Group \_ID: 12

Title of Project: Road Sign Detection System for Harsh Driving Analysis and Speed Compliance

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Abstract of Project:

This project presents a comprehensive review and implementation approach for a **Traffic Sign Board Detection System aimed at Monitoring Harsh Driving and Analysis**. With the growing demand for intelligent transportation systems, accurate and real-time traffic sign detection and recognition (TSD/TSR) has become essential for ensuring road safety and efficient traffic regulation. This work emphasizes the integration of deep learning techniques, particularly **Convolutional Neural Networks (CNNs)** and real-time object detection models like **YOLOv8-Nano**, to address challenges such as variable environmental conditions, partial occlusions, and limited computational resources in embedded systems. The system is trained on benchmark datasets like **GTSRB** and is optimized for real-world applications through techniques such as data augmentation and lightweight architecture deployment. Furthermore, it explores the synergy between TSD/TSR and **Advanced Driver Assistance Systems (ADAS)** to enhance autonomous vehicle perception and decision-making. The project aims to deliver a reliable, efficient, and scalable solution for traffic monitoring, with the additional feature of analyzing harsh driving behavior based on traffic sign interactions.