



MGM'S College of Engineering, Nanded

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

"WRONG-WAY VEHICLE DETECTION SYSTEM USING DEEP LEARNING"

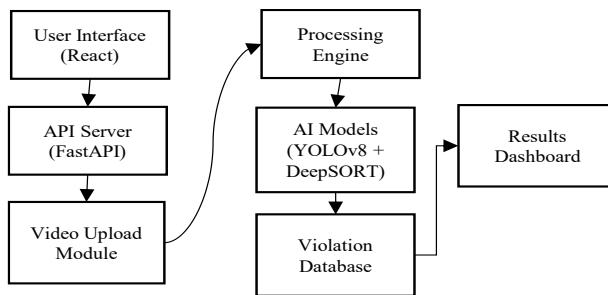
Name of Students : 1. Talatunnisa Siddiqui 2. Snehal Savandkar 3. Rasika Rakhewar 4. Shruti Pimple 5. Prajakta Waghmare

Name of the Guide : Dr. Manisha Y. Joshi

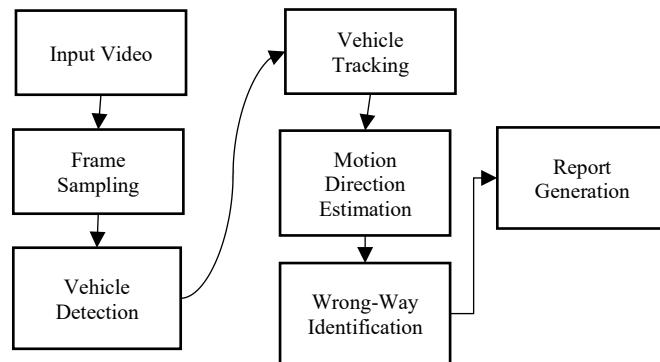
Academic Year : 2025- 2026

Introduction: Wrong-way driving incidents pose a severe risk of fatal, high-impact collisions, yet manual traffic monitoring is impractical and not scalable. This project presents an end-to-end Deep Learning system that automatically detects, tracks, and reports vehicles moving against the proper flow of traffic. By integrating state-of-the-art object detection (YOLOv8) and tracking (DeepSORT) with a novel "Majority Voting" logic for autonomous direction analysis, the system delivers fast, accurate, and real-time violation alerts without manual configuration, significantly enhancing road safety.

System Architecture:



Methodology:



Conclusion: The Wrong-Way Vehicle Detection System successfully applies Deep Learning (YOLOv8 and DeepSORT) to solve a critical traffic safety problem. Through system-level optimizations like frame skipping and a novel Majority Voting logic, it provides a practical, efficient, and highly accurate solution for real-time violation detection. The system is designed for easy deployment and demonstrates the power of integrating advanced AI components into a complete, user-focused application.

Maps to:
PO1 to PO5,
PO9 , PO10,
PO12
PSO1 to
PSO3

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