Connected Car and Traffic Management in China

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- Expressway 74,000 km, ETC & Expressway management

- Information service & traffic jam in cities such as Beijing, Shanghai and Guangzhou
Methods for vehicle access in China

- DSRC: Communication dedicated for transport
- Public mobile comm
- Radio broadcast

Vehicle access
- Developing ETC based on DSRC
- Consideration on how to integrate ETC and information service based on DSRC
ETC in China

- National Standard of DSRC&ETC have been published in 2007
- The first application system opened in 2008
- ETC service opened in 15 Provinces
- More than 1,600 ETC lanes have been built
- More than 1,400,000 ETC users
- ETC inter-province Network
  - Beijing, Tianjin and Hebei (about 4000km)
  - Shanghai, Jiangsu, Anhui, Jiangxi and Zhejiang (More than 10,000km)
Ministry of Transport have associate with Ministry of Finance and National Development and Reform Commission to deploy ETC in China.

The coverage of ETC will be 60% (6,000 road side units), and the number of OBU will reach 5,000,000 throughout China in the next 5 years.
Integrating ETC and information service

- Traffic crawled 4km ahead
- A traffic accident happened 5km ahead
- Vehicle position and vehicle flow information extraction
- Congestion status and traffic flow calculation
- ETC application
  - Information service application
- DSRC
- ETC MC
  - Information service application
- ETC application
  - Information service application
  - ETC data mining
- DSRC
- MC
  - ETC MC
  - Information service MC

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National Highway Network Management

Expressway Management Center

Toll Collect System

Public Service

MOT Center

Highway Data Base
Weather System
Transport Data Base

Highway Incident Report System

Toll Collect System

Expressway Management Center

National Highway Network Management
Function

- **Main Highway Network Monitoring**
  - Message Collection
  - Checkage
  - Release

- **Coordination**
  - Different Provinces
  - Different Road Operators

- **Information Service**

- **National Highway Weather Report**
Realtime Information is provided through VMS, internet, broadcast and television etc.

www.chinahighway.gov.cn, visits more 30,000,000 in 6 months, and 150,000 per day at most
Radio broadcast

Highway information service system based on Radio broadcast

Cover skeleton line of country highway

Provide public, differential, customized, and pusher-type traffic information service
How to use information in the vehicle more efficiently is researching in China

**Government Advocate:** Consumer low-carbon

**Wish:** reasonable choice travel route and type, to relieve road jam

**Explore new methods**

**Provide information service for consumer on the way**

**Civilians Wish:** Can choose the optimal travel route, to avoid or shun traffic jam

**Need information service on the way**

① GPRS, CDMA, 3G, 4G

② Radio broadcast
Potential application of public mobile communication technology

- Hand-held terminal, PDA, Mobile phone, mobile TV, are popular in China and will contribute to the traffic application.
- The 3G telecom technology, such as TD-SCDMA, W-CDMA and CDMA2000 now is in operation.
- The CMMB (China Mobile Multimedia Broadcasting) which was tested during Olympic game 2008, now covers 150 cities in China.
The first TSP league of China was established in May. The vehicle service step into telematics time.

To realize the combination of vehicle and wireless communication.

Mainly depends upon the telematic service to provide the traffic information service and life information service to consumers.
Information Service based on FCD

- Floating Car System in Beijing
  - Operated by the Beijing Municipal Committee of Transportation with more than 70,000 vehicles in the system
  - Based on the satellite positioning system and the public communication mode, such as the GPRS or CDMA.

- The Mobile phone operators also express great interest in traffic info collection and service.
Floating car data for info service
Traffic Info. Service via Mobile Phone

Via: WAP, Message
Traffic Jam Information based on FCD in Guangzhou
**ITS**

- **Domestic: SAC/TC 268**
  - ATMS
  - ATIS
  - APTS
  - ETC and AFC
  - Freight and Fleet Management
  - AVCS
  - DSRC and Data Exchange
  - Transportation Infrastructure Management

- **ISO/TC 204**
  - Domestic Committee (SACTC268)

**Hierarchical Structure**
# National Standard Released By 2010

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<th>Serial Num.</th>
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The Fully Networked Car
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Thanks!