IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, November 2025
Impact Factor: 7.67

Car Accident Detection and Reporting System Using Deep Learning

Manoj B M[1] and Prof. Sandeep N K[2]
Student, Department of MCA[1]
Assistant Professor, Department of MCA[2]
Vidya Vikas Institute of Engineering and Technology, Mysore

Abstract: *Rapid, reliable detection of road traffic crashes is essential to shorten emergency response times and improve outcomes. This paper presents a real-time Accident Detection & Alert System built on YOLOv8 that identifies crash events from live dashcam/CCTV streams and automatically notifies responders. The method combines a one-stage object detector (YOLOv8, PyTorch) trained on a Roboflow-sourced dataset of accident and normal-traffic scenes with standard augmentations, and a lightweight Flask service for deployment. The pipeline ingests video, performs per-frame inference with non-maximum suppression, and applies simple temporal/logic checks to suppress spurious triggers. Confirmed events generate alert payloads (timestamp, camera ID, snapshot and optional location) that are dispatched via email/SMS through pluggable gateways. In evaluation on a held-out test split, the model achieved 95% of detection accuracy and low false positives/negatives and sustained real-time throughput on commodity hardware, demonstrating suitability for continuous monitoring. The system's end-to-end design data preparation, training, inference, validation, and alerting offers a practical path to deployment in municipal surveillance and fleet safety settings. Future extensions include crash-severity estimation, geo-tagged alerts, integration with emergency-service APIs, and continual learning from newly collected incidents to maintain performance across locations, weather, and lighting conditions.*

Keywords: Accident detection, YOLOv8, real-time video analytics, deep learning, intelligent transportation systems, emergency alerting

DOI: 10.48175/IJARSCT-29910