SMART Highway Project Activities

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ITS Korea

Topics

- Overview of SMART Highway Project
- SMART Highway Pilot Test Bed
- Applications and roadmap for Korea C-ITS

Overview of SMART Highway Project

- **SMART Highway Project is…**
  - National R&D Project aiming to realize safe, convenient " **Intelligent Highway**" by converging advanced IT, Automobile, Road technology

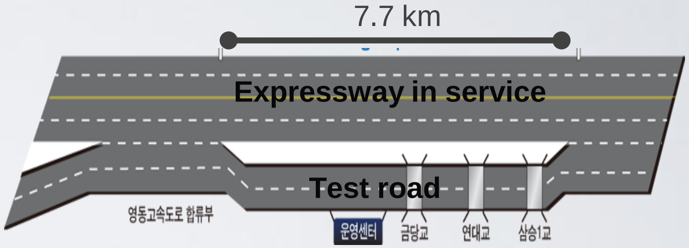
SMART
Highway
IT
Auto mobile
Infra structure

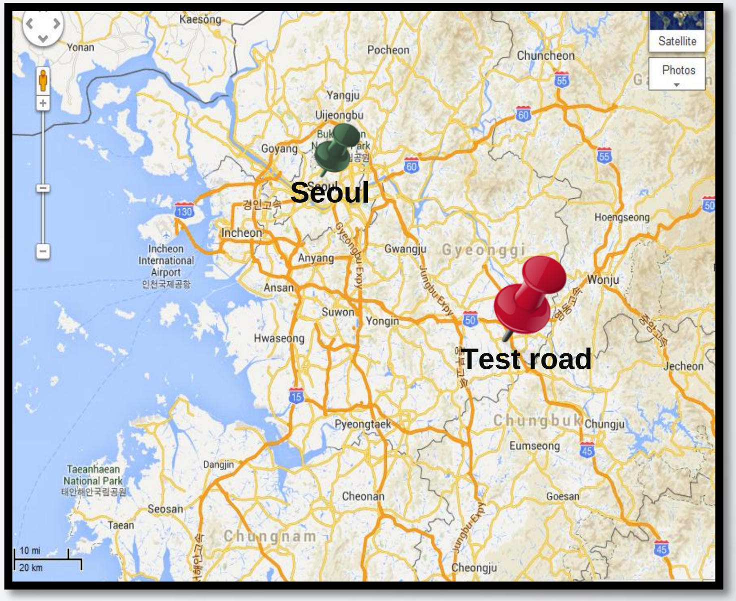
- 2007. 10 ~ 2014. 8 (7 yr)
- 87 million US $

SMART Highway Pilot Test Bed

Outline of pilot test bed (experienced road)

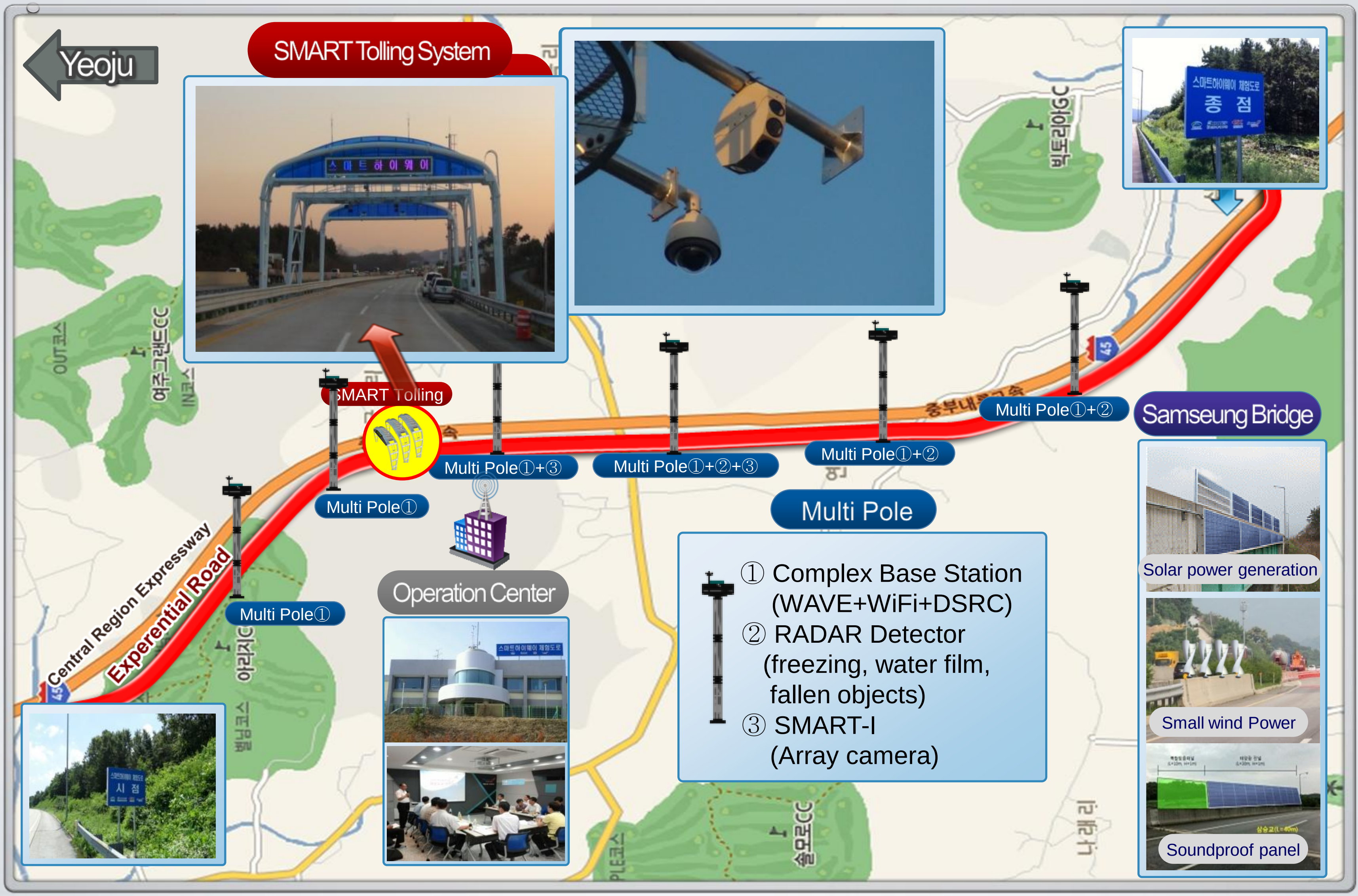
- Research results are installed to integrate for verification
- Introduce developed technology to the public
- Budget : 6 million US$ (including maintenance)


7.7 km
Expressway in service
Test road
영동고속도로 합류부
운영센터
금당교
연대교
삼승1교


Seoul
Test road
Kaesŏng
Yonan
Pocheon
Chuncheon
Yangju
Uijeongbu
Goyang
Incheon
Incheon International Airport
인천국제공항
Anyang
Ansan
Gwangju
Gyeonggi
Suwon
Yongin
Hwaseong
Wonju
Hoengseong
Jecheon
Pyeongtaek
Chungbuk
Chungju
Eumseong
Dangjin
Taeanhaean National Park
태안해안국립공원
Seosan
Taean
Cheonan
Goesan
Chungnam
Cheongju
Satellite
Photos
10 mi
20 km

SMART Highway Pilot Test Bed

- **Deployment :** 6 RSE installed (wave communication, V2X services)

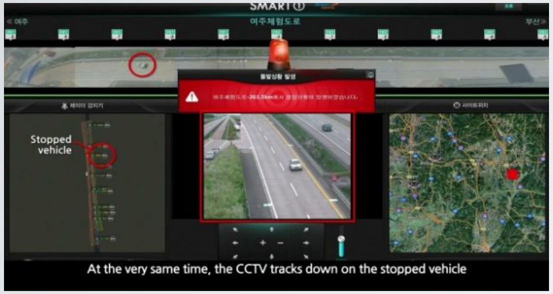

Yeoju
SMART Tolling System
스마트하이웨이
SMART Tolling
Multi Pole①
Multi Pole①
Multi Pole①+③
Multi Pole①+②+③
Multi Pole①+②
Multi Pole①+②
Samseung Bridge
스마트하이웨이 체험도로
종 점
시 점
Central Region Expressway
Experiential Road
Operation Center
Solar power generation
Small wind Power
Soundproof panel
45
중부내륙고속
빅토리아GC
여주그랜드CC
OUT코스
IN코스
솔모로CC
나래리

Multi Pole

① Complex Base Station
(WAVE+WiFi+DSRC)
② RADAR Detector
(freezing, water film,
fallen objects)
③ SMART-I
(Array camera)

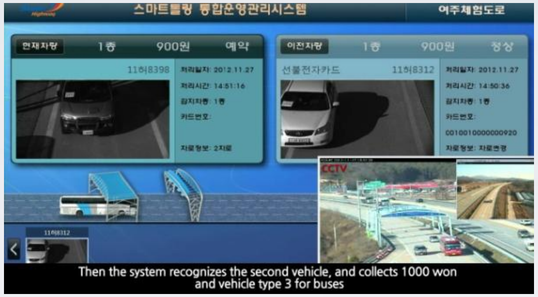
Demo services in Pilot Test Bed

1. SMART-I


SMART Ⓘ
여주체험도로
여주
부산
Stopped vehicle

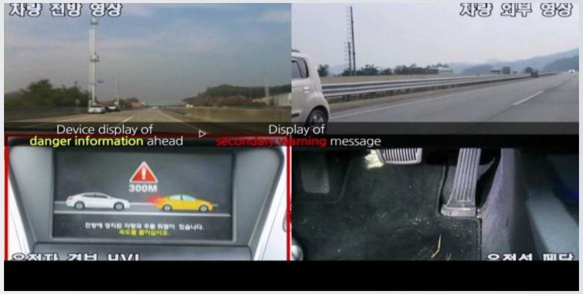
At the very same time, the CCTV tracks down on the stopped vehicle

2. SMART Tolling


스마트톨링 통합운영관리시스템
여주체험도로
현재차량
1종
900원
예약
이전차량
1종
900원
정상
CCTV

Then the system recognizes the second vehicle, and collects 1000 won and vehicle type 3 for buses

3. Auto Vehicle Control


차량 전방 영상
차량 외부 영상
300M

Device display of danger information ahead

Display of secondary warning message

4. Lane Departure Warning

Device Display
Lane Departure Warning Service

5. Chain Accident Prevention

Display of In-vehicle Device
Chain-Collision Prevention Service

Yes, the vehicle suddenly stopped with its emergency lights on

6. Event Share

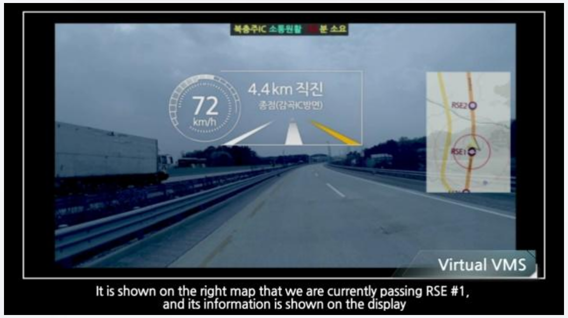
Dropping Object
Device Monitor
Detecting Object
Falling Object Detector and Information Provision Service

At the same time, there is an warn sound and the alert message displaying "first lane from left, falling object 150 meters ahead"

7. Emergency Call

Device display
Emergency Warning Service

8. Virtual VMS


72
km/h
4.4km 직진
RSE2
RSE1
Virtual VMS

It is shown on the right map that we are currently passing RSE #1, and its information is shown on the display

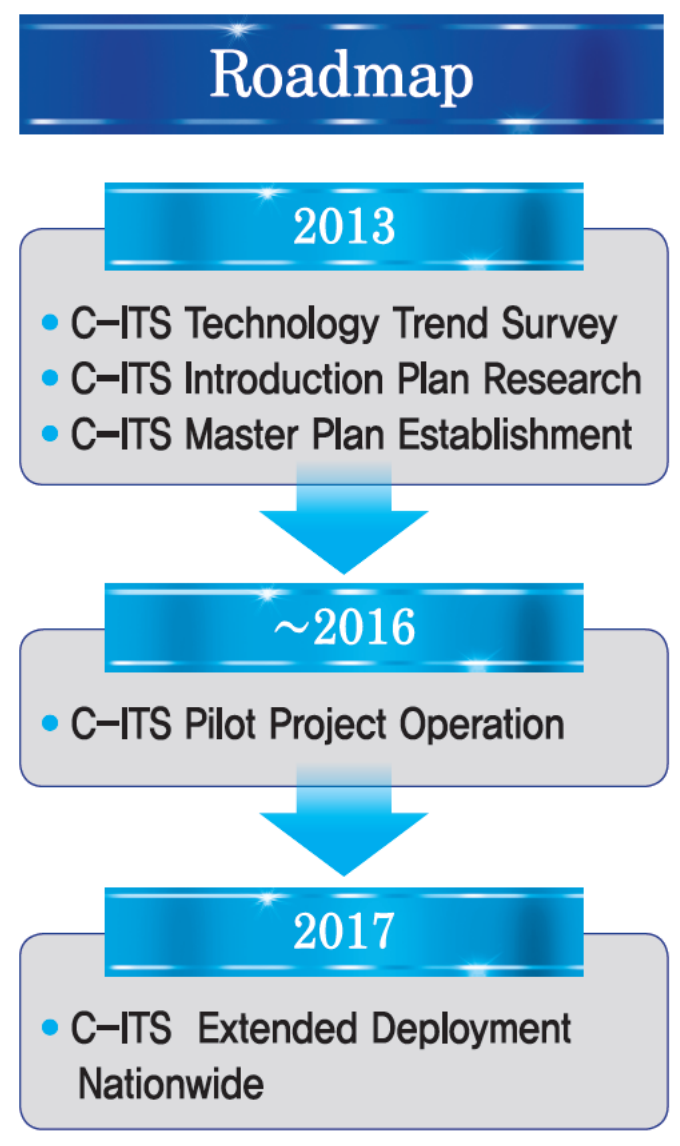
9. WAVE (V2I, V2V)

RSE#3
WAVE Communication Service(V2I)

Out of all WAVE services, you will have a chance to see additional services using V2I and I2V

Applications and roadmap for Korea C-ITS

Group	Applications
Support for Safe Driving	Vehicle collision prevention(Stopping or slow vehicle, etc)
	Safe driving at hazardous area
	Information provision about road surface condition and weather
	Safe driving at work zone
Support for Intersection Safety	Collision prevention at intersection
	Provision of signal phase and time
Protection of the vulnerable	Provision of yellow bus information
	Notification of school zone and silver zone
	Prevention of accidents related to the disabled
Support for Emergency	Notification of emergency situation
	Priority to emergency vehicle
Traffic Management	Collection of probe data based on location
	Traffic information provision based on location
ETCS	Smart Tolling
Cooperative Public Transportation	Bus operation and management



Roadmap

2013

- C–ITS Technology Trend Survey
- C–ITS Introduction Plan Research
- C–ITS Master Plan Establishment

~2016

- C–ITS Pilot Project Operation

2017

- C–ITS Extended Deployment Nationwide

Thank you for your attention

More information
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