Introduction to Smart City Busan

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Overview – Busan Metropolitan City

- Second largest city in Republic of Korea (population of 3.6 M)
- Sixth busiest container port in the world (17 M TEU per year)
- Logistics, transportation, and tourism
- First IoT-based Smart City in Korea

Busan, the city of IT technology and culture
World's 6th Super Port City

Center of Maritime Finance and Derivatives that Ranked 24th in Global Financial Centres Index

World's 9th MICE City

World's 3rd, Asia's First UNESCO Creative City of Film
Smart City BUSAN

[Smart city leader with well-equipped ICT infrastructure and strong IT technology]
Vision of Smart City Busan

Smart Economy

- Establishing IoT-based smart city operation platform
- Promoting creative economy by boosting smart city industries
- Strengthening Busan’s competitiveness and creating high added value in the era of global competition
4 Goals of Smart City Busan

1. Establishment transportation and tourism infrastructure → Enjoyable tour, convenient life
2. Establishment of disaster management system → Public safety
3. Reduction of energy consumption → Smart Green City
4. Citizen-driven smart city project → quality of life by utilizing IoT tech
History of Smart City Busan

2005

Busan Metropolitan City

2006~2011

Busan Information Super-Highway (Ubi-Way)

*Busan Ubi-Way: Korean Government’s U-City exemplary model

2012~2013

Busan Ubiquitous City Plan
Global Cloud Data-Center Pilot Cluster

2014

Busan Initiative at ITU-Plenipotentiary Conference 2014
MOU for Smart City among Busan-Cisco-SKT

2015~

Initiation of IoT-based Smart City Project

World-First U-City Master Plan
※ reports of Financial Times, UK (April 23, 2005)
Busan Metropolitan City

Smart City Busan – ICT Infrastructure

- Busan Information Highway: 1,278 km network connecting 319 public service organizations in Busan
  
  (Completion in 2007, established and owned by Busan City government)

- Wi-Fi Zones: Wireless Internet Access (free service for citizens)

- Integrated CCTV System
Busan U-City Project (2006 -2014)

- 10 Domains, 66 Projects, $274 million

**U-Port**
- RFID to container, vehicles
- Location tracking for improved export/import logistics visibility
- Efficient custom clearance

**U-Transportation**
- Real-time bus arrival info
- Automated toll collections
- Internet/Mobile Traffic info

**U-Tour**
- Tour contents/guide
- Travel, Hotel, Attractions
- Intelligent Tour Bus

**U-Health**
- Emergency service linking ambulance and hospitals
- Patient recognition system
- Tele-radiology service

**U-Safety**
- Remote monitoring using network of u-sensors
- Disaster early-warning system
- CCTV network, for enhanced safety
Smart City Busan – 4 Clusters (2015 - )

- **MoonHyun Financial ICT Valley**
  - Cluster for Finance, IT, FinTech, etc

- **Haeundae Smart City Test-bed**
  - Centum: cluster for SW, new internet and contents industries
  - Seokdae, Banyeo: base for Sensor producing companies, IoT businesses

- **West-Busan ICT Belt**
  - Mieum: Global Cloud Data Center District
  - Sasang Smart Valley: base for smart factory

- **Yeongdo Ocean ICT Convergence Belt**
  - Yeongdo Innovation district: Ocean ICT
  - Busan North Port Redevelopment Project: base for IT/Convention businesses
**Exemplary model of IoT based smart city for citizens**

- Provision of IoT based public service in 8 fields including traffic control, environment and safety management
- Smart city service: solution to challenges facing the city, quality public service, development as international IoT hub

- Korean government funds (over $12M USD) – Ministry of Science, ICT and Future Planning
- 20 Project participants including Busan City government
- Coordinator: SK telecom (largest mobile network operator in Korea)
- The 1st phase will ended in the end of 2015 (10 Services)
Case 1- Haeundae Smart City Test-bed Project

Smart Node

- Illumination sensor
- Noise sensor
- Vibration sensor

Wireless AP

61 of Smart street lamp
(12 of street lamp with the CCTV)

Smart city platform

Constant temperature closure

LTE modem

Gateway

IP CAMERA

Service extensions

- Lighting Control
- Energy Reports
- City Safety/Security
- Situational Awareness
- Incident Detection
- Traffic Flow monitoring
- City Air/Noise Pollution Maps
- Public Wi-Fi
Case 2 - Haeundae Smart City Test-bed Project

**Smart Parking**

1. Implement Infrastructure
   - Installation of sensor, video camera and gateway

2. Search for lots
   - Searching for the real-time information on available parking lot - location, distance, fee
   - Device for Android, iOS

3. Linkage with navigation
   - Linkage with Tmap
   - Linkage with applications without input the destination

4. Inform the estimated parking fee
   - Push service for the setting time/estimated fee
   - Automated calculation with parking fee DB

5. Monitor the parking lot
   - Real-time video information
   - Battery information for parking sensor

Busan Metropolitan City
Case 3 – Haeundae Smart City Test-bed Project

IoT based Public Service for Safety of Children and Senior Citizens

Diagram showing the integration of GPS, Safety Tag, CCTV line, LoRa, Smart phone, 3G/LTE, Open IoT platform, Smart city monitoring, Operating PC, and CCTV closure with Gateway and IP Camera.
3D visualization of smart city data: smart city data appears on screen in real time.
Introduction

- Main base for Haeundae Smart City Test-bed Project
- Facility: smart city platform and service operation center, software development facilities including DIY software development and test facility for trial product

- Goal: promotion of support for smart city businesses and projects
- Support for smart city SMEs and start-ups: commercialization of their products and services, marketing and market expansion, establishment of business to business or business to government cooperation network
Smart City Test-bed Support center

Strategies

- Establishing and operating Smart city test-bed support center
- Supporting the commercialization of smart city SMEs and venture companies’ products and services
- Fostering IoT experts
- Supporting Smart City start-ups and SMEs’ marketing and market expansion
- Establishing network for smart city cooperation
- Fostering smart city start-ups for promotion of creative economy

Busan Metropolitan City
City-to-City Collaboration for Smart City

City-to-City collaboration for Smart City

Export of Busan's Smart City Model

Global IoT Interaction

Open Standard Smart City Platform
Thank You