



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



機車

- (PA-1)民生路
- (PA-6)(備用)
- (PC-12)監理
- (PA-2)河東路
- (PA-A1)三益

Multi-Info
Integration

Traffic
Performance

Cross-Unit
Info exchange

Real-time
Road Condition

Special Event
Notification

Smart
Signal Control

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, Coldplay and OneRepublic 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



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

1st in Taiwan

Public Transportation Ticket All-in-one

1st in Taiwan

Net-zero Transformation:
Carbon footprint with Carbon reduction discounts

1st in Taiwan

ESG Green Card Cooperated with Enterprises

1st in Taiwan

Registered Members and AI-based Consumption patterns Analysis

Multi-Model Transport Information Integration: Customized Travel-Plan

Smart Parking

Saving at least **87M**
parking tickets every year

Equals a reduction of
1.3 metric tons of carbon emissions

↑ 50% parking space turnover rate

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



Uninterruptible Power Supply UPS Traffic Signal



If the power is off ATS(Automatic Transfer Switch) will automatically switch to generator and UPS system, which can remain operating normally **at least 4 hours**

✓ **200 Intersections by end 2023**

🎯 **2024 100 More**

Total 250 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





Smart Railway

- ✓ AI Electronic Fences
- ✓ Real-time Information
- ✓ Reducing Human Error
- ✓ Abnormal Event Alert

Operation Decision-making
& Resources Management

Safety & OTP

Tourism INFO

Smart Evacuation

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

Supply
Demand ratio **2**



KAOHHAUS



**Rainwater Storage
& Flood Detention
System**



**Flood Detection
System**



**Public Area
Electricity Consumption
Monitoring System**



**Water
Usage System**



Solar Energy

Mango Tree Office Base

Net zero energy building

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

Drone+GPS Tax Assessment



Pre-flight checklist and drone equipment inspection

高雄市政府地政處 地籍管理科 地籍資訊組

Self-built drone inspection application system screen



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

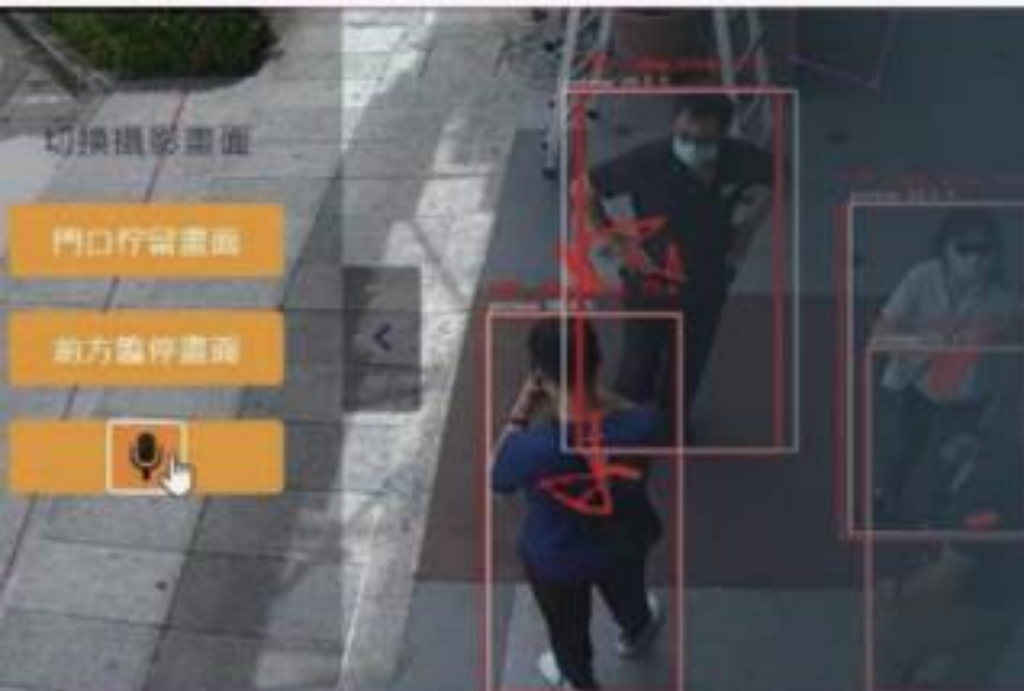


- ✓ Integrate criminal and lost vehicles data
- ✓ Criminal and lost vehicles notification
- ✓ Uploading identification results, time and location data to cloud
- ✓ Analyzing missing vehicles
- ✓ Retrieve performance hotspots and trends



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%



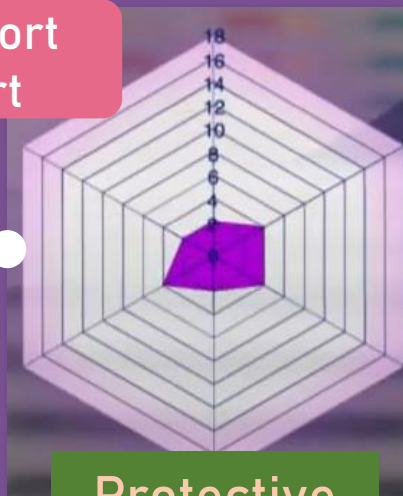
1st in Taiwan



AI Smart Poison Prevention System

Integrate surveys and risk analysis into big data AI
Create trend radar charts for “protective factors” and “risk factors.”

Family/peer support
religious support



Protective
factors

Drug history, criminal record,
peer/environmental deviance



Risk
factors

Integrate **auto-alerts** for precise reoffense prevention.

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

Seamless Emergency Rescue

Mass casualty incidents(MCIs) First-aid Management system

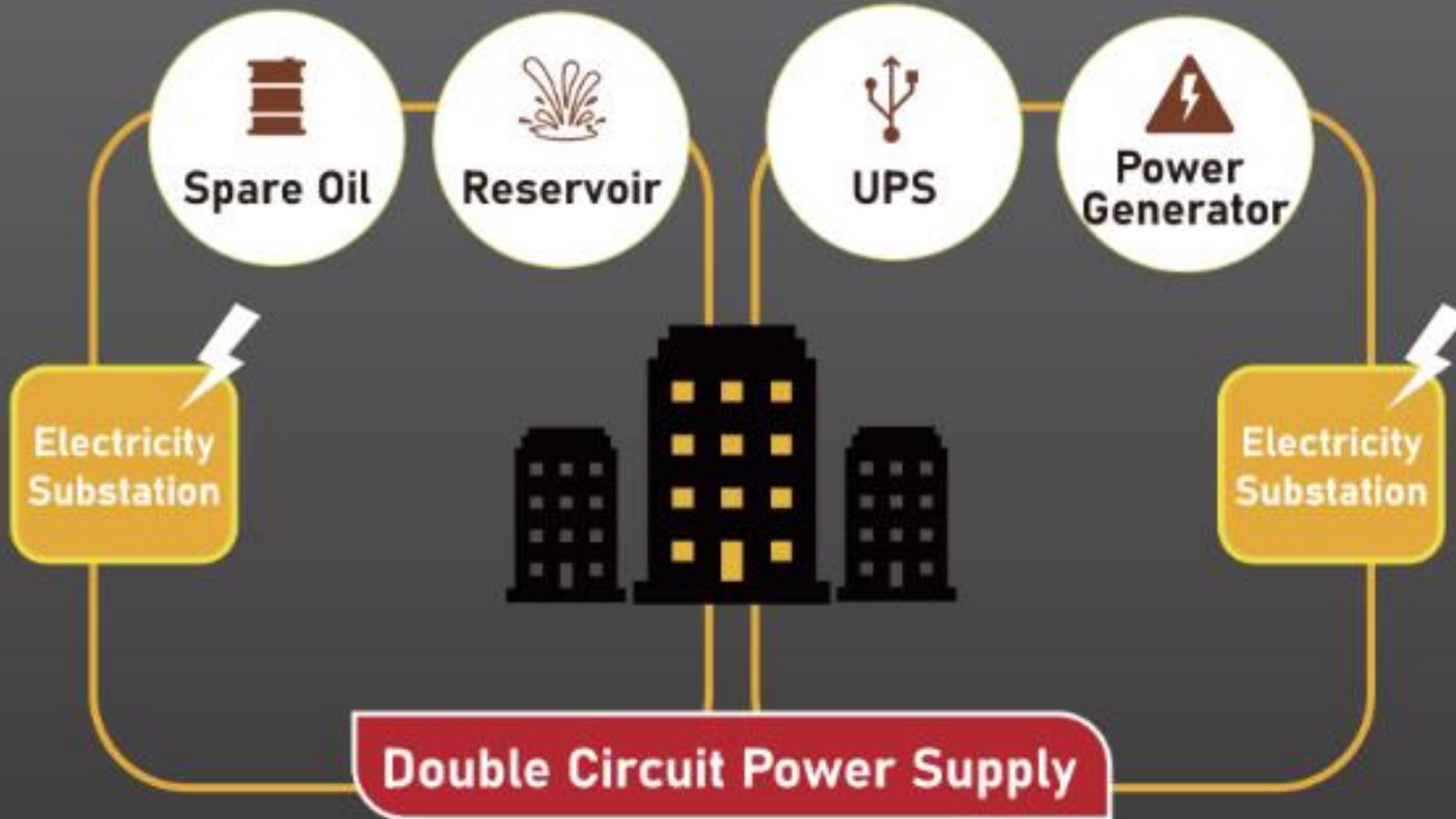


Equipped with 12-Lead EKG

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



UPS for Disaster Relief



UPS for
Computer commanding
and dispatching

over **15** mins

Radio with
storage battery ,
can standby

over **6** hours

Rural Electrification Network Energy Storage and Efficiency

⚡ High School Campus Smart Microgrid

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

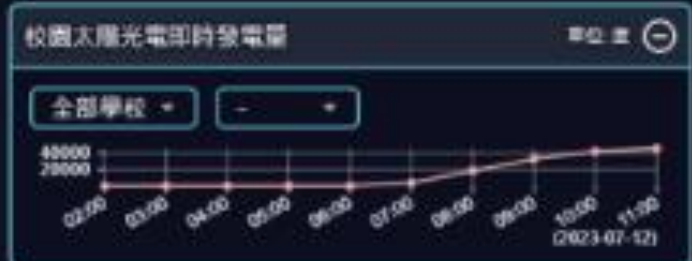
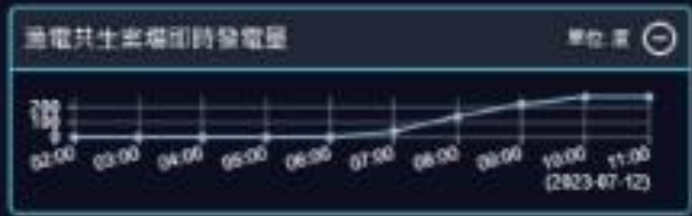
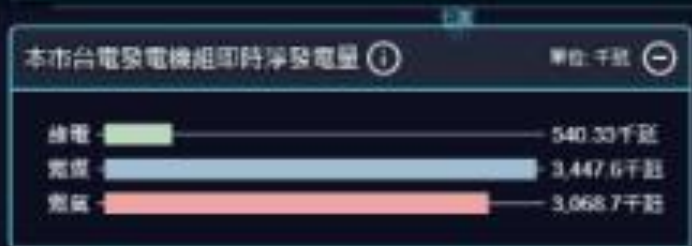
⚡ Renewable Energy Storage System

- ✔ 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>



全台今日電力資訊

今日預估轉自量率 17.10 % 日前用电量 2376.5 萬瓩 利用率 66 %

今日最大供應電力 3021.2 萬瓩

Smart Streetlight Smart Management

關閉



Digitalization
Streetlight Data

Integration with
Geographic Information

Real-time Fault
Information Reporting

Swift Dispatch and
Trajectory Tracking

Repair Documents
Cloudification



- 核准掘挖日期: 112/10/23~112/11/20
- 連絡電話: 7318568
- 許可證號: E11202690
- 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



Pipeline-digging Dashboard

Easy-access 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

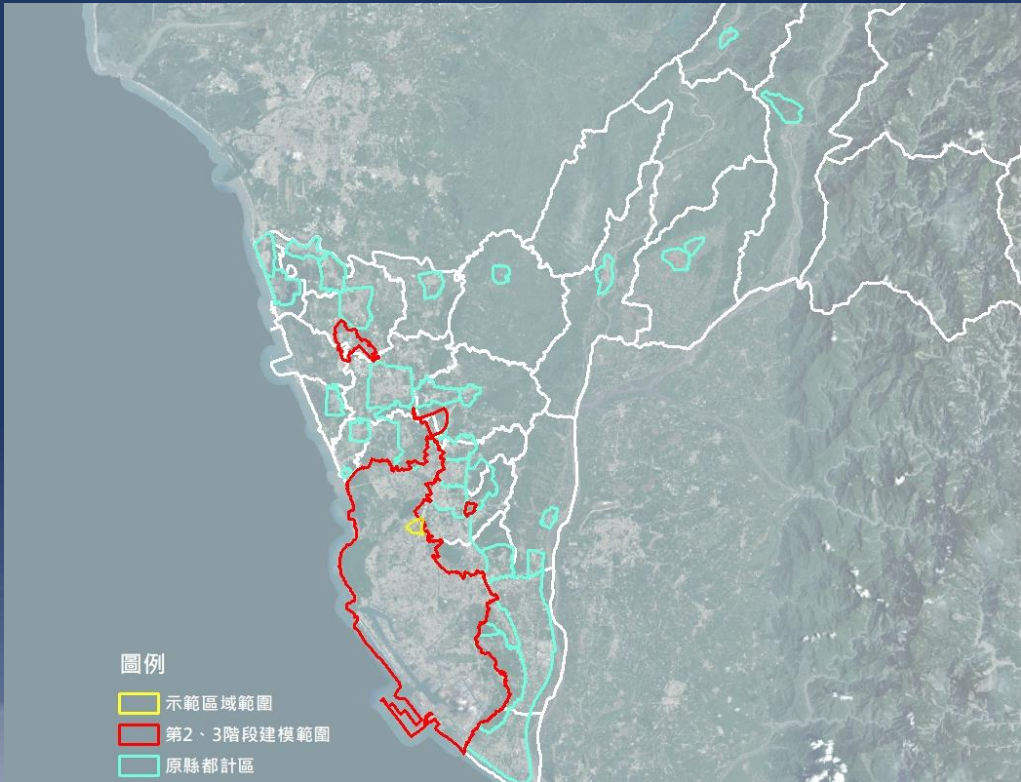
City Digital Twin Platform

Smart Governance

- » Taiwan's 1st 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



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

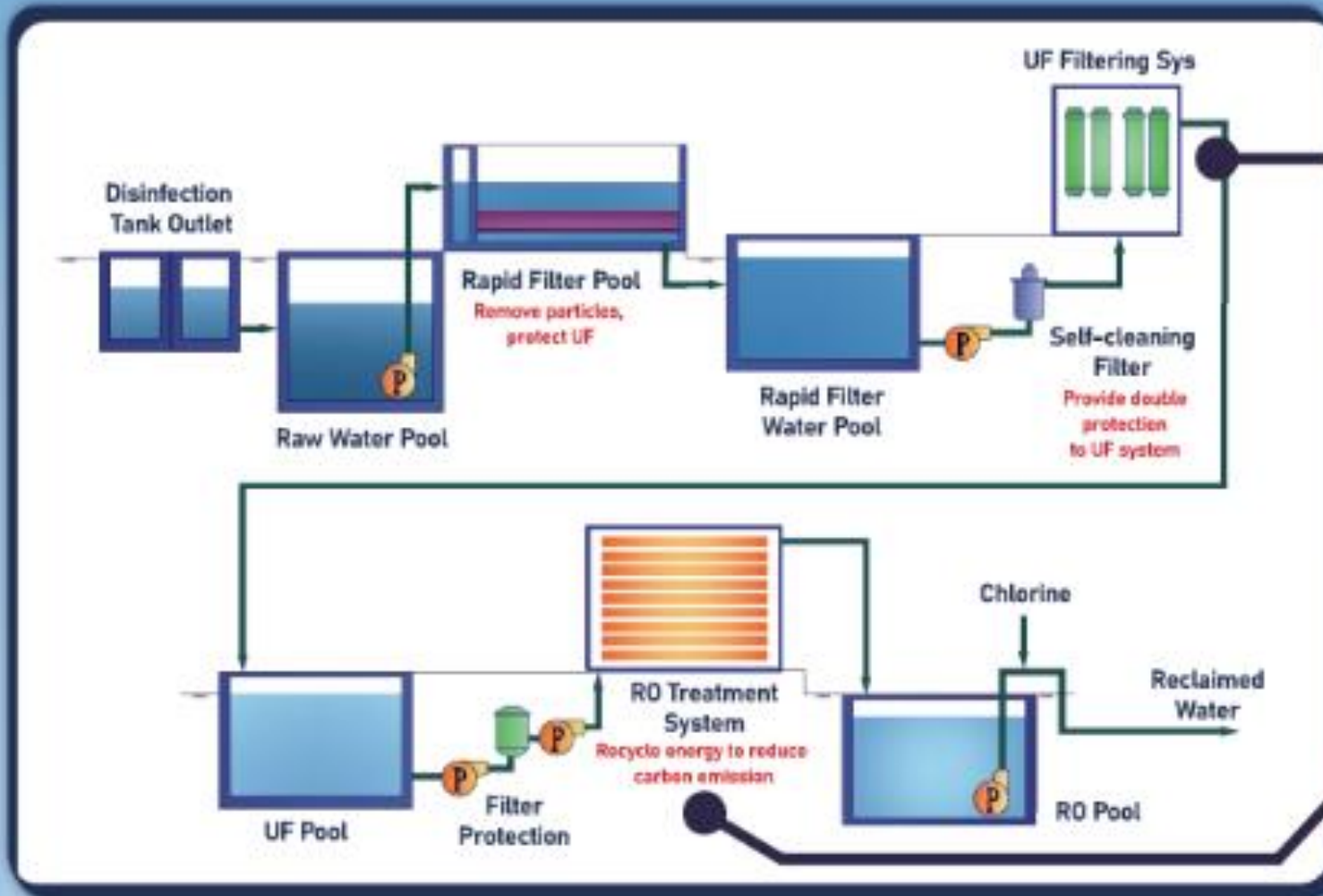
CCTV Car-Plate Recognition System

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, 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

152 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

96.67%



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






Health365 Healthcare Platform App

7 municipal hospitals and **36** long-term care stations have joined

Gamified health points system promotes

Self-health Management among citizens

-  Physiological measurements, exercise status, and dietary records
-  Provide health videos, remote medical consultations, and disease risk assessments
-  Link hospital health check reports and National Health Insurance health records

Taiwan's 1st Vehicle, Heading To Remote Areas!

Mobile gym tour vehicle

Heading to Zuoying, Nanzih, Meinong, Qishan, and Dashu

5 Districts with a total of **10** Locations!



Mobility

Moving fitness centers to the community to overcome accessibility limitations



Professionalism

Hardware and software fitness equipment, equipped with professional trainers and physical therapists



Systematic

Designing courses to address issues such as sarcopenia and osteoporosis in the elderly.



Senior Fitness Club

Kaohsiung has **17** senior fitness clubs, **the most in the country**



Largest in Taiwan: Fengshan Sports Park creates a fitness center for seniors



Using **AI Fitness Equipment** and **Smart Coaching** records for health data analysis and intelligent guidance.

Enhance

Muscle strength to prevent falls

Extension

Years of healthy life expectancy

Reduce

The risk of bed confinement disability

Cultivate

Habit of regular exercise





Smart Long-term Care Comprehensive Elderly Care Platform

Adopted by **35** medical institutions

Over **2,000** users

- Integration
- Real-time
- Care
- Health Education
- Data

Hospitals, Clinics, and Long-term Care Service Units ↔ Care Recipients and Their Families

Instant contact with caregivers; hospitals and clinics provide quick responses

Case management function to develop care service plans

Provide education on chronic disease management

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, 531 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

Gartner Eye on Innovation Awards

For government 2022

Time and Labor Saving



71 sites with water, land, and air

Inspection Time Saving over 50%

Drone Spraying Saves 66% of Labor

applications across 640 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).



Award-Winning



2022 IDC SCAPA
Smart City Asia Pacific Award
(SCAPA)
Public Safety-Data driven Policing



2022 IDC SCAPA
Smart City Asia Pacific Award
(SCAPA)
Transportation Infrastructure



2022 ITS World Congress
Hall of Fame
Local Government Award



2023
SEOUL SMART CITY PRIZE
Special Mention Award by GGGI



2023
ASOCIO ICT Award
Health Tech Award



APAC 2022
Digital Champion Government
Eye on Innovation Awards



Smart City
Excellence Contribution Award
Smart Service



Smart City
Excellence Contribution Award
Smart Governance



2021 Smart City
Innovation Application Award
Smart Transportation



2022 the 5th APEC
Energy Smart Communities Initiative
Best Practices Awards
Program Low Carbon Model Towns - Gold



2022 the 5th APEC
Energy Smart Communities Initiative
Best Practices Awards
Smart Transport - Silver



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



2022 Smart City
Innovation Application Award
Smart Healthcare



2022 Global Innovation
and Tech Excellence Awards
Sustainable Growth Award
Circular Economy Award (Public Sector)



2022 Global Innovation
and Tech Excellence Awards
Sustainable Growth Award
Circular Economy Award (Public Sector)



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



2021 GO SMART Awards
ISAFE

AWARD WINNING

International Awards

Year	Awards
2023	<ul style="list-style-type: none"> ➤ Seoul Smart City Prize-Special Mention in Partnership with GGGL ➤ ASOCIO ICT Award-Health Tech Award ➤ Global Innovation and Tech Excellence Awards ➤ Merit Award-Innovative EHealth Solution Award (Public Sector)
2022	<ul style="list-style-type: none"> ➤ APAC Digital Champion Government Eye on Innovation Awards ➤ Global Innovation and Tech Excellence Awards 2022 ➤ Merit Award- Digital Opportunity/ Inclusion Award (Public Sector) ➤ Sustainable Growth Award/ Circular Economy Award (Public Sector) ➤ IDC Smart Asia/ Pacific Awards (SCAPA) ➤ APEC Energy Smart Communities Initiative (ESCI) Best Practices Awards Program ➤ Low Carbon Model Towns-Gold, Smart Transport-Silver
2021	GO SMART Awards

Domestic Awards

Year	Awards
2024	<ul style="list-style-type: none"> ➤ Smart City Innovation Application Award
2023	<ul style="list-style-type: none"> ➤ City of Excellence Award-environmental group-Preferred, social progress group-Preferred ➤ Smart City Innovation Application Award-Smart Agriculture, Smart Transportation ➤ Smart City Excellence Contribution Award-Smart Transportation
2022	<ul style="list-style-type: none"> ➤ Smart City Innovation Application Award ➤ ITS World Congress Hall of Fame- Local Government Award ➤ Cloud Computing & IOT Award-Outstanding Application Award ➤ Smart City Excellence Contribution Award-Smart Service
2021	<ul style="list-style-type: none"> ➤ Smart City Excellence Contribution Award-Smart Governance ➤ Smart City Innovation Application Award



KAOHSIUNG SMARTCITY

Kaohsiung Smart City
Project Management Office (KPMO)

