ITS India Forum

(A Think Tank on Intelligent Transport Systems in India)

Reshaping the Mobility in India

Overarching objectives of ITS India Forum

The ITS India Forum aims to promote the development of a sustainable, safe, and efficient transportation system in India, aligning with the Honorable Prime Minister's vision of ***Vikshit Bharat Vision@2047*** *and developing India as a global ITS Leader.*

To Improve Mobility with the latest technologies

- **Road Safety.**
- **Congestion Reduction.**
- **Affordability and Inclusiveness.**
- **Logistics Competitiveness.**
- **Sustainability**

Reshaping the Mobility in India

SAU
SOUTH ASIAN UNIVERSITY

GLOBAL ROAD INFRATECH SUMMIT & EXPO

Connected Vehicles Stakeholders Meet.

Connected Vehicles Stakeholders Meet

TRANSFORMING INDIA'S MOBILITY

A few Achievements of ITS India

- Assisting the Government in drafting a Comprehensive National ITS policy framework with Industry inputs and global best practices.
- **Piloted the latest technologies such as CV2X, Safe Driving Score, Chardham Traffic Management, Kumbh Mela Traffic Simulations,**
- Collaborative partnership with Global ITS Forums, SAU, ITS UK, ITU, World Bank, IEEE, Geo Spatial World, IITs and BIS
- Helping in the development of India-specific specifications
- Started **the ITS India Practioner's Journal**
- **Innovative Funding models** for the ITS scaling.
- **Capacity-building** Courses

Intelligent Transport System

Technology that brings People Close Together Safely

Exploring Current Status and Future Strategies on ITS in India

Glimpse of the Indian Road Network:

Road

- India has the **second-largest** road network in the world, spanning > **6.4 million kilometers.**
- India is planning to significantly expand its network of access-controlled high-speed corridors (expressways) by **2047 > 50 thousand kilometers.**
- Significant investment, potentially reaching **> 1.5 Trillion USD**, is projected to be required to upgrade India's road infrastructure comprehensively.
- In addition, various state governments in India are also developing high-speed corridors.
- District and municipal authorities are actively upgrading their local road networks and considering implementing **Road User Charges (RUC),** such as congestion pricing or parking fees, to improve traffic flow, reduce congestion, and address parking issues.

Vehicles

- India is currently the **third-largest** vehicle manufacturer in the world, and there are strong indications that it will rise to become the **second-largest** within the next decade.
- As of **2022**, India registered **354 million** motor vehicles.
- The current **35 Cars for every 1000 people are likely to double by 2030,** resulting in a substantial increase in road users.
- India is promoting the rapid adoption of electric vehicles, aiming to achieve **30 percent** EV penetration by **2030.**

ITS

- India has extensive plans to integrate **Collaborative Intelligent Transportation Systems (C-ITS)** as a major enabler for improving transportation efficiency and safety.
- This includes the implementation of A**dvanced Traffic Management Systems (ATMS).**
- The adoption of **Advanced Driver-Assistance Systems (ADAS)** in vehicles.
- **Connected vehicles** to enable communication between vehicles and infrastructure.
- **Dynamic and real-time user fee collection is being implemented**.
- Real-time penalty collection through **electronic challans (e-challans)** is being used for traffic enforcement.

FASTag: India’s Electronic Toll Collection Revolution

FASTag – Transforming Indian Tolling

- **Introduced in 2016** as part of the **NETC** system.
- Uses **RFID** technology for seamless toll payments.
- Enabled by **NPCI** in collaboration with **NHAI** and **IHMCL.**
- **Mandatory for all four-wheeled vehicles since 2021.**

Impact of FASTag Implementation

- Reduced average toll plaza wait time from **734 seconds (2014) to 47 seconds (2023).**
- Increased toll revenue from **₹3,352 Cr (FY18) to ₹54,144 Cr (FY23).**
- Over **1,250 toll plazas** (including 339 state plazas) covered.
- Integrated with fuel payments, parking, and other mobility services.

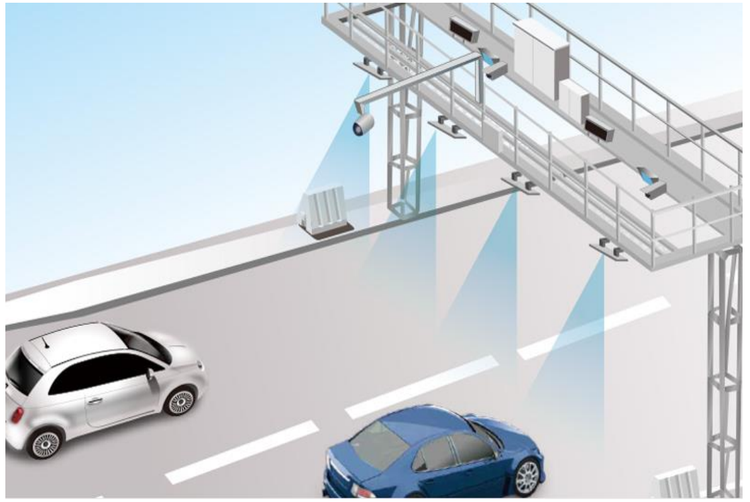
- 70 million FASTag issued
- 98% penetration
- over 11 Million transactions daily
- Daily collection > INR 1.9 Billion

FASTag’s Contribution to Economy & Environment

- Increased government revenue and reduced leakage.
- Improved logistics efficiency, reducing idle vehicle time.
- Annual savings of **₹70,000 Cr in fuel costs.**
- Reduction of over **9,78,200 tonnes of CO2 emissions.**

Multi-Lane Free Flow Tolling

Revolutionizing Toll Collection for the Future



Key Features

- **Barrier-Free Tolling –** Eliminates toll booths, allowing uninterrupted vehicle movement.
- **High-Speed, Multi-Lane Processing –** Vehicles are detected and charged accurately, regardless of lane position.
- **Automated License Plate Recognition –** Uses ANPR and RFID technology to identify vehicles in real-time.
- **Dynamic & Distance-Based Charging –** Enables flexible pricing based on distance traveled, congestion levels, and vehicle type.
- **Integration with Collaborative Intelligent Transport System -** Better Traffic Management and Enforcement.
- **Facilitate Connected Vehicle Ecosystem** – Safer, Sustainable, and Cost-effective Transportation

National Priorities Driving ITS

- **Reducing road fatalities by 50% by 2030**
  - Target to reduce by 50% - Over 150,000 fatalities every year
- **Sustainable Transportation System**
  - Reduce Carbon Emission – *Transportation system accounts for 14% Carbon Emission*
- **Digital India & Gati Shakti initiatives**
  - Reduce Logistics Cost – Currently around 13%
- **Inclusive Transportation**
  - Smart and cost effective Public Transportation System – With seamless last mile connectivity

Key ITS Implementations

- AI-based Adaptive Traffic Signal Control Systems in 20+ cities.
- Advanced Traffic Management Systems (ATMS) across National Highways.
- V2X and C-V2X technology trials in coordination with OEMs.
- Safe Driving Score (SDS) system pilots.
- AI & sensor-based enforcement for over speeding, red light violations.
- Integrated Command & Control Centres (ICCCs) for real-time road safety.
- AI, ML & IoT integration for predictive traffic and asset management.

Key ITS Implementations

- School Zone Audits & dynamic speed limit controls pilots.
- Drone-based road asset inspection and incident response.
- Digital Twins for infrastructure planning and traffic simulation.
- Blockchain use pilots in toll collection and vehicle compliance
- Unified Charging Interface pilot by MoP & private sector.
- ITS-enabled EV routing based on range prediction and charging availability.
- Zero Emission Truck (ZET) pilots on select freight corridors.
- Exploring Electric Road System **(ERS)**

Challenges in Scaling ITS

- Need for unified ITS architecture.
- Interoperability and data exchange standards.
- Evolving “clearly defined SLAs” and monitoring/tracking mechanism
- High cost of deployment across Tier 2/3 cities & rural highways.
- Inter-agency coordination among state transport departments.
- Skilling workforce in ITS operations and AI-based traffic systems.

Conclusion & Call for Collaboration

- India invites ITS Asia Pacific partners to co-develop innovations.
- Collaborate on standards, pilot projects, and capacity building.
- Accelerate regional ITS integration for smart and sustainable mobility.
- Let’s shape the future of transport in Asia—together.

Thanks

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