DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
III B. Tech Industry Oriented Mini Project, A.Y:2024-25

ABSTRACT FORM

Batch Number: C1

Title of the Project:AUTOPATROL - AI POWERED TRAFFIC VIOLATION MONITORING

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Area/Domain of Project	

PROBLEM STATEMENT

Managing traffic violations effectively is essential for ensuring road safety and enforcing traffic laws. Traditional systems rely on fixed signal timers and manual surveillance, which leads to inefficiencies in identifying violators and controlling traffic dynamically. The AutoPatrol system addresses this by allowing manual red/green signal toggling during video playback and detecting only those vehicles that move during red signals. Using OCR-based number plate recognition, the system identifies violating vehicles and stores data automatically in a MySQL database. This reduces human intervention, improves violation accuracy, and provides a web interface for both police and users. AutoPatrol aims to deliver a smarter, more responsive traffic monitoring solution tailored for exhibitions, academic use, or scalable deployment.

ABSTRACT

AutoPatrol is a smart traffic violation detection system that uses AI, computer vision, and OCR technologies to automate the process of identifying red-signal violations from traffic videos. Designed with a web-based interface, traffic police can upload traffic footage, toggle signals dynamically, and view detected violations in real-time. The system integrates YOLOv8 for vehicle detection and EasyOCR for number plate recognition. Violations are logged only during active red signals and are stored in a MySQL database, accessible through a secure dashboard. Vehicle owners can also search for their number plates to view any challans issued. This system improves detection accuracy, eliminates manual errors, and provides a platform for interactive enforcement. AutoPatrol sets the foundation for more intelligent, data-driven traffic regulation systems with future potential for live camera integration, automated challan alerts, and real-time enforcement in smart city deployments
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OBJECTIVES
• **Red-Signal-Based Violation Detection** – Enable violation detection only when the red signal is toggled manually, avoiding false positives. • **Live Signal Control by Traffic Police** – Provide an interface for police to toggle red/green lights during video analysis dynamically. • **Automatic Number Plate Recognition (ANPR)** – Use OCR via EasyOCR to identify and store number plates of vehicles violating the red light. • **Real-Time Violation Preview** – Show detected vehicles live on the dashboard for instant review before storing. • **User Violation Search** – Allow vehicle owners to search for their number plates and view their violation history without login. • **MySQL-Backed Record Storage** – Store all violation data in a structured format for law enforcement use. • **Web Interface for Police & Public** – Separate roles for traffic officers and citizens for efficient violation management. • **Scalable Architecture** – Designed to be modular for integration with live surveillance feeds or other traffic modules.

Project Guide **Class Project Coordinator** **Project Coordinator**