Smart Traffic Management

Leveraging AI for Safer Roads

Introduction to AI in Traffic

Welcome to the Summit! This presentation explores innovative AI applications in traffic management. We focus on enhancing road safety, optimizing flow, and reducing congestion. Integrating smart technologies like IoT, AI, and 5G into urban infrastructure creates safer cities.

Enhanced Road Safety

AI improves safety by predicting hazards and preventing accidents.

Optimized Traffic Flow

Real-time data allows AI to manage congestion efficiently.

Reduced Congestion

AI dynamically adjusts signals and reroutes traffic, minimizing delays.

About Us

I-Net Secure Labs Private Limited

Chennai, Bengaluru, Lucknow & Delhi

- 16+ Years of Experience – Inception Year 2008
- 10+ Years of Experience in Video Streaming & Surveillance
- More than three lakh cameras deployed across India

- ISO 9001, ISO 20000, ISO 27001 , ISO 10004 & CMMI Level 5 Certified
- MSME & NSIC Registered
- Average Annual Turnover 40+ Cr. In the last three FY's.
- Provisional Turnover this FY up to 31st Jan 2025 is INR 175+ Cr.
- Positive Net Worth Organization
- Leadership & Managerial Employee Strength Over 150 +
- In House Software Development & Technology R&D Department
- Custom built Technology Solutions as per Project Requirement

AI in Transportation Systems

Smart Traffic Management

AI-powered traffic lights adapt in real-time. Predictive analytics reduce congestion and optimize routes.

Accident Detection & Prevention

AI systems in CCTV detect accidents or erratic driving. Real-time alerts are sent to emergency services.

Autonomous Vehicles

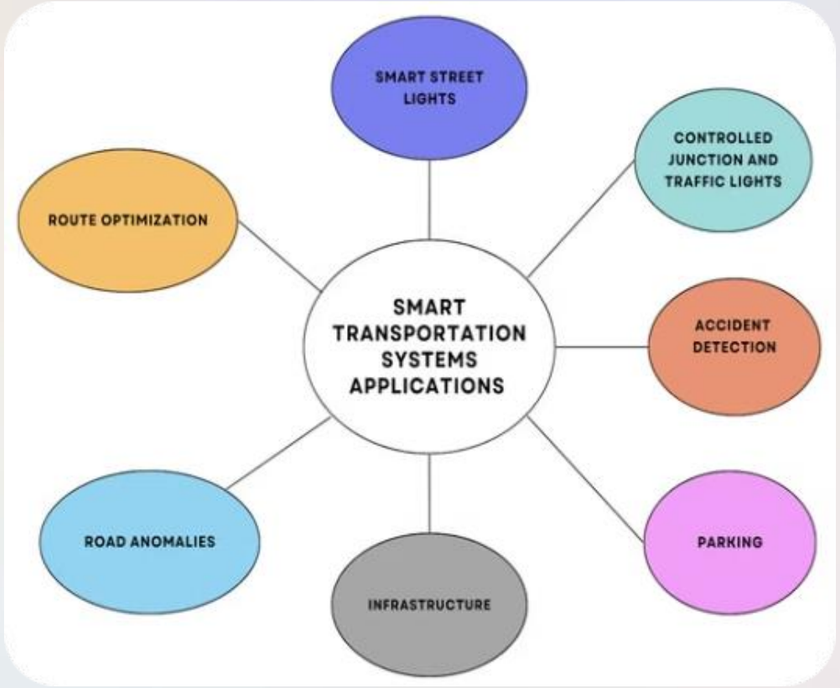
Self-driving cars use AI to navigate safely. Vehicle-to-vehicle (V2V) communication enhances coordination.

Driver Monitoring Systems

AI-enabled cameras monitor driver fatigue. Instant alerts or interventions can prevent accidents.

Road Condition Monitoring

Drones and road survey AI analyze surfaces for hazards. Maintenance can be scheduled proactively.



Smart Applications

Smart applications integrate seamlessly into urban environments. They leverage AI to create a responsive and efficient infrastructure. These systems enhance public safety and streamline daily operations.

Traffic Flow

Optimized for peak efficiency

Public Safety

Enhanced surveillance measures

Connectivity

Seamless data exchange

Urban Planning

Intelligent city development

Key Technologies

Our solutions are built on a foundation of cutting-edge AI technologies. These tools enable real-time analysis, predictive capabilities, and efficient data processing. They are crucial for smart city infrastructure.

Computer Vision

For surveillance and traffic analysis.

Machine Learning

For predictive analytics and pattern recognition.

Natural Language Processing

For emergency call analysis and communication.

IoT & Edge Computing

For real-time data collection and processing.

Geospatial AI

For mapping and location-based insights.

Traffic Monitoring Parameters

Effective traffic management relies on precise monitoring of key parameters. These data points provide critical insights for optimizing flow and ensuring safety. Real-time analysis is fundamental to our system.

Vehicle Congestion

Detection at intersections identifies bottlenecks.

Future Traffic Patterns

Identifying and predicting upcoming congestion.

Real-Time Data

Continuous collection and analysis for insights.

Traffic Violations

Automated detection using ANPR technology.

Accident Resolution

Using digital evidence for quicker solutions.

Smart Surveillance Systems

Integrated Traffic Management Systems (ITMS) are at the core of our smart surveillance. These AI-based solutions detect violations and issue instant challans. This creates deterrence, enhancing road safety and reducing accidents.

AI Surveillance

Monitors traffic and detects violations.

Instant Alerts

Notifies authorities of incidents.

Road Safety

Enhances overall public safety.

Challan Issuance

Automates violation ticketing.

Smart Road Survey using AI

AI-driven smart road surveys revolutionize infrastructure maintenance. Early detection of defects enables proactive interventions. This reduces accident risks and optimizes resource allocation. It promotes long-term sustainability.

Enhanced Safety

Early defect detection reduces accident risks.

Efficient Resources

Data-driven prioritization optimizes maintenance spending.

Sustainable Roads

AI planning promotes long-term infrastructure health.

AI Enforcement for Safer Roads

AI enforcement systems actively identify and address various traffic violations. This ensures adherence to rules and enhances overall road safety. The system covers a wide range of infractions.

- Wrong vehicle on wrong lanes.
- Illegal stoppage/parking of vehicles.
- Helmet detection for all passengers.
- Triple ride detection.
- Lane straddling.
- Speed verification.
- Traffic congestion detection.
- Accident detection.
- Wrong way detection.

10+

Violation Types

24/7

Continuous Monitoring

>95%

Accuracy Rate

ITMS Key Capabilities

Integrated Traffic Management Systems (ITMS) boast advanced capabilities for comprehensive enforcement. Our ANPR cameras provide high-definition evidence. They capture license plates under various conditions. This ensures robust data for court evidence and violation processing.

Single camera red light violation detection for 3-4 lanes.

In case of multiple cameras, lane straddling vehicle number plate may not be fully captured in a single image.

HD 4K/12 MP single global shutter ANPR camera for ANPR and court evidence image capture.

Capability to capture retro and non-retro reflective number plates.

Capability to track multiple vehicles simultaneously.

ITMS Key Features

Global Shutter Camera – Dual exposure

Day/Night Operation with pulsed High power IR flash

Integrated light sensor for all-round image quality

5&8 Megapixel, SONY Pregius sensor

Triggered capture and flash sync

Dual exposure for sun glare reduction

Synchronized IR flash for clear night imaging

No distraction for driver with pulsed IR flash

AI for Safe Cities

1

Surveillance & Crime Detection

- AI analyzes video feeds to detect suspicious behavior or unauthorized access.
- Facial recognition helps identify suspects or missing persons.

2

Emergency Response Optimization

- AI predicts high-risk zones and allocates emergency resources accordingly.
- Real-time data helps dispatch units faster and more efficiently.

3

Disaster Management

- AI models forecast natural disasters (floods, earthquakes) and simulate evacuation plans.
- Sensors and IoT devices provide early warnings.

4

Environmental Monitoring

- AI tracks air quality, noise pollution, and radiation levels.
- Alerts are issued when thresholds are exceeded.

5

Urban Planning

- AI analyzes population density, traffic patterns, and crime data to design safer urban layouts.
- Smart lighting and surveillance placement improve safety.

AI for Locked Houses Monitoring

- AI based LHMS mobile application for every house
- LHMS will be linked with local Police Station
- 4G SIM based video streaming camera with battery support shall be installed inside the locked house
- Any human movement alert will be notified immediately to both, the Police personnel and the owner.

Conclusion

AI Integration:

The integration of AI in traffic management systems provides numerous benefits, from **improving road safety** to enhancing traffic flow and public transportation efficiency.

AI Revolution:

AI has the potential to revolutionize urban safety and transportation systems. By leveraging advanced technologies such as real-time data analysis, traffic monitoring cameras, and predictable modeling, cities can create safer, smarter and more efficient transport networks.

Thank you!

Any Questions?