CHINA'S PRACTICES IN SMART TRANSPORTATION

GLOBAL SUSTAINABLE TRANSPORT INNOVATION AND KNOWLEDGE CENTER

WANG TIANSHI

About GSTIKC

GSTIKC was established in October 2022 as an independent international public service institution and a non-profit third-party organization.

- Promoting infrastructure connectivity
- Maintaining the stability and smooth operation of international supply chains
- Advancing global sustainable transportation development.

CURRENT STATUS OF SMART TRANSPORTATION DEVELOPMENT

SMART SYSTEM

SMART VEHICLE

SMART NAVIGATION

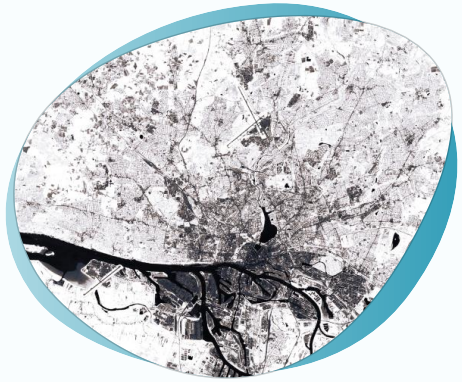
SMART SYSTEM CITY BRAIN

DEFINITION

- a new infrastructure and intelligent hub for the sustainable development
- capable of global real-time analysis
- optimize the allocation of public resources

INFRASTRUCTURE FOR SUSTAINABLE DEVELOPMENT

- evolve into a super-intelligence capable of governing the city
- promote the city towards a more intelligent and efficient direction



GLOBAL REAL-TIME ANALYSIS CAPABILITIES

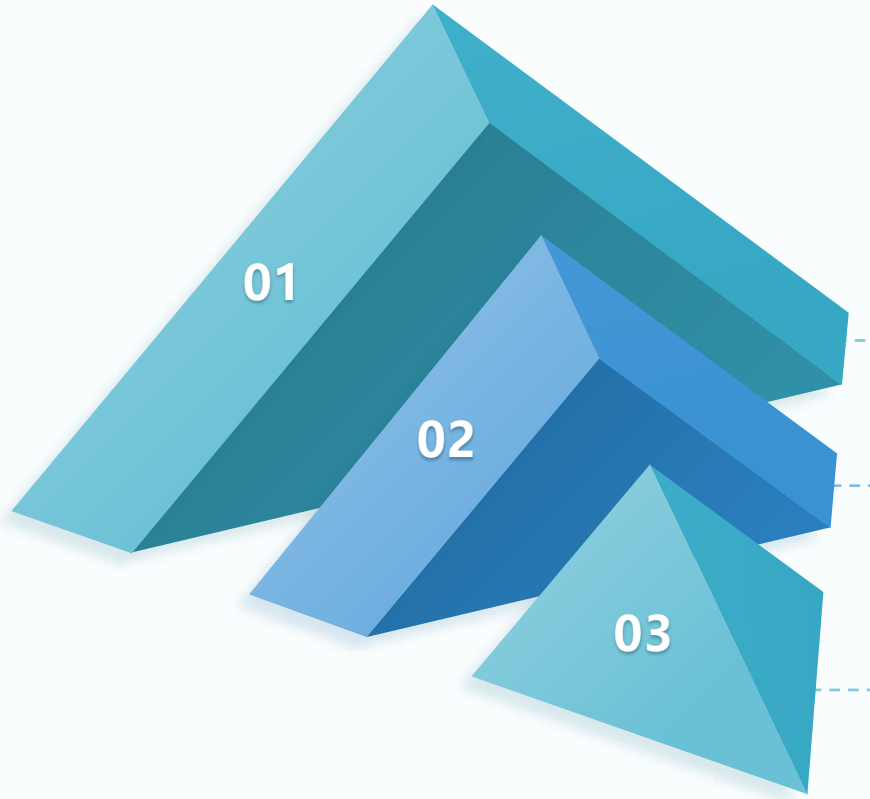
- monitor and analyze various operational data of the city in real-time
- provide immediate and accurate information support

OPTIMIZATION OF PUBLIC RESOURCE ALLOCATION

- achieve optimization of public resource allocation
- improve the efficiency of resource use
- reduce waste
- better serve the urban residents and economic activities

SMART SYSTEM

ARCHITECTURE OF CITY BRAIN



BOTTOM LAYER

Composed of basic perception platforms and urban computing platforms
providing fundamental capabilities such as data collection, storage, and computing services.

MIDDLE LAYER

Composed of data resource platforms and intelligent services, forming a complete urban data intelligence operating system. With data and intelligence at its core, it provides intelligent empowerment and support for upper-layer applications.

TOP LAYER

Made up of intelligent applications aimed at various industries and fields, focusing on the three major areas of "improving governance, benefiting the public, and promoting industry." It constructs data intelligence applications to comprehensively promote the digital transformation and upgrading of the government.

CASE STUDIES OF CITY BRAIN APPLICATIONS

INTEGRATED DATA FROM VARIOUS DEPARTMENTS

traffic police, transportation, urban management, healthcare, emergency response, environmental protection, and fire services

EXPLORATIONS IN AREAS

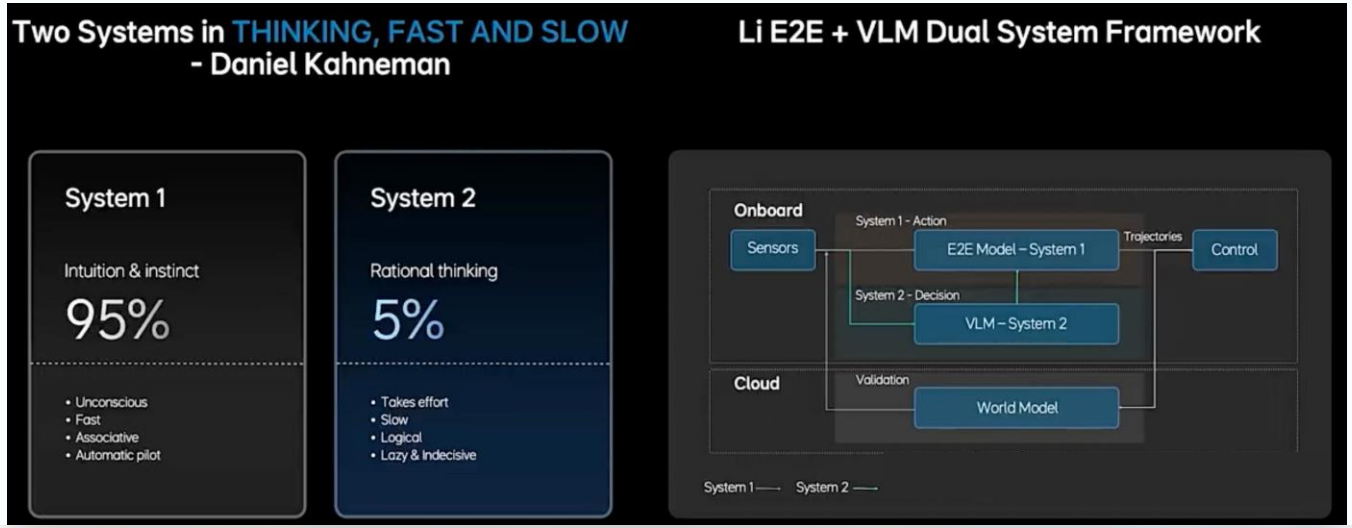
traffic management, environmental protection, refined urban management, and regional economic management

IMPLEMENTATION

Hangzhou, Quzhou, Suzhou, Macau, Kuala Lumpur, Shanghai, Huzhou, Beijing, Chongqing, and Haikou

SMART VEHICLE

SMART VEHICLE BODY



Dual-System End-to-End Autonomous Driving Solution: E2E & VLM + Cloud Closed Loop

System 1: Fast System, End-to-End (E2E) model system, which does not require prior knowledge or high-precision maps. The E2E model perceives driving scenarios and directly outputs trajectories, driven entirely by data.

System 2: Slow System, VLM (Vision-Language Model) large model, with a 2.2 billion (22 hundred million parameter) LLM (Large Language Model) base model. It achieves text recognition, common sense understanding, and logical reasoning. The VLM performs complex logical analysis through the chain of thought (CoT) and feeds the results back to the fast driving decision-making system.

SMART VEHICLE

SMART VEHICLE BODY

>400,000 Vehicles Now Experience Parking-to-Parking Intelligent Driving

Parking to Parking Experience
Seamless, without Manual Intervention

Intuitive Visualization
What Models' Thinking

公交车道自由通行
Adaptive Bus Lane Compliance for Timely Nationwide

ETC自由通行
Seamless Easy Pass Lane Recognition and Automatic Access Nationwide

可变车道自由通行
Adaptive Use of Reversible and Managed Lanes Nationwide

直行待行区自主进出
Smart Waiting Area Entry via Real-Time LED Text Understanding Nationwide

SMART NAVIGATION

LANE-LEVEL NAVIGATION

Core Technology: Lane-Level Positioning

Lane-level positioning is the cornerstone of lane-level navigation, enabling precise vehicle tracking and guidance.

Integration of Beidou Satellite System

The Beidou Satellite System enhances positioning accuracy, contributing to the robustness of lane-level navigation.

Utilization of Deep Learning Models

Deep learning models analyze traffic patterns and improve route planning for more efficient navigation.

Inertial Navigation and Signal Ubiquity

Inertial navigation systems and omnipresent signals ensure continuous tracking, even in challenging environments.

Enhancing Navigation Accuracy to Sub-Meter Level

Advanced GNSS carrier signal processing eliminates errors, achieving sub-meter accuracy in lane-level navigation.

Traffic Event Warnings and Alerts

Real-time traffic event warnings are provided to drivers, significantly reducing the risk of accidents.

FUTURE TRENDS IN TRANSPORTATION

MOBILITY AS A SERVICE
ONE-CLICK TRAVEL

AUTONOMOUS DRIVING

LOW-ALTITUDE ECONOMY

Future Trends in Transportation

MaaS integrates various modes of transportation, such as public transit, subways, taxis, and bike-sharing, into a unified digital platform.
Users can choose the most suitable travel options based on their needs and preferences, and manage all their trips and payments through a single account.

Future Trends in Transportation

AUTONOMOUS DRIVING

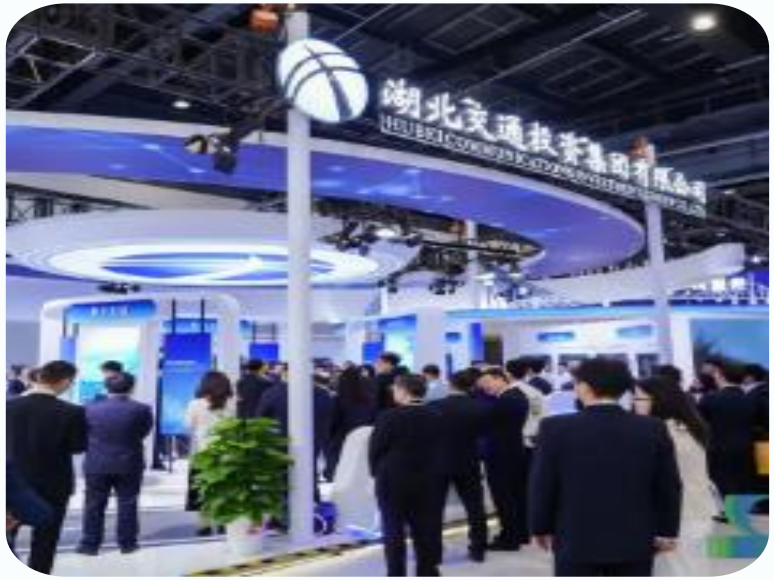
In the future, autonomous driving will be applied in scenarios such as highway logistics transportation, urban public transit, and urban taxi services, offering a greater variety of transportation service options.

Future Trends in Transportation

LOW-ALTITUDE ECONOMY

The Low-Altitude Economy refers to various economic activities conducted in the low-altitude airspace, typically defined as the area below 1,000 meters above ground level. It encompasses a wide range of fields, including but not limited to drone logistics, aerial photography, aerial inspection, agricultural spraying, emergency rescue, aerial advertising, and tourism sightseeing.

TWO INVITATIONS



Welcome to CHINA TRANSPO

From July 1st to 3rd this year, the GSTIKC will host the 17th International Exhibition on Transport Technology and Equipment in Beijing.

TWO INVITATIONS

Welcome to join the Global Sustainable Transport Innovation Alliance

Through this platform, members can collaborate on international transport initiatives, expand global transportation networks, and contribute to advancing sustainable transport worldwide.