

Geo-Enabled Urban Transportation Management – Demand, Planning and System Improvement

By: 

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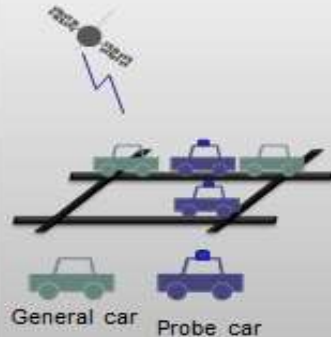
Outline of Road Transportation Management

Urban Transportation Management - challenges

Transport Demand

How to collect information related to transport demand?

- Measure traffic volume by
 - Probe System
 - CCTV
 - Traffic Sensor



Transport Planning

Decide the Plan and Policy

- Road Construction Plan
 - Highway
 - Fly over, Bypass
- Policy of Private car
 - Car Pool
 - Green Car (EV, HV, PHV)
- Policy of Public Transport
 - TAXI, Bus, Monorail, Subway etc.



Infrastructure and System Improvements

Infrastructure Construction

- Road Construction
- Public Transport



System Development

- Traffic signal upgrade
- Sensor and CCTV Deployment.
- Traffic Info. Provision



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Highway Traffic Management – Challenges

Use cameras installed at road side to

- Measure traffic volume and vehicle velocity
- Detect unusual event such as traffic congestion and accident
- Detect vehicle speed



Traffic Length and velocity



Abnormal Conditions



License Number Recognition
Measurement at Travel Time



Traffic counter

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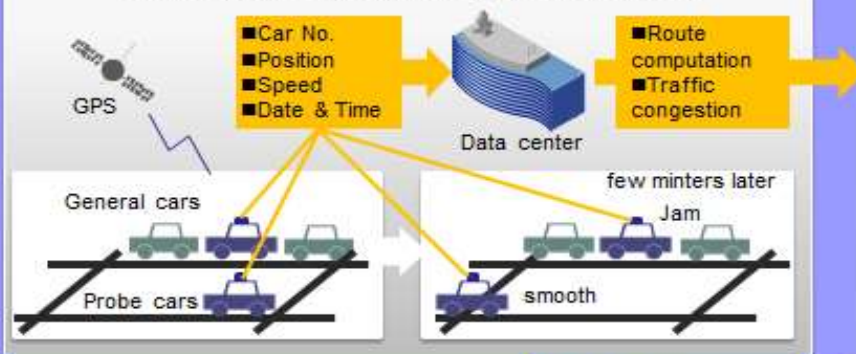
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Geo-technology Intervention – Probe car Traffic Information System

- Collect vehicle position data, create traffic information such as congestion.
- Support traffic management / report / city planning and so on.

Traffic Data Collection and Utilization by Probe car Information System

Traffic Data Collection and Processing



Traffic Data Utilization



Features

- No roadside sensor or camera
- High-precision traffic information
- Support various kind of vehicle tracking device
- Expand geographical coverage of traffic info.

As a experimental result, use traffic info. can save trip time around 20%!

Geo-technology Intervention – Road Inventory and Information Management

Road data consolidation for adequate planning and maintenance of road.

The screenshot displays a web application titled "Road Inventory" for Hyderabad. The main interface features a map on the left and a data panel on the right. The map shows various roads color-coded by type: red for main roads, blue for expressways, green for roads with kerbs, and yellow for roads without kerbs. A red dot on the map indicates the location of the selected road. The data panel on the right provides the following information:

Key	Value
Road Name	Inner Ring Road Upper East Road, Hologate East Road, Hologate 2 Road
Rank	0 Rank 0
Road width	14.0m
Available width	14.0m
GPS altitude	47.17202831
GPS longitude	78.33284
Photogrammetry date	2012-05-14 04:51:30
Location	Unloaded

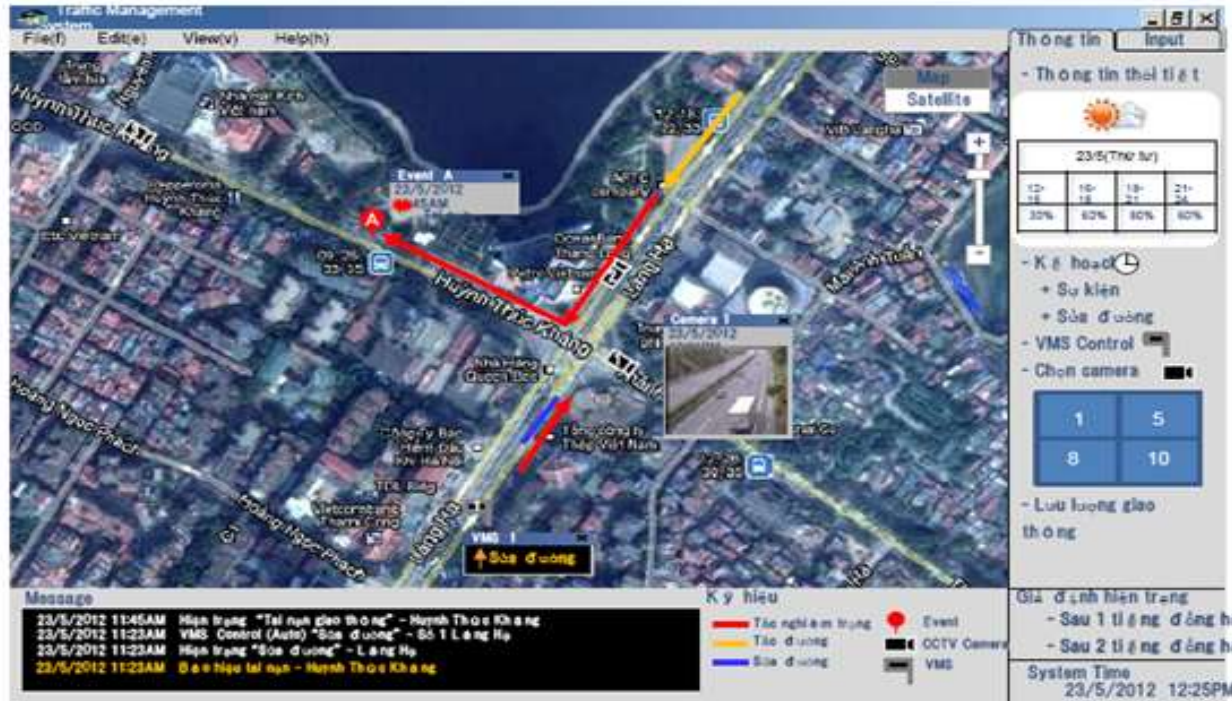
Below the table, there are several checkboxes for filtering road types, such as "Main Road with or without kerbs" and "Expressway".

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Geo-technology Intervention – Traffic Control Center

Administrators can perceive the traffic information, the camera image, and the weather information at the same time.



The screenshot displays a Traffic Management software interface. The main window shows a satellite map of Hanoi, Vietnam, with several roads highlighted in red, yellow, and blue. A red arrow points to an 'Event A' at 11:45 AM on 23/5/2012. A camera view is shown in the center of the map. The interface includes a menu bar (File, Edit, View, Help), a toolbar with 'Map' and 'Satellites' buttons, and a right-hand panel with 'Thông tin' and 'Input' tabs. The 'Thông tin' panel shows weather information for 23/5 (Thứ Tư) with a table of temperature and humidity data. Below the weather panel are controls for 'Kế hoạch' (Schedule), 'Sự kiện' (Event), 'Sửa đường' (Road Repair), 'VMS Control', and 'Chọn camera' (Select camera). A legend at the bottom left identifies symbols for 'Tắc nghẽn trung' (Medium congestion), 'Tắc đường' (Road blockage), 'Sửa đường' (Road repair), 'Event', 'CCTV Camera', and 'VMS'. A message log at the bottom left shows recent events and actions. The system time is 23/5/2012 12:25PM.

12h	15h	18h	21h
32%	62%	80%	60%

Message

- 23/5/2012 11:45AM Hiện trạng "Tai nạn giao thông" - Nguyễn Thọ Khang
- 23/5/2012 11:23AM VMS Control (Auto) "Sửa đường" - Sở T.L&H
- 23/5/2012 11:23AM Hiện trạng "Sửa đường" - Lạng Hà
- 23/5/2012 11:23AM Báo hiệu tai nạn - Nguyễn Thọ Khang

Ký hiệu

- Tắc nghẽn trung
- Tắc đường
- Sửa đường
- Event
- CCTV Camera
- VMS

Giả định hiện trạng

- Sau 1 tiếng đồng hồ
- Sau 2 tiếng đồng hồ

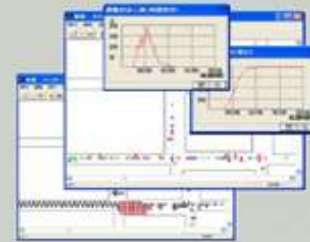
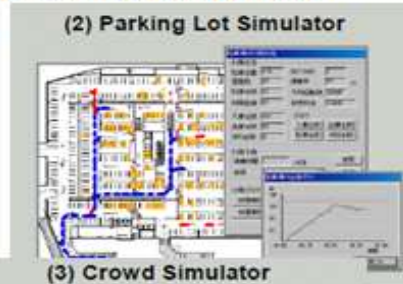
System Time
23/5/2012 12:25PM

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Simulators & Electronic Toll Management System

ETC system comprising of VMS
(Variable Message Sign board), ATCC
(Automatic Traffic Counter System),
CCTV, POS (Point of Sale) terminal
and control systems



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Summary – Way Forward

Key Market Drivers India Geospatial Industry

- Increasing demand from government sector, a major growth driver — Various state governments have numerous e-governance initiatives that utilize GIS applications
- Cloud platforms leveraging the growth opportunities of Geospatial market
 - This is likely to create new application areas, add new users
 - Likely to commoditize GIS
- Current smart cities will explore opportunity for greater efficiency of utilities
 - GIS expected to create optimization platforms.
- Development of next generation geospatial solutions by suppliers expected to create new data creation techniques, effective maintenance and frequent up-dation of data.
- Lack of understanding of the Geospatial Technologies and its effective use amongst large pool of end users - Opportunity for suppliers to create awareness and build strong value proposition for potential users to explore Geospatial Services.
- Opportunity to fuse spatial, temporal, social, sensors, historical and other structured/ unstructured data to create ‘big’ datasets. This big geospatial data can then be used to provide real time intelligence and insights.

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Annexure – Corporate Foundation

- Founded in 1910 as a machine repair shop at Kuhara Mining Company in Hitachi City, Ibaraki Prefecture, Japan (Incorporated in 1920)
- Hitachi founding spirit: Harmony, Sincerity, Pioneering spirit
- Corporate credo: Contribute to society through the development of superior, original technology and products



Founder Namihei Odaira

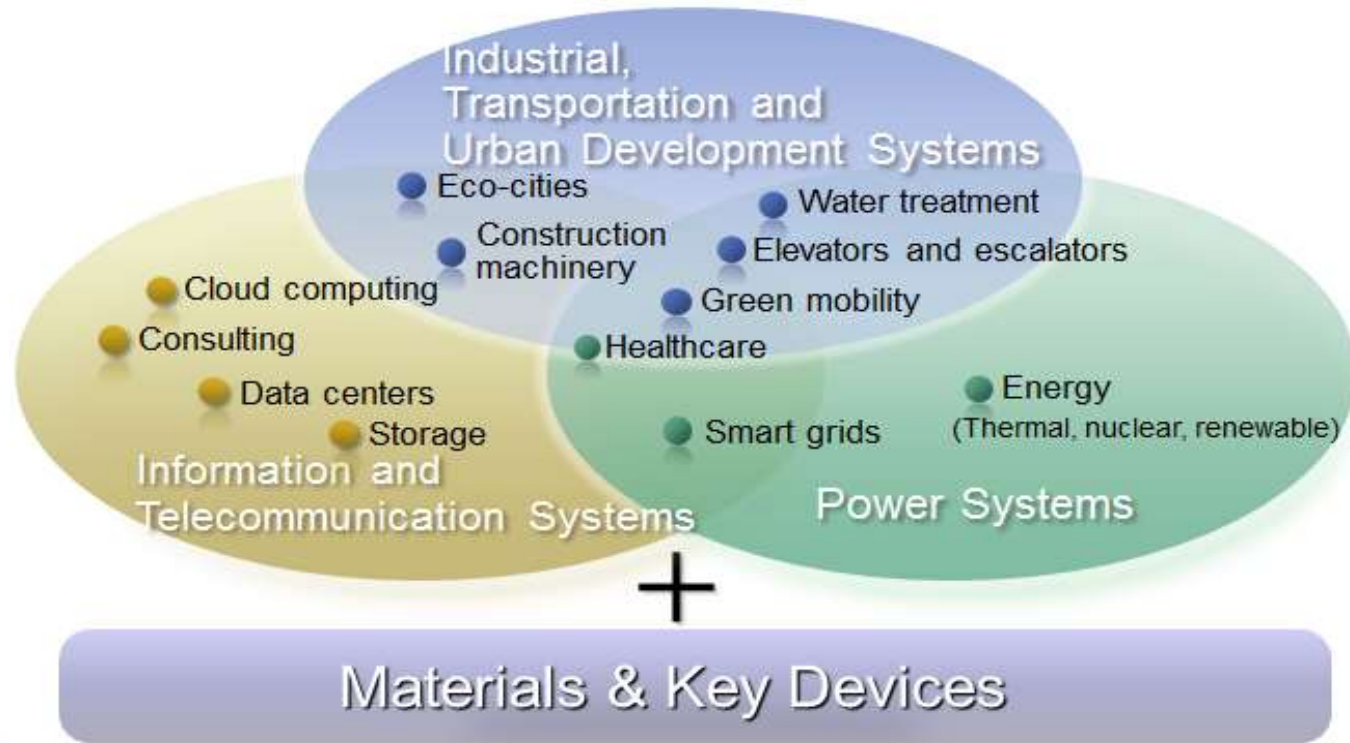


Original repair shop in Ibaraki (1910)

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Annexure – Focusing on “Social Innovation Business”



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Annexure – Global Framework Comprised of 6 Regions



Hitachi Group in India ^{*}(As of March, 2016)

Business bases : Approx. 33

(Including branch offices and minority share holder companies)

Employees : Approx. 10,000

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Thank You

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