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## **Real Time Traffic Monitoring and Management Using Video Surveillance**

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Abstract: This research paper presents a real-time traffic monitoring and management system that leverages CCTV video analytics and Deep Convolutional Neural Network (DCNN)-YOLO models trained on synthetic datasets simulating diverse traffic scenarios. Designed to address the challenges of growing urban traffic congestion and accident rates, the system aims to provide rapid accident detection and enhance road safety. A user-friendly dashboard enables traffic authorities to monitor live traffic data, receive immediate alerts, and analyze traffic patterns, facilitating quick responses and automated traffic signal adjustments based on real-time conditions. Evaluation of the DCNN-YOLO model on real-world video footage achieved an average classification accuracy of 82.3%, showcasing the system's effectiveness. Additionally, the system optimizes storage by summarizing video footage while preserving crucial information. By integrating real-time insights and automated management features, the proposed solution advances urban traffic management and contributes to the development of intelligent transportation systems

**Keywords:** Deep Learning, Traffic Monitoring, CCTV Video Analytics, YOLO, Real-time Data Processing, Traffic Signal Control, Accident Detection, Traffic Management, Object Detection, Intelligent Transportation Systems



