Case Study:
Revolutionizing Traffic Management in Shimla Smart City with TrafficMon®

Introduction

The Himachal Road Transport Corporation Ltd (HRTC) is a key player in the transportation sector of Himachal Pradesh, India, ensuring the mobility of millions of residents and tourists. In a bid to enhance road safety and traffic management, HRTC embarked on a project to implement TrafficMon, an integrated traffic management system in the bustling city of Shimla. This initiative is part of the Shimla Smart City project, aiming to leverage technology for improved urban management and citizen service by providing timely updates and alerts improving overall traffic flow.

Problem Statement

Shimla City, an expanding urban center and renowned tourist destination in Himachal Pradesh, faces significant challenges in managing traffic and ensuring road safety. The city experiences severe congestion, especially during peak tourist seasons, leading to significant delays and reduced efficiency in transportation. Moreover, addressing widespread traffic violations such as speeding, helmet compliance, triple riding on two-wheelers, and seat belt usage is crucial for reducing accidents and enhancing road safety.

Driving in hilly areas like Shimla differs markedly from driving on plains due to steep inclines, sharp curves, and often narrow roads, making it more critical for authorities to enforce traffic rules rigorously to prevent road accidents. Manual enforcement methods are labor-intensive, prone to errors, and struggle to manage the growing volume of vehicles effectively. The lack of a real-time traffic monitoring system hinders Shimla's ability to quickly address traffic issues, make data-driven decisions, and plan future infrastructure effectively. These challenges necessitate an advanced, automated traffic management solution to bolster enforcement, enhance road safety, and streamline traffic flow in Shimla.
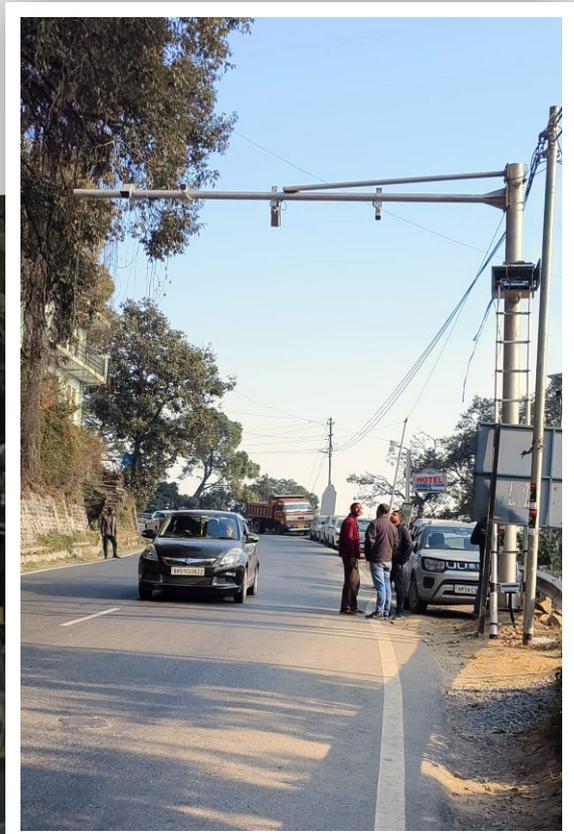

Fig.1 Traffic Management in Shimla Smart City with TrafficMon®

Features

- Generates hot-listed/stolen & wanted vehicle data
- User-friendly User Interface (GUI)
- Client-server architecture with rich & cost-effective VMS
- Software-based Video Management System
- Supports a wide range of video sources
- The highly optimized system can manage thousands of video sources
- Runs on industry-standard hardware and network components, no custom hardware is required in VMS
- VMS supports virtual machines and virtualization platforms
- VMS supports a wide range of storage devices NAS/SAN/ISCSI etc.
- Compliant with requirements relating to security as per Cert-IN (Indian Computer Emergency Response Team) guidelines for VMS
- Zoom in or out the video for cameras that do not have their own optical zoom capabilities

Use cases	Licenses
No Helmet Detection	10
Triple Ride Detection	10
Seat Belt Detection	10
Speed Violation	10
VMS	395

Solution: TrafficMon®

Vehant's team actively engaged with the client to promote the adoption of TrafficMon, emphasizing its capabilities in enhancing traffic monitoring and enforcement efficiency. TrafficMon integrates VehiScan ANPR technology, which detects violations such as speeding, no helmet, triple riding, and seat belt negligence. This automated system improves enforcement accuracy and reduces dependency on manual methods, thereby mitigating human errors. Team Vehant has successfully deployed these units across strategic locations in Shimla, demonstrating their commitment to enhancing road safety and traffic management. The scope of the project included 10 ANPR for No Helmet Detection, Triple Ride Detection, Seat Belt Detection, Speed Violation, and 395 Variable Message Signs (VMS). To date, 140 VMS units have been completed, alongside the completion of all other detection systems.

No Helmet Detection: Automatically identifies motorcyclists without helmets, leading to fewer violations and improved rider safety.

Triple Ride Detection: Flag vehicles carrying more passengers than allowed, enhancing compliance with safety regulations.

Seat Belt Detection: Identifies vehicles where occupants aren't wearing seat belts, promoting seat belt use and reducing injury risks.

Speed Violation: Captures instances of speeding, holding violators accountable and reducing speed-related accidents.

Video Management Systems (VMS): Enhancing traffic monitoring with real-time video feeds, improving situational awareness and enforcement.

Moreover, TrafficMon includes supplementary features tailored to address Shimla's specific pain points. Real-time data analytics capabilities empower city officials to make informed decisions and optimize traffic flow strategies. VMS disseminates critical traffic updates and safety messages to road users, promoting awareness and compliance with traffic regulations. This collaborative effort by the authorities underscores a proactive approach towards creating a safer, smarter urban environment.