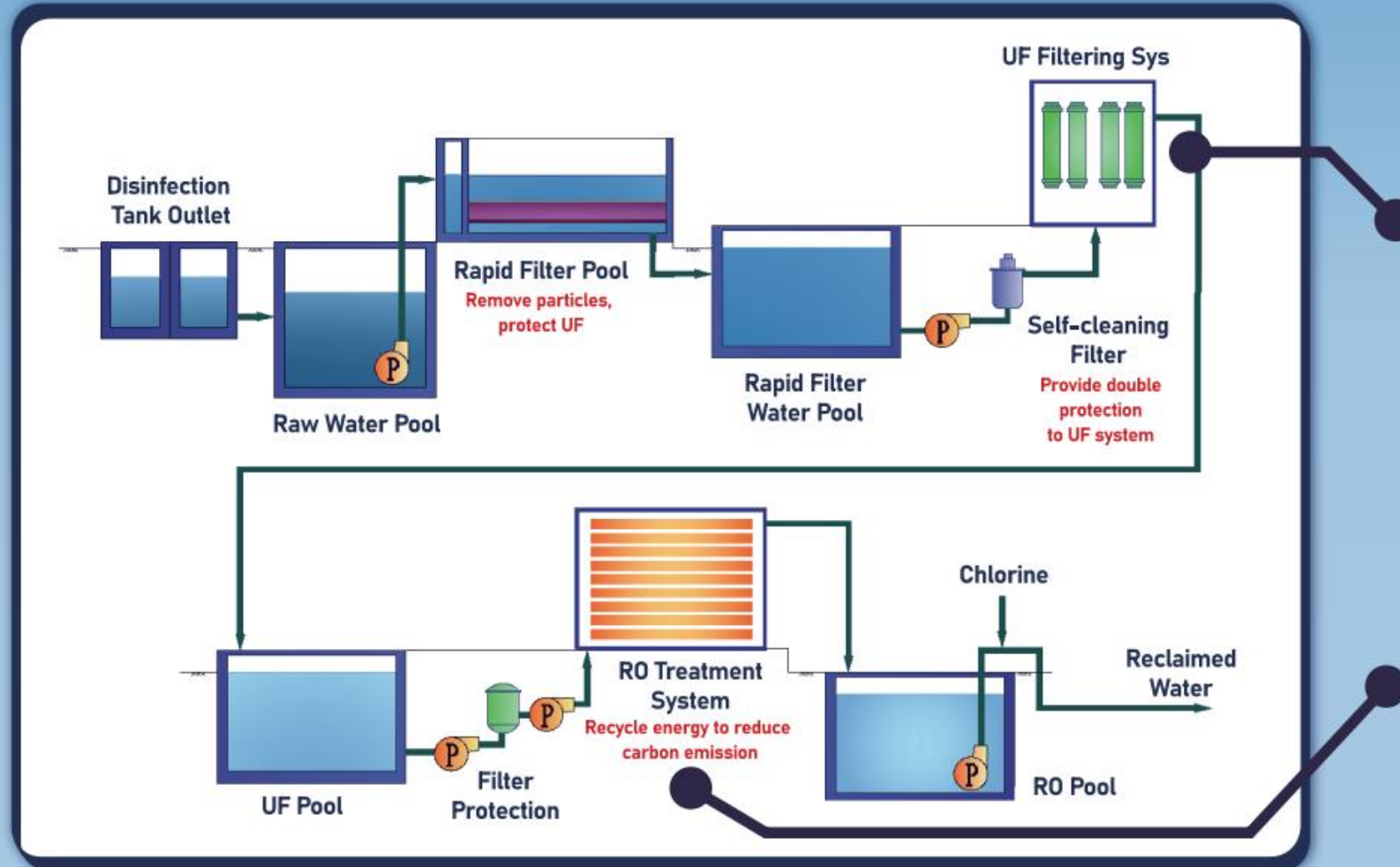
Water Quality  
Monitoring Station

Cross Bureau  
Reporting Platform





# Systemic Reclaimed Water







**First in Taiwan**

# Re-Claimed Water Supply



# Kaohsiung Healthcare 4.0

Ubiquitous Healthy City

People

Family

Community

Health Provider

Government



## Healthcare Equipment IoT

Remote Consultation, Hsiung Healthcare Cloud on LINE@, AI mental wellness room, Senior Fitness Club, health management, and the establishment of a comprehensive health data database



## Collaborative Health Data

Connecting Medical Institutions up to **250** for data sharing and collaboration

**154** smart health care stations have served **290k** citizens with **1m** usages



## Citizen-Centric Care

Applied in OVER **50** Healthcare scenarios, including suicide prevention, mental health support, cancer screening etc.

Up to **22** health management modules, citizen satisfaction reaches **90%**



# X-ray Anomaly Recognition

## AI-optimized Medical Precess



AI-based Proactive  
Detection of Suspected  
COVID-19 Cases



Abnormal notification  
Assessing the severity  
of Pneumonia



Suspected Case :

**6,238**



# Real-Time Emergency Rescue Communication

## Emergency Medical Resource & Information Platform



Hospital  
Emergency Capacity



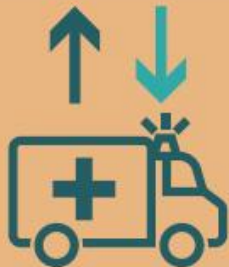
ICU Capacity



Special Antidote,  
snake venom serum  
Inventory



Special Equipment  
Inventory



Notify the target hospital  
in advance of ambulance  
cases



Hospital





# iSAFE

## Smart Health Care System

Detecting patient conditions through the system and instantly notifying for action.

Rescue time

60 min → 2 min

Elderly Fall Prevention rate



Privacy protected

Forestalling

Proactively caregiving

Immediate rescue

Time-of-Flight Device  
Deidentified  
Object Recognition



mmWave Radar Sensing  
Detecting Respiratory  
and Heartbeat Vital signs



Real-time De-Identification  
3D Image



Nursing Station Monitoring Screen





# Senior Fitness Club

Kaohsiung has **17** senior fitness clubs, **the most in the The Five Municipalities (Taiwan)**

- ✓ **Largest in Taiwan:** Fengshan Sports Park creates a fitness center for seniors
- ✓ Gradually introducing **AI fitness equipment** and recording systems to analyze elderly muscle conditions through **health data technology**.

**Enhance**

Muscle strength to prevent falls

**Extension**

Years of healthy life expectancy

**Reduce**

Rhe risk of bed confinement disability

**Cultivate**

Habit of regular exercise







# Smart Long-term Care Comprehensive Elderly Care Platform

Adopted by **41** medical institutions

Over **2,000** users

**Integration**

Hospitals, Clinics, and  
Long-term Care Service Units



Care Recipients  
and Their Families

**Real-time**

Instant contact with caregivers;  
hospitals and clinics provide quick responses

**Care**

Case management function  
to develop care service plans

**Health Education**

Provide education on chronic disease management

**Data**

Daily upload and management of  
care recipients' physiological data



# Smart Sports Technology

- 📍 **5 sports centers in Kaohsiung**  
Qianjin, Zuoying, Lingya, and Yancheng Sports Centers, and Fengshan Sports Park.

## Break through venue constraints

- **ICAROS flying device** → combines with 3D scenes to immerse users in the sky
- **White-water rafting and smart archery** → simulate real-world environments combined with gaming
- **Esports cycling** → Virtualize the offline Round-Taiwan race and Kaohsiung sightseeing routes, accurately replicating gradients and providing resistance

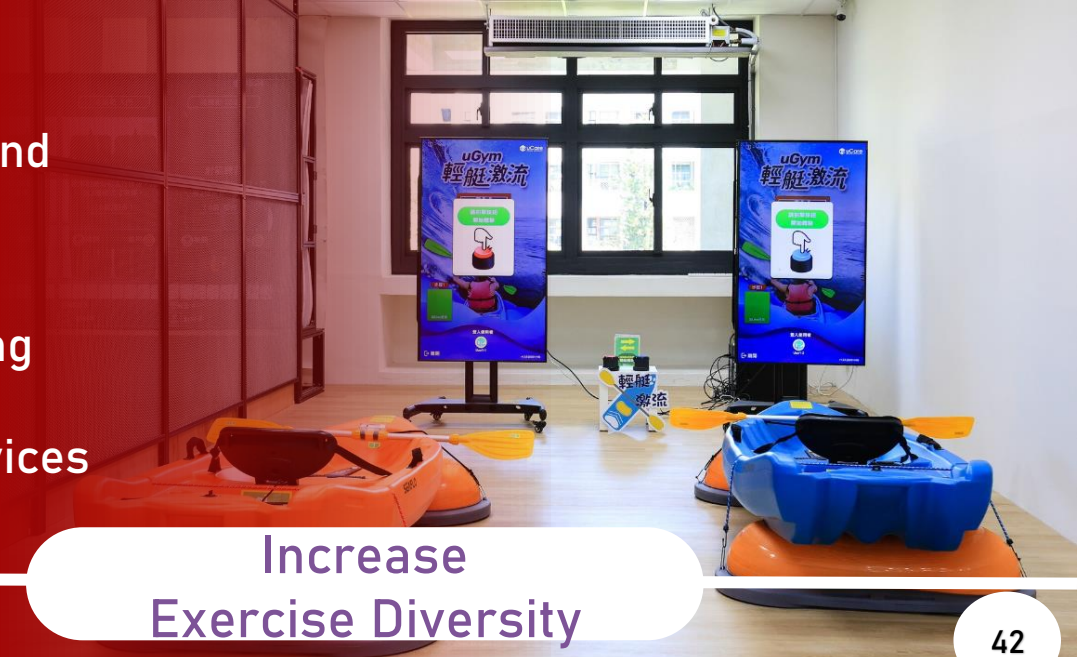
## Smart system assistance

- **SAFESWIM AI drowning prevention system** → Enhances drowning prevention features
- **NEUINX smart capturing system** → Provides data recording services

Citizen Health  
Self-management

Promote Regular  
Exercise Among Citizens

Increase  
Exercise Diversity





# Kaohsiung Agrinfo

## Mastering the Trends

AI Fruit  
Ripeness  
detector  
Papaya



Smart Prevention

64 crops, 551 Early Warning Criteria  
& Reclamation  
Recommendations



Smart Production and Marketing

Analysis of over 300 Vegetable  
and Fruit Production and Sales Cases

Received multiple  
International Awards



WCIT2022  
MALAYSIA  
COMMITTEE & TRANSFORMING  
THE VISION

Gartner Eye  
on Innovation  
Awards

For government 2022

Time and  
Labor Saving



109 sites with water, land, and air

Inspection Time Saving over 50%

Drone Spraying Saves 66% of Labor

applications across 968 hectares



Up-to-date agri-news,  
keeping you informed



# Kaohsiung Plant Doctor

## ✓ Early Warning System of Crop and Disease

Integrating crop data and agricultural meteorological data for real-time alerts

## ✓ Plant Doctor Diagnosis System

Establishing a diagnostic system based on the characteristics of plant diseases and pests

## ✓ Treatment for Crops

Provide prevention and treatment methods based on doctor's back-end diagnosis





# 2024 Kaohsiung Smart City Exhibition



## Kaohsiung Theme Pavilion

13 bureaus showcased  
25 application Solutions



## International Guests

Representatives from 20 countries、3 international organizations、19 cities、with over 200 international guests attending and more than 50 business exchange section held



## Media Exposed

500+ domestic and international reports. Over 39,300 related search results



## Medical Theme Pavilion

15 medical institutions and universities focusing on green health care and precision health



## Exhibition Scale

150 exhibitors with 550 booths, 40k visitors



## Media Exposed

Over 3 days, 43 themed guided tours were held, with a total of 710 participants



## Forum Activities

17 trend forums with 100+ expert speakers, attracting 2,000 engaged participants



## Focus Forum

Smart Hospital Directors Conference,  
Smart Harbor Forum  
Sustainable City Forum (CityCOP).





# 智慧創新 榮耀高雄

## 高雄的每一步都不平凡





# 智慧創新 榮耀高雄

## 高雄的每一步都不平凡



ASOCIO  
Emerging Digital Solutions  
& Ecosystem Award



ASOCIO  
Public/Private Partnership  
Award



ASOCIO  
ICT Award  
Health Tech Award



APEC Energy Smart Communities  
Initiative Best Practices Awards Program  
Low Carbon Model Towns  
Gold



APEC Energy Smart Communities  
Initiative Best Practices Awards Program  
Smart Transport  
Silver



ITS World Congress  
Hall of Fame  
Local Government Award



WITSA ICT Excellence Award  
Outstanding Sustainability  
Development Award



APAC 2022  
Digital Champion  
Government  
Gartner Asia-Pacific-Government  
Digital Innovation Service Awards



2024 WITSA  
ICT Excellence Award  
Startup Ecosystem Award



IDC 2024 the Asia/Pacific Regional winner  
IDC 2024 Taiwan Winner Special Award  
for Smart Cities  
Best in Citizen Wellbeing award



2023 SEOUL SMART CITY PRIZE  
Special Mention  
in Partnership with GGGL



eASIA Award Sustainability  
& Circular Economy  
Gold Award



GO SMART  
2023 GO SMART Award



GO SMART  
2021 GO SMART Award  
iSAFE



2023 Global Innovation and Tech  
Excellence Awards Merit Award  
Innovative eHealth Solutions Award  
(Public Sector)



2022 Global Innovation and Tech  
Excellence Awards Merit Award  
Digital Opportunity Inclusion Award  
(Public Sector)



IDC Smart Asia/ Pacific Awards  
Public Safety Award



IDC Smart Asia/ Pacific Awards  
Transportation Award



# AWARD WINNING

Year	International Awards	Year	Domestic Awards
2024	<ul style="list-style-type: none"> <li>➤ ASOCIO Public/Private Partnership Award</li> <li>➤ ASOCIO Emerging Digital Solutions &amp; Ecosystem Award</li> <li>➤ WITSA ICT Excellence Award-Startup Ecosystem Award</li> <li>➤ IDC 2024 Taiwan Winner : Special Award for Smart Cities-Best in Citizen Wellbeing</li> <li>➤ IDC 2024 the Asia/Pacific Regional winner : Special Award for Smart Cities-Best in Citizen Wellbeing</li> </ul>	2024	<ul style="list-style-type: none"> <li>➤ Smart City Innovative Application Award-Smart Transportation</li> <li>➤ Smart City Innovative Application Award-Smart Governance</li> <li>➤ Cloud Computing &amp; IOT Award-Outstanding Application Award</li> <li>➤ ITS Taiwan Application Awards</li> <li>➤ Government Service Award - Digital Innovation Award</li> </ul>
2023	<ul style="list-style-type: none"> <li>➤ Seoul Smart City Prize-Special Mention in Partnership with GGGL</li> <li>➤ ASOCIO ICT Award-Health Tech Award</li> <li>➤ WCIT WITSA ICT Excellence Award-Outstanding Contribution Award</li> <li>➤ AFACT eASIA Award Sustainability &amp; Circular Economy Gold Award</li> <li>➤ GO SMART Awards</li> </ul>	2023	<ul style="list-style-type: none"> <li>➤ City of Excellence Award-environmental group-Preferred</li> <li>➤ City of Excellence Award-social progress group-Preferred</li> <li>➤ Smart City Excellence Contribution Award-Smart Transportation</li> <li>➤ Smart City Innovative Application Award-Smart Security</li> <li>➤ Smart City Innovative Application Award-Smart Transportation</li> <li>➤ Cloud Computing &amp; IOT Award-Outstanding Application Award</li> <li>➤ ITS Taiwan Application Awards</li> <li>➤ Intelligent Transportation Systems Evaluation-Excellence Award</li> <li>➤ Government Service Award - Digital Innovation Award</li> <li>➤ Government Service Award - Social Care Service Award</li> </ul>
2022	<ul style="list-style-type: none"> <li>➤ Gartner Asia-Pacific-Government Digital Innovation Service Awards</li> <li>➤ WITSA ICT Excellence Award-Outstanding Sustainability Development Award</li> <li>➤ WITSA ICT Excellence Award-Outstanding Digital Opportunity Inclusion Award</li> <li>➤ ITS Hall of Fame Local Government Award</li> <li>➤ IDC Smart Asia/ Pacific Awards-Public Safety Award</li> <li>➤ IDC Smart Asia/ Pacific Awards-Transportation Award</li> <li>➤ APEC Energy Smart Communities Initiative Best Practices Awards Program- Low Carbon Model Towns-Gold</li> <li>➤ APEC Energy Smart Communities Initiative Best Practices Awards Program- Smart Transport-Silver</li> </ul>	2022	<ul style="list-style-type: none"> <li>➤ Smart City Innovative Application Award-Smart Agriculture</li> <li>➤ Smart City Innovative Application Award-Smart Healthcare</li> <li>➤ Cloud Computing &amp; IOT Award-Outstanding Application Award</li> <li>➤ Smart City Excellence Contribution Award-Smart Service</li> <li>➤ ITS Taiwan Application Awards</li> <li>➤ Government Service Award - Digital Innovation Award</li> </ul>
2021	GO SMART Awards	2021	<ul style="list-style-type: none"> <li>➤ Smart City Excellence Contribution Award-Smart Governance</li> <li>➤ Smart City Innovative Application Award-Smart Transportation</li> </ul>





# KAOHSIUNG SMARTCITY

Kaohsiung Smart City  
Project Management Office (KPMO)

