National Intelligent Connected Vehicle (Shanghai) Pilot Zone

Charlie Cheng

2017/11/01
[1] CHINA AND ICVs
[2] ABOUT A NICE CITY
[3] UPCOMING
Intelligent Connected Vehicles are China’s important strategic opportunity to see an industry transformation.

One of the largest markets in the world, attracting multinational companies from around the world.

- 8 Consecutive Years as World’s No.1 in Automobile Production and Sales
- 50% Auto Sales Growth in the Next 10 Years

What ICVs will bring to China?

- Transportation Safety: Contain Accident Rates by 1%
- Transportation Efficiency: Increase Traffic Efficiency by 10%
- Reduce Emissions: Increase Fuel Economy by 20-30%, Reduce Fuel Consumption by 10-15%
- Drive Innovation
- Drive Industry
- Defense Applications
- Lifestyle Changes

2016 Automobile Sales

2025 Automobiles Sales Forecast

28 million

12 million

40 million
- CHINA AND ICVs
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LEAD CHINA IN ADVANCING ICV R&D TESTING, PRODUCT SHOWCASE, AND PROFESSIONAL TALENT; DEVELOPING THE WORLD’S LEADING INTELLIGENT CONNECTED VEHICLE INNOVATION PLATFORM

Six Core Functional Platforms
- Universal Forward-looking Technology Research Platform
- Product Testing Certification Technical Platform
- Standards Regulation Specifications Platform
- Data Information Security Evaluation Platform
- Technological Achievements Incubation Platform
- Integrated Innovation Application Demonstration Platform

Three Public Service Bases
- Talent Training Base
- Systems Innovation Base
- International Exchange Base
History and Events

**Pilot Zone Infrastructure Planning**
Begun planning pilot zone infrastructure, focused on unmanned vehicles and V2X-related technology. Collaborated with SAE China to carry out research planning.

**MINIT Award**
Ministry of Industry and Information Technology (MIIT) approves SIAC to undertake construction of first pilot zone.

**United Innovation Center (UIC)**
Opening of the Intelligent Connected Vehicle Industry’s United Innovation Center

**Closed Test Zone and Experience**
Initial 7 scenario test and experience in Auto Expo Park

**Construction Research Plan**
Equipment Division hold symposium to study construction of Shanghai Test Bed

**5/11** SIAC, Tsinghua University, National Eastern Tech-Transfer Center, SMVIC, jointly sign strategic cooperation agreement

**5/25** SIAC signed cooperation agreement with Baidu, Baidu’s Autonomous Car Project Team locates in United Innovation Center (UIC).

**Grand Opening Ceremony of Closed Test Zone**
June 7th, 2016, official opening of F-ZONE

**6/05** Signed strategic cooperation agreement with Tongji University

**6/07** “ICV standards and regulations research base,” “ICV strategic industry technical alliance and standards research center”

**6/07** SIAC awarded “2016 Best Industrial Engineering Base”

**10/28** Shanghai Intelligent Connected Vehicle & Intelligent Transportation Engineering Technology Research Center Committee Established

**12/03** 2016 China Intelligent Vehicle Competition (CIVC) held at F-Zone

**12/15** signed strategic partnership with Tencent

**2017.2**

**04/05** Signed Strategic Cooperation Agreement with Qihoo 360

**5/22** Signed strategic cooperation agreement with National Institute of Additive Manufacturing (NIIAM)

**5/24** Shanghai Municipal Government and Jiading District Government sign { Regarding Urbanization, Cooperation, and Construction of A Nice City }

**5/24** Shanghai City Manufacturing Innovation Center (ICV) officially formed

**5/24** Signed strategic cooperation agreement with CATARC and 13 other institutions.

**11/12** signed memorandum of cooperation with Michigan Economic Development Corporation (MEDC)

**2/13** Signed strategic cooperation framework agreement with SEISYS
Test Bed Development Phase

<table>
<thead>
<tr>
<th>5 square kilometers</th>
<th>27 square kilometers</th>
<th>100 square kilometers</th>
<th>150 square kilometers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle scale</td>
<td>200 vehicles (Background vehicle: 180 / testing vehicles: 40)</td>
<td>1000 vehicles (Background vehicle: 900 / testing vehicles: 100)</td>
<td>5000 vehicles (Background vehicle: 4500 / testing vehicles: 500)</td>
</tr>
<tr>
<td>Road mileage</td>
<td>15 kilometers</td>
<td>73 kilometers</td>
<td>366 kilometers (including 28 kilometers on highway)</td>
</tr>
<tr>
<td>Types of road</td>
<td>Simulation highway + highway + countryside road</td>
<td>Fast road + urban + countryside + parks</td>
<td>Highway/fast road + urban + countryside</td>
</tr>
<tr>
<td>Road testing units</td>
<td>42</td>
<td>312</td>
<td>360</td>
</tr>
<tr>
<td>Application scenario</td>
<td>Enclosed simulation transportation (36)</td>
<td>Regional sharing transportation (68)</td>
<td>Urban regional transportation (86)</td>
</tr>
<tr>
<td>Communication mode</td>
<td>DSRC/LTE-V/WiFi</td>
<td>DSRC/LTE-V</td>
<td>DSRC/LTE-V</td>
</tr>
</tbody>
</table>
Comprehensive Test Bed

- Digital Simulation
- Driving Simulator (Cluster)
- VeHIL Test Lab
- Closed Test Zone
- Data Center
- Public Demonstration Roads
On June 7, 2016, F-ZONE officially opened. Today, we have nearly 100 scenarios and have become China’s most comprehensive, technically advanced, and impactful testing ground.

### Scenario Application

<table>
<thead>
<tr>
<th>Scenario Application</th>
<th>QTY</th>
<th>Scenario Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>33</td>
<td>pedestrian crossing/non-motor vehicle crossing/emergency braking/overtaking/pedestrian crossing (bus)</td>
</tr>
<tr>
<td>Efficiency</td>
<td>6</td>
<td>automated parking/green light communication/dynamic lane management</td>
</tr>
<tr>
<td>Information Service</td>
<td>6</td>
<td>smart parking guidance/local map download</td>
</tr>
<tr>
<td>New Energy</td>
<td>3</td>
<td>charging map guidance/local map download</td>
</tr>
<tr>
<td>Communication</td>
<td>2</td>
<td>tunnel access/avenue access</td>
</tr>
<tr>
<td>Automated Driving</td>
<td>100</td>
<td>behavior ability/collision avoidance/disengage and handling mechanism</td>
</tr>
</tbody>
</table>

### Closed Test Zone

- **350+ VISITORS**
- **300+ DAYS OF TESTING**
- **30+ INDUSTRY/MEDIA EVENTS**
- **150+ BUSINESS EXCHANGES**

### Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSRC</td>
<td>24  sets</td>
</tr>
<tr>
<td>LTE-V</td>
<td>2  sets</td>
</tr>
<tr>
<td>WiFi/Camera</td>
<td>FULL</td>
</tr>
<tr>
<td>GPS Differential</td>
<td>1</td>
</tr>
<tr>
<td>BEIDOU Positioning</td>
<td>1</td>
</tr>
<tr>
<td>Smart Traffic Light</td>
<td>6</td>
</tr>
<tr>
<td>HD Maps</td>
<td>3 sets</td>
</tr>
</tbody>
</table>
Persist in strategic and open collaboration
Integrated Innovation & Applications Demonstration Platform

Fully utilize existing resources to build an information ecosystem, promoting ICV and ITS comprehensive testing of green technologies, shared mobility, and intelligent transportation.

- +2500 hotspots, ~8000 BEVs, +450k members, covering 16 districts in Shanghai
- Utilize EVCARD experiences to build the necessary back-end information environment for intelligent connected vehicles
- Invest 1000 vehicles in collaboration with Horizon Robotics to develop AI algorithms and train automated driving data collection

- 20 dedicated lanes, ~300 BEV buses, and 10k members
- Promote coordinated traffic signal control and prioritize communication applications in real-time traffic scenarios
- Mobileye intelligent driving assistance system and automated V2X communication equipment
- Collaboration with Ford to launch Go-Ride dynamic bus demonstration project
- 1st countryside test zone in North Jiading for unmanned commercial bus applications
- Official opening of ICV experience (E-ZONE) in Auto Expo Park
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Ten key projects in 2017, tied with total investment of +30 million USD, and develop close to 100 research and testing projects

1. Enhance F-ZONE Capabilities
2. Construction of Core Open Road V2X Testing Ecosystem
3. Automated Driving & V2X Communication Platform
4. Construction of Shanghai Intelligent Connected Vehicle & Intelligent Transportation Engineering Research Center
5. Construction of 5G-V2X Information and Cybersecurity Laboratory
6. Construction of VeHIL Simulator Testing Platform (Q1)
7. Public Integrated Transportation Data Center (Q1)
8. Intelligent Connected Vehicle Core Technology Standards Specification and Testing Research
9. A Nice City International Exchanges and Brand Development
10. Integrated Intelligent Connected Vehicle Applications Demonstration
1st World Autonomous Vehicle Ecosystem Conference
November 6-7, 2017

19th China International Industry Fair (CIIF 2017)
November 7-11, 2017

2017 CIVC (China Intelligent Vehicle Championship)
December 11-13, 2017

2nd China International Intelligent Connected Vehicle Forum
November 16-17, 2017
National Intelligent Connected Vehicle (Shanghai) Pilot Zone
谢谢