**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**

**Name of the Guide: Mr. P Michael Preetam Raj**

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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  . | |
| **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**