# GO SMART
# Opportunity Report

GO O
SMART
GLOBAL ORGANIZATION OF SMART CITIES

## Vol.3

# Contents

# 2020
# GO SMART Award

To encourage the global smart city development through Inter-City PoC (Inter-City Proof-of-Concept) projects, the Global Organization of Smart Cities (GO SMART) is hosting the GO SMART Award competition annually. Innovative and smart city collaborations in all industrial, governmental and academic domains are invited to share their innovative knowledge and solutions on cities. The finalist of GO SMART Award would be worldwide promoted. Any project that includes more than one stakeholder from multiple cities is welcomed.

GO SMART is the network formally established in March in 2019 and has 181 members till January of 2020. The main task of GO SMART is to facilitate Inter-City projects, enable closer connection among cities, promote the integration of urban and industrial strengths, and solve urban problems.

## The Winners

Congratulations on below contestants were selected as the winners of 2020 GO SMART Awards. The winners' arranged in alphabetical order.

**Lidbot, Inc.**
**MiTAC Information Technology Corp.**
**New Taipei City**
**Taichung City**

## The Finalists

Congratulations on below contestants were selected as the finalists of 2020 GO SMART Awards. The finalists' arranged in alphabetical order.

**Da Nang**
**Freelance Robotics smartGEN ™**
**Gdynia**
**Hsinchu City**
**Hsinchu Science Park, Ministry of Science and Technology**
**Kaohsiung City**
**Pioneer IoT Pty Ltd.**
**Ubiik**

# Selection Criteria

| Evaluation Criteria | Description | Weight |
|---|---|---|
| Innovation | How innovative/creative/unique is the idea? Was there a novel approach applied to solve the problem? | 25% |
| Cross-domain | How many stakeholders are involved in the project? How many different topic fields are included (e.g. energy/mobility/waste)? | 25% |
| Function | What is the problem this project addresses? How appropriate is the proposed solution to the nature of the problem? | 20% |
| Impact | How impactful is the idea? What is the follow-up plan? To what extent is it a scalable solution? Can it impact the lives of many people in a significant way? Is the idea aligned with the sustainable development goals of the city/country? | 30% |

# The Jury

The jurors' names arranged in alphabetical order.

**Charles Reed Anderson**

Founder - Charles Reed Anderson & Associates (CRA)

**Dr. Levent Gürgen**

Leader - Urban Technology Alliance (UTA)

**Dr. Chen-Yu Lee**

Secretary General - Global Organization of Smart Cities

**Philip Bane**

Managing Director - Smart Cities Council

**Kyong-yul Lee**

Secretary General - World Smart Sustainable Cities Organization (WeGO)

**Dr. Wei-Bin Lee**

Executive VP, Executive Secretary FinTech Office - Fubon Financial Holding Co., Ltd.

# Kaohsiung City

**Population   2,773,127          Size    2,951.85 km2**

Kaohsiung City is located in southern Taiwan and has a total population of around 2.77 million. With its harbor and airport, the city covering a total area of roughly 2951 km² is a major international gateway in Taiwan. It is rich in resources possessing, agriculture, forestry, fishing, and animal husbandry industry, warehousing and logistics industry,tourism and culture industry, industrial zones, hi-tech parks, and incubation centers. In recent years, active efforts have been made to transform Kaohsiung into a digital city.

## Smart City main focus areas

### Smart Government

Creation of a smart government through the "3I - Infrastructure, Integration, Innovative" Strategy, namely provision of sound infrastructure, integration of information resources, and value-added application of innovative services, to realize "3A – Anyone, Anytime, Anywhere" smart living for residents, namely availability of required service for every resident anytime and anywhere.

### Health governance and public services in the context of a smart city

Linkage of market resources in the fields of medical treatment, care, and personal health management, and creation of a sustainable service model for urban health governance based on a spirit of sharing and joint care with communities as the main service bases.

### Smart safety

Promotion of smart city safety networks and enhancement of disaster relief and rescue command systems to achieve standardized processing, smart dispatch services, IT-based procedures, diversified reporting services, and unified resource pools.

### Smart transportation

Promotion of new-generation smart transportation systems through adoption of advanced AI and IoT technologies, and development of user need-oriented digitized, mobilized, and customized transportation information and management services.

## Testbed Opportunities

### Smart street lights

Installation of 49 and 24 smart street lights in the Hamasen Area and Asia

New Bay Area as experimental areas, respectively, and placement of IoT equipment including cameras, environmental monitoring devices, and smart energy storage.

Street light management and control, detection of real-time traffic information through AI image recognition, , analysis & research of digital data collected through environmental monitoring devices and realization of perceivable smart lifestyles for city residents.

## Constructing Wisdom and a Loving Community, Creating New Healthcare Services



Provision of public services through integration of healthcare stations and linkage of 50 local clinics and 100+ service locations in Kaohsiung with communities as the main service bases to create a service network of smart city health governance

Smart health management services, personal health management through cloud platforms, and innovative applications for auxiliary diagnosis and treatment and mobile care

Provision of services in healthcare institutions, long-term care locations, commercial areas, and public places to cover areas frequented by over 50% of Kaohsiung residents.

## Emergency first-aid cloud network

Systematic reporting of current conditions and patient load of emergency rooms by all hospitals.

Dispatch of ambulances by the 119 Reporting and Command Center based on systematic queries of emergency room conditions at each hospital to prevent concentration of patients in the same hospitals and overload of emergency rooms.

Rapid transmission of electronic first-aid records including first-aid triplicate e-forms and 12-lead electrocardiograms by ambulance personnel to hospitals via tablets with the goal of facilitating timely emergency treatment and raising patient recovery rates.



## Shuttle taxi

Provision of shuttle services by taxis instead of public buses.

Serving of routes and locations not accessible by public buses or without public bus services through taxis which are characterized by high flexibility and accessibility, as well as provision of real-time vehicle location and service information through the adoption of AI and IoT-based smart transportation technologies with the goal of creating a smart transit waiting environment.

# Support required

## Smart street lights

Creation of a complete 5G picocell environment and enlistment of businesses for the development of 5G applications tailored to the needs of Kaohsiung

Installation of cameras to obtain traffic information which is processed through AI image recognition and big data analysis with the goal of facilitating development of commercial models by relevant businesses

## Constructing Wisdom and a Loving Community, Creating New Healthcare Services

Continued accumulation of urban health-related big data and promotion of innovative services through integration of AI, mobile devices, and medical treatment with the ultimate future goal of providing residents with personalized, AI-based, precise healthcare services through cooperation with relevant businesses



## Emergency first-aid cloud network

Forwarding of patient information to medical centers and enhancement of AI prediction methods in the field of emergency first-aid to raise emergency treatment success rates

## Shuttle taxi

Continued perfection of service route networks through penetration of remote townships and neighborhoods, installation of smart transportation facilities in cooperation with relevant businesses, and optimization of mass transit service environments to create a convenient and obstacle-free transit waiting environment

# Phoenix

As the fifth largest city in the United States, Phoenix, Arizona, has been recognized as America's fastest-growing city (population) for three years in a row. The City's continued growth in a still maturing urban landscape provides Phoenix residents a tremendous opportunity to shape the future of their city like no other place in the world. Known as an agricultural, industrial and service center, Phoenix attracts 44.5 million visitors a year with its warm climate, natural resources and proximity to national parks.

## Smart City main focus areas

### 1.Smart Park – Park of the Future

*"Hance Park can become a key venue for cultural and entertainment programming as well as a destination in its own right – the kind of public space that is integral to everything thriving urban core in the country".*

Every great city needs a great park. Public parks serve communities as economic drivers, as recreation destinations, as places to learn and socialize, and as respite from the increasingly urbanized world in which we live. Experiences in parks make memories with friends, family, and the outdoors.



Phoenix is positioned to expand digital transformation into a signature recreational space near the heart of downtown Phoenix known as Margaret T. Hance Park. The 32-acre park is uniquely located on the deck over Phoenix's main interstate freeway tunnel. Hance Park is already an urban destination for cultural, community and music events. In fact, the park's property is home to four cultural and arts centers and a public library. Current amenities at the park include drinking fountains, grills, reservable ramadas, a playground, restrooms, walking paths, a lighted sand volleyball court and special event space. The City and its residents are focused on a revitalization project through a public-private partnership, which opens the door to Phoenix's first urban smart park.

Hance Park is poised to be a "living laboratory" for innovation. It is

envisioned that the Park will be sustainable and "smart" by utilizing water capture to water plants and trees; development of solar technology to achieve net zero power consumption at the park; use of sensors to give users information about their health and wellness; experimentation of new ways to share community information; and to work in concert with all of the cultural facilities and organizations which surround the park and contribute to the rich experience available when visiting Hance Park.



## 2.Open Data

Transparency is a cornerstone of the city of Phoenix's commitment to protecting and distributing data. Centralized data warehouses and data repositories such as Phoenix's Open Data site, phoenixopendata.gov, provide consistent reporting, identify trends, facilitate discovery, expand analytical capabilities, and improve transparency for residents and leadership alike. As the City looks beyond transactional data to develop insights, influence business efficiency, predict trends, and identify opportunities, data-driven decisions become more meaningful.

## 3.Smart Transportation

As Mayor Kate Gallego stated in her State of the City Address in June 2019, the "light rail is not about whether you or I ride it every day. It's about making sure that all people have an equal chance at success" by improved accessibility. Five years ago, Phoenix voters approved Transportation 2050, a 35-year citywide transportation plan aimed at dramatically expanding investment in Phoenix for bus service, light rail construction and street improvements. New transit-related technology such as an improved fare-collection system, real-time data and security improvements for bus and light rail are just part of the smart technology residents will experience.

## 4.Partnerships

Arizona State University (ASU) announced at the 2019 ASU Smart Region Summit flagship event their partnership with a cable/telecommunications company to create a connected environments collaboratory at ASU.

This collaboration will drive the development of Arizona's smart region infrastructure, delivering on the promise of ASU's Smart City Cloud Innovation Center (CIC) to build smarter communities in the greater Phoenix metropolitan region by solving pressing community challenges.

The Collaboratory at ASU will aim to solve real challenges within the Greater Phoenix community and beyond in ways that are innovative and not readily available in the marketplace today. As an incubation center and convening space, the Collaboratory aims to engage ASU students, staff, and faculty to design the next wave of Internet of Things (IoT) solutions that could, for example, optimize buildings for sustainability, provide new learning experiences in virtual and augmented reality, overhaul transportation infrastructure and more. The focus will be on solving real challenges within the Greater Phoenix community with next-gen Internet of Things solutions: for example, applications for more sustainable buildings, learning experiences in augmented and virtual reality, technologies to overhaul transportation infrastructure, and more.

To power the Collaboratory, the company will deploy a comprehensive wired and wireless network on campus as part of ASU's NextGen Network. The Collaboratory is another step forward for these efforts, engaging city leaders and citizens, non-profits, faculty, student researchers, industry experts, and visiting scholars to build the metropolis and regional infrastructure of the future.

## Testbed Opportunities

### Smart Park – Park of the Future

Margaret T. Hance Park is being revitalized to transform an existing park over a freeway into the City of Phoenix's iconic park. It will serve as

a recreation destination for nearby neighbors and large festivals and all activities and events in between. Testbed opportunities include the following:

### 1.Solar

On average, Phoenix experiences 299 sunny days, a total of nine inches of rain and zero inches of snow per year. With weather like this, residents have countless opportunities to enjoy Phoenix's great outdoors at urban destinations like Hance Park. Plans surrounding the revitalization of the park include innovative use of solar, ranging from traditional rooftop panels to incorporating artistic architecture for shade. Creating and executing more innovative strategies around solar within Hance Park could introduce increased savings and encourage sustainability for the City of Phoenix and its residents.

### 2.Water

Phoenix is located on the upper edge of the Sonoran Desert and has a hot desert climate. Being smart about how Hance Park manages water resources is not only about fiscal responsibility, it promotes sustainability. Phoenix currently invests in water harvesting, where the little rainwater Phoenix receives is collected and reused on-site. Likewise, the library near Hance Park performs water capture through its air conditioning system.

### 3.  Internet of Things (IoT)

In March 2019, a rollout of dedicated high-speed internet during the inaugural Phoenix Music Festival allowed attendees at Hance Park to enjoy great music and activities along with the ability to share the experience with their social network via wireless access. This enhancement showcased Phoenix's advancements as a technologically-enabled city to promoters and participants alike. Additionally, other parks throughout Phoenix use smart irrigation where it remotely analyzes the moisture of the soil and climate. With desires for smart park benches, lighting, trash cans and more, Hance Park can create a roadmap to how it will use IOT and data to enhance the experience for all visitors.

## Support required

1.Solar innovation leveraging Phoenix's desert climate.
2.Additional management solutions promoting water sustainability.
3.Internet of Things (IoT)- Enhancement of any park services or experiences.
4.Smart parking – A solution to help visitors unfamiliar with the area to locate available parking or city transportation options.
5.Smart lighting highlighting efficiency and safety.

# FOX-TECH CO.

**Taipei, Taiwan**

FOX-TECH CO. is digitally transforming farming, cold chain, and manufacturing business owners operations through a data analytics IoT platform. FOX-TECH is empowering business owners to have the required temperature and humidity changes alerts to increase food safety and quality.

TEMPHAWK, FOX-TECH's flagship product has helped business owners reduce their margin loss across the food supply chain in over 24 countries worldwide (Taiwan, Japan, Philippines, Singapore, Thailand, Malaysia, Australia, New Zealand, Netherlands, Belgium, Germany, France, Spain, Portugal, UAE, South Africa, Canada, USA, Mexico, Guatemala, El Salvador, Honduras, Costa Rica, Colombia) in the last 18 months.

Sector: AIoT/ AgriTech/ Data Analytics

## Service/Product

TEMPHAWK is an end-to-end solution for optimizing quality and safety in the food and beverage industry. It combines a great sensor system with data analytics to help business owners understand and improve their production and logistics.

TEMPHAWK allows its users to do environmental monitoring from the comfort of an office to the convenience of a smartphone.
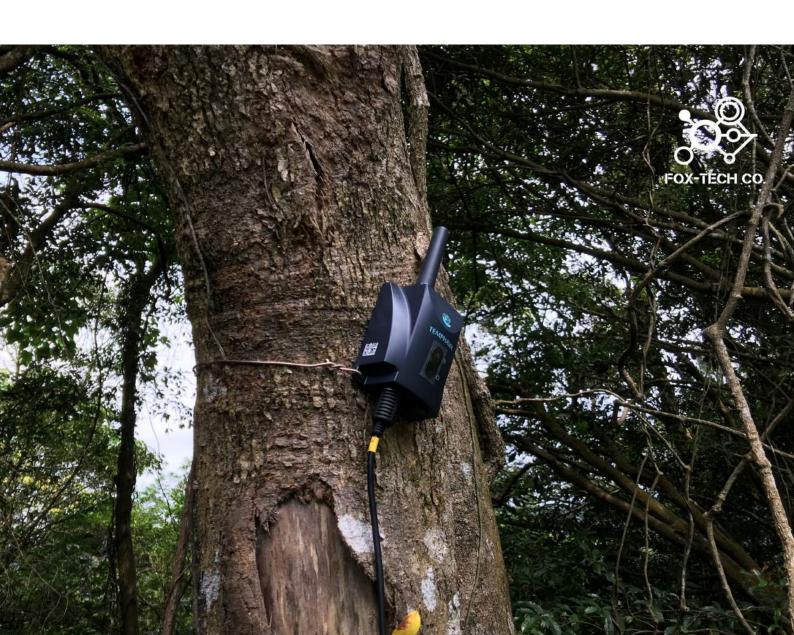
## Application in city

In recent years, wildfire has been happening worldwide, and it surely has become the focus of the world. In Taipei,Taiwan, FOX-TECH partnered with Smart Taipei to

**assist on the Yang Ming National Park for wildfire detection.**

The TEMPHAWK solution is a combination of accurate sensor and data analytics which is also designed to work under harsh environment like the tropical forest. The sensor is used to detect the change of forest temperature and humidity. While there are more than 50,000 trees in the national park to be taken care of, the forest rangers can notify the firefighters to arrive at the scene during the golden rescue time of the wildfire.

Aside from wildfire detection, the authority can carry out forest renewal project for a future ecological park. Therefore, our TEMPHAWK solution can be deployed in various tree density for the research team to obtain the history report to see how tree density can affect the temperature and humidity in the forest.
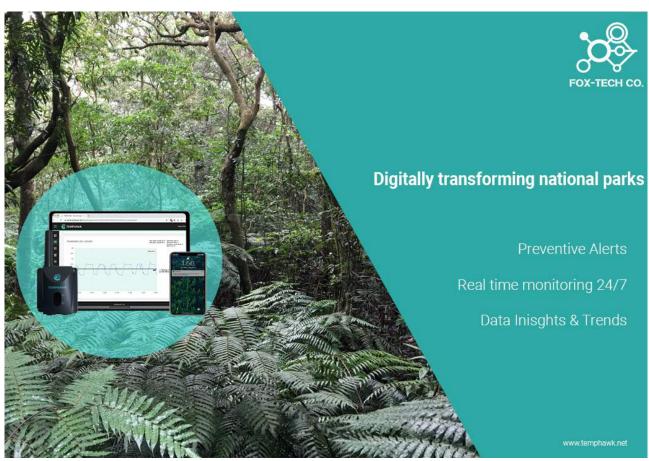
# End-to-End

Monitor the goods on their last mile of delivery
guarantee their safe delivery

Learn more at www.temphawk.net

## Unique features of our product/service

Here are six highlights of deploying our TEMPHAWK solution in the forest:

1. No technician needed; it's mass-deployment-friendly, just plug in the sensor and it's good to go
2. LPWAN (Low Power Wide Area Network) compatible, by implementing LPWAN technologies the TEMPHAWK device can send data every 10 minutes.
3. Low Power Consumption: Battery life last 12 months on a single charge.
4. Data Driven Insights: Get the latest trends and reports from your environment on the cloud.
5. It can survive under extreme weather condition as it is certified with IP67, meaning it's waterproof and dust proof
6. It allows the forest rangers to know the status of the forest 24/7 and get alert notification when the temperature and humidity exceeds a certain range

**Digitally transforming national parks**

Preventive Alerts

Real time monitoring 24/7

Data Inisghts & Trends

www.temphawk.net

# Ubiik Inc.

ubiik

Ubiik Inc. is a breakthrough Industrial IoT solution provider, spearheading the next wave of cleaner, more efficient and cost-effective energy distribution. The young team set out to prove that an innovative new company could make a difference with utilities, industrials and governments globally to make factories, cities and countries greener.

Ubiik's Advanced Metering Infrastructure (AMI) leverages the latest telecommunication including Weightless LPWAN, LTE, NB-IoT and analytics technologies to connect smart meters wirelessly into large dedicated networks. The solution enables utilities such as Taiwan Power Company to monitor and control the balance between demand and supply of energy for the whole country. It's estimated that over 300,000 electricity meters are connected by Ubiik solution in Taiwan in 2020. Moving forward, Ubiik is poised to continue to leverage its technical expertise and acute innovation spirit to make the greatest positive impact in the current energy situation of the planet, with more efficient corporations and greener communities.

## Service/Product

Ubiik Advanced Metering Infrastructure (smart meters network, solar PV monitoring, microgrids)

## Application in city

According to ABI Research, the number of electricity meters deployed will have grown from 512 Million in 2018 to 866 Million in 2022, on to 1.1 Billion by 2026.

With such volumes, the need for lower cost solutions that require the minimum hardware infrastructure (longer communication range for fewer gateways) and the lightest software interface (without needing additional servers) has become highly sought-after by utilities and energy companies. As utility companies put forth increasingly demanding requirements,

decade old solutions such as power line communication or mesh networks begin to fall behind on cost expectations. Early attempts by startups in providing new low-cost connectivity solutions have not managed to reach the demanding performance targets of such industrial IoT networks. For instance, electricity smart grids require two-way communication to not only measure but also control the meters, with extremely high reliability and low latency, for vast number of devices.

Until recently new solutions could only reliably support one-way transmissions. Utilities have looked for more fitting solutions which

can deliver higher data rates, higher reliability, lower latencies, and bi-directional communication. With that only, whole communities can save power, maximize renewable energy usage, and avoid blackouts.

Ubiik has been awarded Taiwan's electricity AMI tender for the second year in a row. The largest IoT project in Taiwan, Taiwan Power Corporation

(Taipower) is aiming for a full-fledged AMI with 12 million electricity meters over the next 15 years. The company won contracts in 2018 and 2019 for the installation, operation and maintenance of the AMI for more than 300,000 residential, industrial, and Solar PV smart meters in several regions of Taiwan.

# Unique feature of our product/service

Ubiik Advanced Metering Infrastructure (AMI) is the groundbreaking innovation in long range, low power, low cost, highly reliable smart metering, proven by Taiwan Power deployments.

## Multimodal network

Ubiik's key uniqueness is to have vertically-integrated hardware, networking and software with the most innovative technologies. Ubiik is the first and only company to offer LPWAN technologies in Taiwan for Electricity AMI. With that said, one technology cannot be the best fit in 100% of all applications. Ubiik has integrated other technologies such as LTE and NB-IoT into a multimodal network to harvest the most of each of these bleeding edge technologies. That is why some of the most innovative and forward-looking companies in the world chose Ubiik as partner to enable their ambitious, critical business initiatives while reducing their energy costs.

## Technology Superiority

The features of Weightless LPWAN enable itself to be an ideal choice for electricity meters. Ubiik Weightless solution has been proven by Taiwan Power Corporation to be the reliable, cost-effective in large scale IoT project in Taiwan after a year of trials and pilots which saw 8 contending proposals being turned down from qualification.

Ubiik AMI solution includes base stations, customized wireless end-device modules for smart meters, and software head-end system. It features high capacity, reliability and truly bi-directional wireless communication to fulfill the rigorous requirements on large-scale AMI deployment and energy management.

## Reliable Bi-directional Communication

Two-way communication with low latency enables utility companies collecting and analyzing the electric power consumption data every 15 minutes to control and monitor the power flows more effectively. It also supports firmware-over-the-air (FOTA) updates for AMI operators to reduce the maintenance and hardware acquisition costs and ensure future proofness of security updates.

## Long distance, high capacity and scalability wireless network

Ubiik solution has been demonstrated by the rigorous large-scale field verification process in Taiwan such a single Weightless Data Concentrator (DCU) manages about 1,200 electricity meters and allows typically 2 kilometers of range in a dense urban environment and up to 17 kilometers in suburban environment, while achieving deep indoor penetration of electricity meters in basements with metal enclosures.

# GO SMART
# Opportunity Report Vol.4

GO SMART Opportunity Report provides an overview of the ongoing urban problems, smart city developments, and ambitions of city stakeholders around the world. The challenges and opportunities of GO SMART members are elaborated in each Opportunity Report.

Now, if you would like to join GO SMART Opportunity Report Vol.4 to promote yourself, please be in touch with the GO SMART Secretariat (gosmartcities@citiesgosmart.org) **before April 10th**. We will soon contact you for the further process.

**April 10th**

Email GO SMART Secretariat to apply for Vol.4

Complete and submit the first vision to GO SMART

**May 8th**

**May 20th**

Confirm content & provide 5 photo

Release to GO SMART Members

**June 30th**

## GO SMART
GLOBAL ORGANIZATION OF SMART CITIES

**GO SMART Secretariat**
**gosmartcities@citiesgosmart.org**

# GO SMART
# An international organization committs to Moving cities towards Sustainability and Livability

GO SMART
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