

oneM2M Smart Cities in Korea

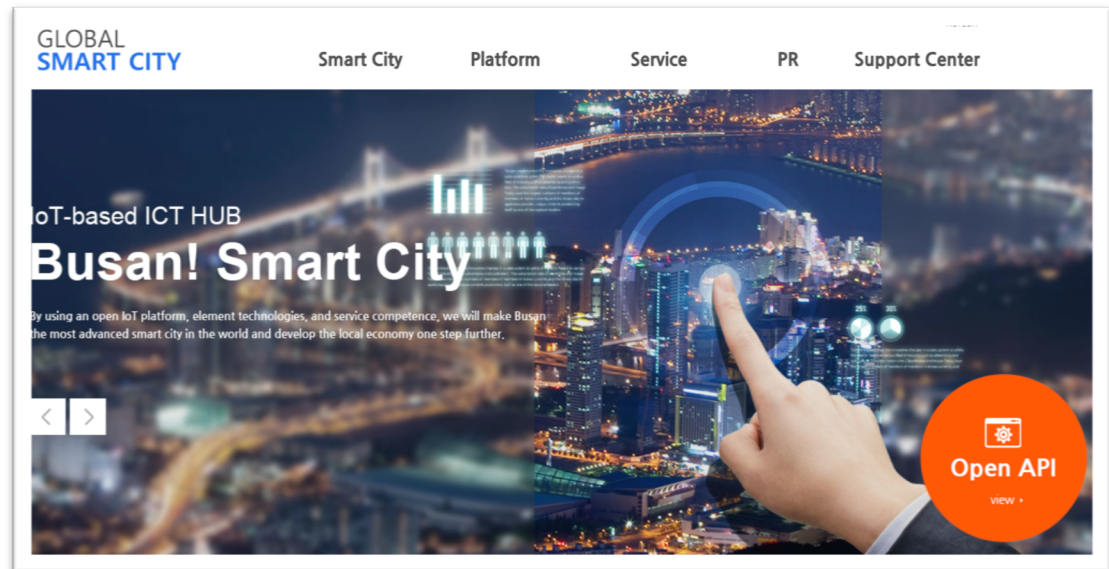
SeungMyeong JEONG, KETI
oneM2M SDS WG Vice-chairman

2019-08-27

Busan – Global Smart City



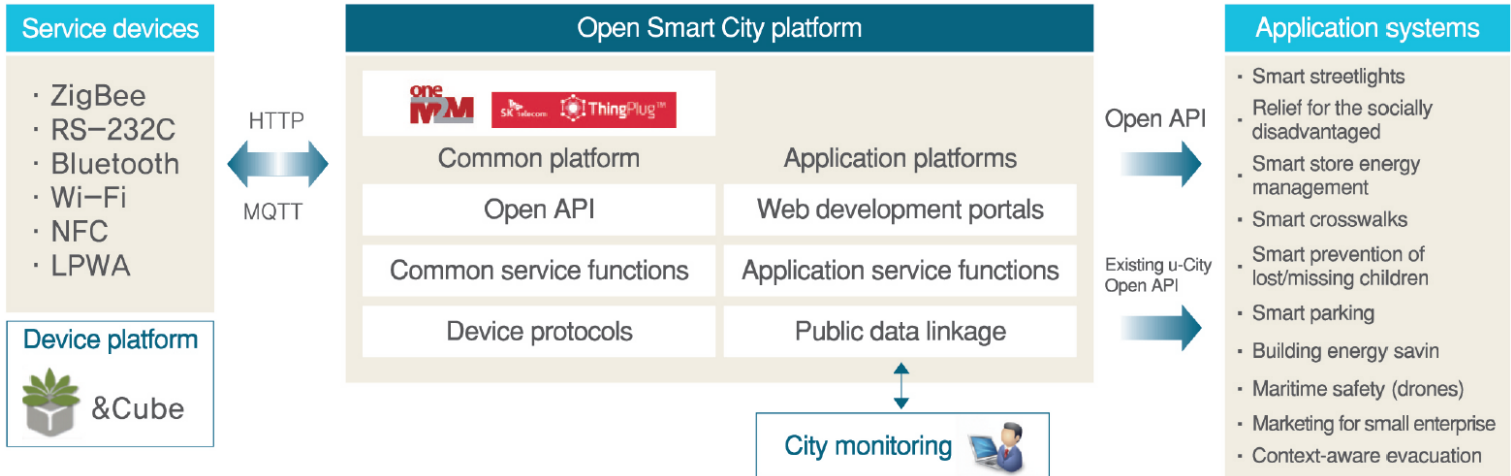
- Type: Pilot Project
- Duration: '15.01 ~ '17.12
- Testbed: Haewoondae-gu (district)
- Coordinator: SK Telecom



<http://www.k-smartcity.kr/>

<http://data.k-smartcity.kr/>

Busan – Global Smart City

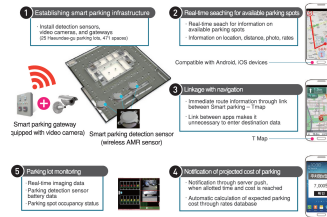


Testing prospective city services (26 services)

COMMUNITY SAFETY			TRAFFIC IMPROVEMENT	URBAN LIVING	ENERGY CONSERVATION
Smart streetlights	Relief services for the socially disadvantaged	Smart prevention services for lost/missing children	Smart crosswalks	Proximity beacons for small business location-based marketing services	Smart building energy conservation
Smart Maritime safety service (utilizing drones)	Situation-aware evacuation information system	Smart safety service for subway/LRT platforms	Smart parking	Mist-spraying at traditional markets	Smart store energy management
Smart subway ventilation management system	Trial of Smart City disaster prevention system	Smart traffic safety service in school zones	Pedestrian-responsive smart directional information signage service	Testing of situation-aware Smart Home service	Development of urban energy-self-sufficient smart farm service, linked with Smart City platform
Secure location management service based on smart LED streetlights	Smart City platform-based safety advisory service for wet road conditions	SDeveloping & testing 'soft' smart ship service platform for passenger safety & convenience, using wireless integrated IoT sensor technology	CCTV video analytics for traffic data collection & alternative route info	Social care services utilizing IoT smart mirrors	
Development of smart marine leisure services deploying IoT-based weather data collection devices			Enhanced image-based smart parking service	Visitor access control and monitoring system	

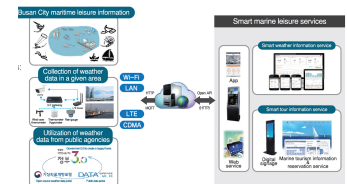
• 2015: 15 Services

Smart parking
 Parking information & guidance services: geomagnetic sensing technology for outdoor parking settings, providing real-time information on parking situation (imaging and parking info)



• 2016: 11 Services

Smart marine leisure services, deploying IoT-based weather data collection devices



Busan – Smart City Services

- New services in 2017
 - Traffic information from CCTV
 - Traffic flow improvement based on traffic collection and analysis
 - Pedestrian safety on crosswalk
 - Parking and re-charging for EV (Electric Vehicle)
 - Smart tourism
- Extended pilot services in 2018 and 2019
 - pilots are coordinated by BIPA (Busan IT Industry Promotion Agency)
 - new services have been tested for SME's commercial service development
 - Care solution for safe child education service
 - Smart balance work-out service with motion detection devices
 - oneM2M-based smart city platform has been used for SME training also

Daegu – Suseong Alpha City



- Type: Pilot Project
- Duration: '18.04 ~ '18.12
- Testbed: Suseong-gu (district)
- Coordinator: SK Telecom



Smart City 플랫폼 특징점

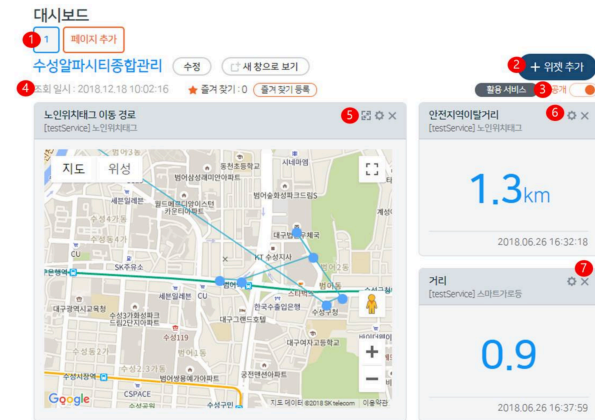
개발/연계성	지능형 융합 서비스	시민 참여
<p>IoT국제표준 OneM2M, LWM2M적용</p> <ul style="list-style-type: none"> - TTA를 비롯한 전 세계 7개 주요 표준화 기관이 결성하여 개발한 글로벌 사물인터넷 플랫폼 - 타지자체 확대, 글로벌 수출 경쟁 <p>OneM2M 표준 획득 인증서</p>	<p>실시간 복합이벤트 처리기(CEP)</p> <ul style="list-style-type: none"> - 실시간으로 데이터를 분석하여 도시상황 분석 및 신속한 사고처리지원 - 기계학습 기반 상황인지 정확성 개선 <p>CEP 분석을 실현 → CEP 실시간 분석 → 기계 학습</p> <p>CEP 패턴 정의, CEP 분석, CEP 학습</p> <p>CEP 패턴 정의의 적용성 파악 / 통합개체에 대한 보장 및 예측</p>	<p>개발자 참여 지원</p> <ul style="list-style-type: none"> - Device 개발자, Application 개발자 지원 <p>입주민 전용</p> <ul style="list-style-type: none"> - 수성알파지구 입주민 전용
<p>국제 표준 개방형 Open API</p> <ul style="list-style-type: none"> - 국내 제조사 및 시민 개발자들이 IoT 디바이스 및 IoT G/W를 호환하여 사용 - 국제 표준 프로그램을 활용을 통한 개방형 Open API 지원 (도시데이터외부 제공) 	<p>CCTV영상분석을 통한 상황인지 지원</p> <ul style="list-style-type: none"> - CCTV영상 분석결과에 이벤트, 객체/인감제, 통계/기능 제공 <p>가시영역통과, 비어있음, 급류방지, 침수감지, 인종/성별, 불법주차, 불법주차</p>	<p>도시 문제 해결을 위한</p> <ul style="list-style-type: none"> - 내/외부 데이터 분석 결과 도시 문제해결 의사결정 지원

<https://daegusmartcity.kr/>

<https://dev.daegusmartcity.kr/>

Daegu – Suseong Alpha City

- Services
 - Intelligent safe pedestrian service
 - Unmanned parking management service (e.g. illegal parking)
 - Etc.
- Developer supports on portal
 - Device registration
 - Service registration
 - Custom dashboards with configurable widgets



< smart city dashboard >

Goyang – IoT Convergence Smart City



- Type: Pilot Project
- Duration: '16.01 ~ '17.12
- Coordinator: LG U+
- Environment-friendly Smart City Services

대한민국 최고의 미래형 첨단 스마트도시, 고양시!
Korea's top notch cutting-edge smart city, Goyang!

Finding IoT service for urban problem solving

- 1 Finding Urban Issues to Be Verified
- 2 Demonstrated site / facilities
- 3 Obtain / disclose empirical data

Linking start-up support job creation

- 1 Supporting corporate development environment in Goyang Smart City Support Center
- 2 Discovery of complex services for enterprises
- 3 Start-up start-up business support

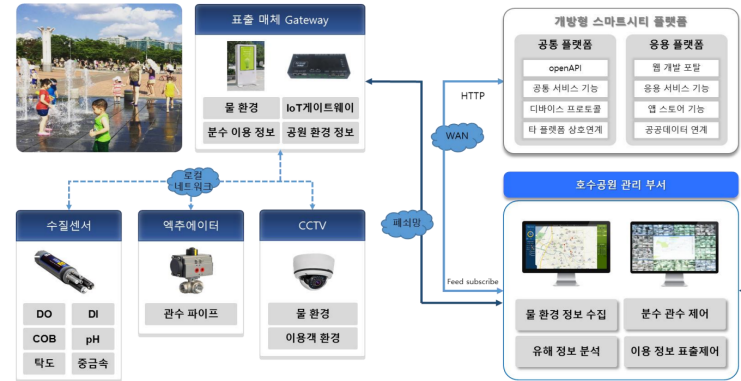
Citizen Satisfaction Analysis Service Expansion

- 1 Finding new services for citizen participation
- 2 Citizen Expert Advisory Group
- 3 Analysis of civic satisfaction survey

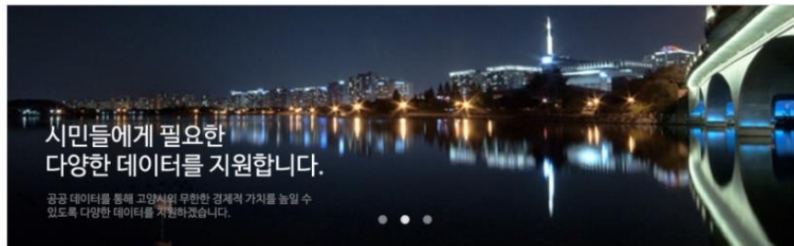
<https://www.smartcitygoyang.kr/>

Goyang – Smart City Services

- Pilot services
 - Smart Eco City services
 - Air Quality Management
 - Open Public Data
 - Smart Street Light
 - Smart Parking

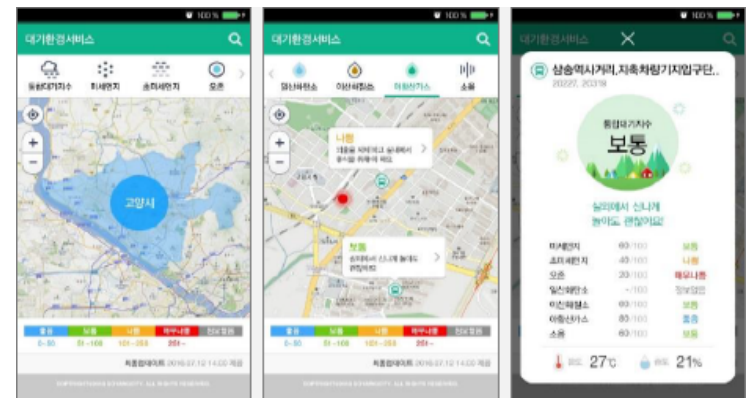


<Smart ECO City service>



최신데이터	인기데이터	이용안내
<ol style="list-style-type: none"> 1 대기환경 현황 2 수질환경 현황 3 안심가우동 현황 4 공공자전거 운영 현황 5 주차장 정보 현황 6 주차장 정보 현황 7 주차장 정보 현황 	<ol style="list-style-type: none"> 1 대기환경 현황 2 수질환경 현황 3 안심가우동 현황 4 공공자전거 운영 현황 5 주차장 정보 현황 6 주차장 정보 현황 7 주차장 정보 현황 	<ul style="list-style-type: none"> 공공데이터 포털소개 자료 등록 가이드 데이터 이용절차

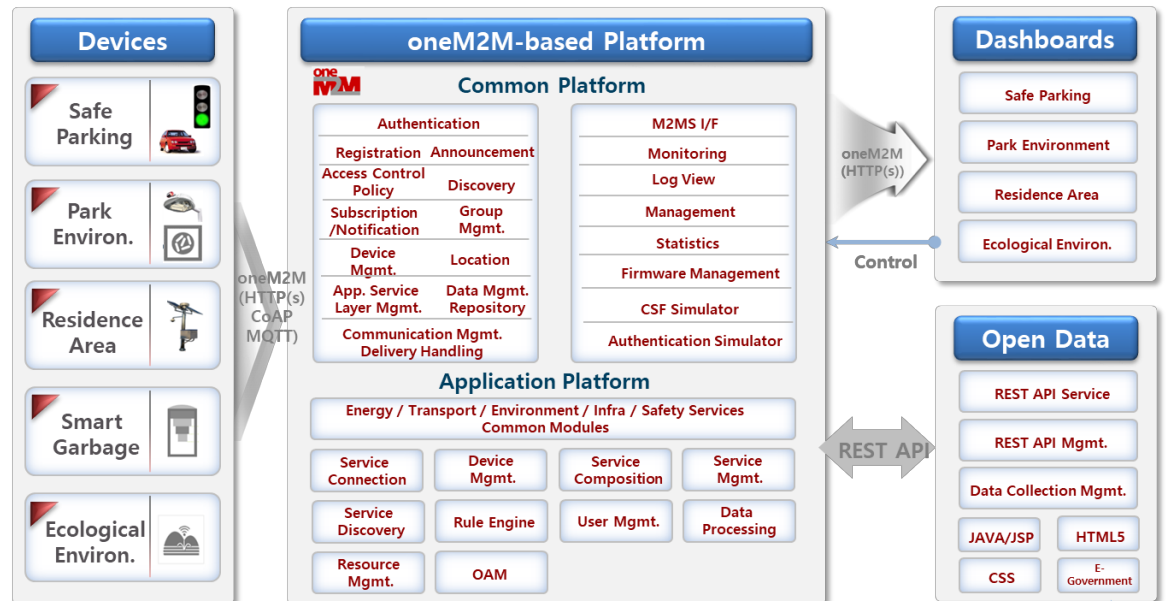
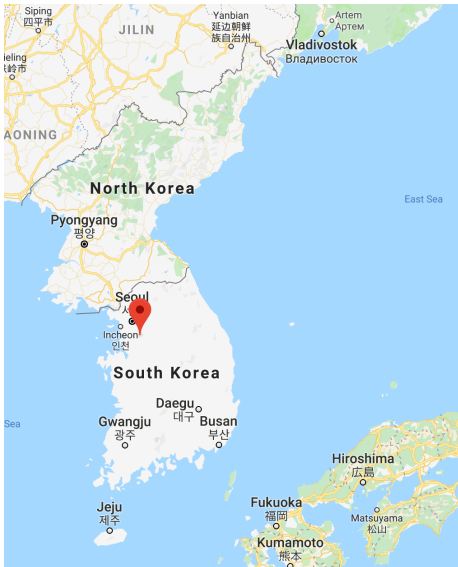
<Public Data Portal>



<Air Quality Management>

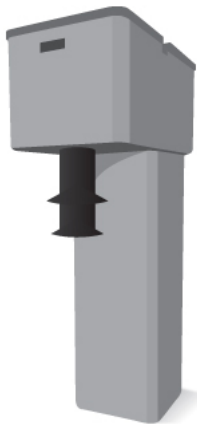
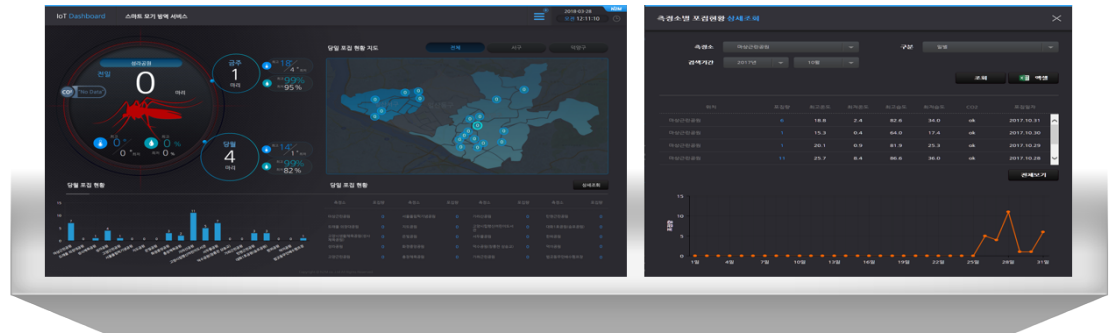
Yongin – Mosquito Monitoring System

- Type: Commercial Deployment
 - Commercial Deployment verified from Goyang Smart City
 - Deployment covers 3 districts in Yongin city
- Platform Provider: N2M

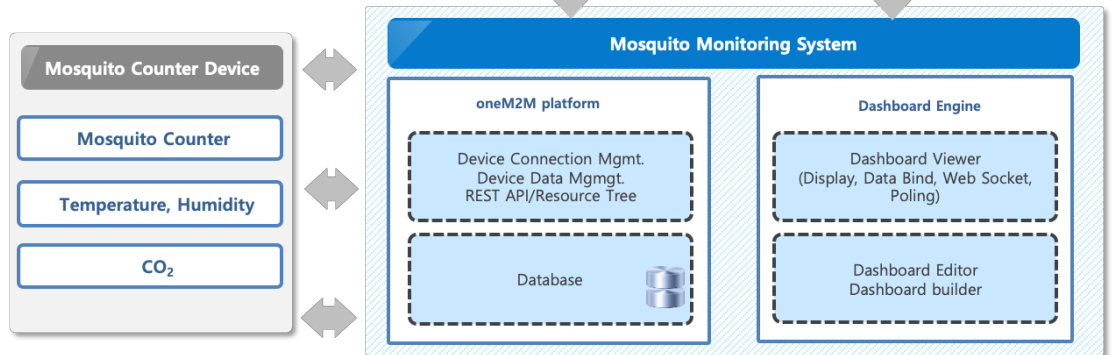


Yongin – Mosquito Monitoring System

- Mosquito Monitoring
 - Collects the number of mosquito with environment data from mosquito counter
 - Predicts with machine learning would be followed



<Digital Mosquito Counter>



THANK YOU

Contact: sm.jeong@keti.re.kr