ITS ACTIVITIES IN CHINA

- ITS Development Plan
- ITS Activities In China
  - ITS Application in Large Events
  - ETC Application
  - Intelligent Expressway Management

National ITS Standardization Technical Committee of China
# I. The Development Plan

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<td>• Intelligent Control</td>
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<td>• Data Detection and Processing</td>
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<td>• DSRC</td>
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<td>• Toll Collection System</td>
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<td>• Large Event Transport Service</td>
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<td>• ETC &amp; Expressway management</td>
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<td>• ITS based on Next Generation Information Tech</td>
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<td>• Transport Information Service</td>
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<td>• Road Network Management</td>
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<td>• Intelligent Control in City</td>
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<td>• Inter-model Transport</td>
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<td>• Cooperative system</td>
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1. ITS Development: 2001-2005

1.1 Technology Research & Development

- **Intelligent Control**
  - City motor-way control
  - Intelligent traffic management system
  - Adaptive Traffic Signal Control Method and System

- **Traffic Data Detection and Processing**
  - Video Detection
  - Traffic Data Fusion
  - ITS Data Management

- **Bus Despatching Technology**

- **DSRC**

- **Intelligent Vehicle and Vehicle-Infrastructure Integration**
1.2 ITS Demonstration in Urban Area

<table>
<thead>
<tr>
<th>City</th>
<th>Project Description</th>
<th>Institution</th>
</tr>
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<td>Beijing</td>
<td>Olympic Special Project</td>
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<tr>
<td>Shanghai</td>
<td>Traffic Management in Motorway</td>
<td>Tongji Univ., Civil Eng. Bureau</td>
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<td>Tianjin</td>
<td>Intelligent Traffic Management</td>
<td>Tianjin Traffic Eng. Institute</td>
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<tr>
<td>Chongqing</td>
<td>Traffic Safety</td>
<td>Chongqing Univ., Police</td>
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<td>QingDao</td>
<td>Intelligent Public Transport System</td>
<td>HiSence Co.</td>
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<td>Guangzhou</td>
<td>Transport Info. Platform</td>
<td>Guangzhou Transport Info.Center</td>
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<td>Shenzhen</td>
<td>Logistics Info. System</td>
<td>Shenzhen ITS Center</td>
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<td>Hangzhou</td>
<td>Traffic Management</td>
<td>Police</td>
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<tr>
<td>Zhongshan</td>
<td>Traffic Management</td>
<td>Yiyang Co., Police</td>
</tr>
</tbody>
</table>
Floating Car Information System

- Guangzhou
- Beijing
- Hangzhou

Bus priority system

- Beijing
- Jinan
1.3 ITS Demonstration in Highways

- Toll Collection System
  - Beijing To Shengyang Expressway
  - Guangdong ETC Demo
2. ITS Development Plan, 2006~2015

- Large Event Transport Service
  - Olympic Games, World Expo, Asia Games
- ETC & Expressway management
- Incident management & Traffic safety
- Innovation and ITS Industry
## 2.1 National Level ITS Program

<table>
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<tr>
<th>Large Event Service System in Cities</th>
<th>Project Name</th>
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<tr>
<td>1</td>
<td>Integrated Transport Management and Service for Beijing Olympic Games</td>
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<td>2</td>
<td>Integrated Traffic Management and Information Service for World Expo, Shanghai</td>
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<tr>
<td>3</td>
<td>Guangzhou Integrated Transport information System</td>
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<tr>
<th>National ITS Service</th>
<th>Project Name</th>
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<td>4</td>
<td>National Expressway ETC and Highway Management System</td>
</tr>
<tr>
<td>5</td>
<td>Ocean Transport Ship Monitoring System</td>
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</tbody>
</table>
2.2 High-tech Research Project

- **2006-2010:**
  - Intelligent Highway
  - Safety:
    - Bus, Truck and Danger Good Transport
  - Traffic Information Detection and Service

- **2011-2015:**
  - Intelligent Highway:
    - Auto Driving, Date exchange platform, Safety service by new tech, fleet Management
  - Intelligent Highway and Vehicle Application
II. ITS Activities In China

- ITS Application in Large Events
- ETC Application
- Intelligent Expressway Management
3.1 ITS in Olympics

1. Police Command System
2. Intelligent Traffic Signal Control System
3. Traffic Surveillance System
4. Real Time Route Guidance via VMS
5. Integrated Transport Information Service System
(1) Police Command System

- Command system for Olympic transport
  - Command
  - Control
  - Information support
  - Emergency management

22 subsystem
(2) Intelligent Traffic Signal Control System

- Area traffic signal control
- Public transport priority
- Express way meter-control
(3) Traffic Information service

- Real Time Route Guidance via VMS
- Broadcast
- Website
(4) Integrated Transport Information Service System

交通综合信息共享平台
公共交通
货物运输
电子政务
电子收费
应急指挥
交通管理
公众服务
3.2 Traffic Information Service for World Expo
(1) The Shanghai Integrated Transport Information System

- Integrated Information Platform
- Information System in EXPO Area
- Information Service System
(2) Transport Information Service

- Web Site
- Expo Traffic Guide (print)
- Radio and TV
- Expo Hot Line
  - 12319 and 962010
- Mobile Phone and Navigator
- Service Terminal
- Route Guidance in Road Network
- Transfer Center Information Service
3.3 ETC in China

- National Standard ETC have built from 2007
- The First Application System Opened in 2008
- ETC Service Opened in 15 Provinces
- More than 1,300 ETC lanes have been built
- More than 800,000 ETC users
- ETC inter-province Network
  - Beijing, Tianjin and Herbei (about 4000km)
  - Shanghai, Jiangsu, Anhui, jiangxi and Zhejiang (More than 10,000km)
(1) General Situation of ETC in China

- National Expressway ETC System Deployment
  - Must adopt China National Standard
    - Based DSRC Technology
    - Frequency: 5.8 GHz
    - Semi-Active (awakening) and two pieces OBU
    - Data transmission speed: 256kbps, 1Mbps

Lane Antenna

Prepay Card

Two pieces OBU
(2) ETC in Beijing

- 365 ETC lanes
  - ETC lanes cover all toll stations
- Service station: 26
- More than 3000 ATM can recharge for ETC
- About 300,000 ETC Users

Beijing, Tianjin and Hebei Inter-province ETC Network opened on Sept. 27, 2010
(3) ETC in Guangdong

- Cover 2,400km Expressway
- More than 200 ETC lanes were built
- All Toll Lane Can Use Prepay Card
- Establish service network
  - Banks, gas stations
- More Then 400,000 Users
(4) ETC in Yangtse Areas

- Inter-Province ETC Network
  - Shanghai
  - Jiangsu
  - Anhui
  - Jiangxi
  - Zhejiang
(5) New ETC System Based GNSS

Info. Service  
Map Service  
Payment Service

Info. Center

Network

GPS

Multi Model Terminal

Multi Model Terminal

Info. Service, Map Service

Payment Service
ETC Demo Based GNSS

北京

天津
3.4 National Highway Network Management
Function

- Main Highway Network Monitoring
  - Information Collection
  - Review
  - Release

- Coordination
  - Different Provinces
  - Different Road Operators

- Information Service

- National Highway Weather Report
Thanks!