SCMS School of Engineering and Technology
Department of Computer Science and Engineering
Seminar Proposal Form
CSQ 413 SEMINAR

Name & Reg No. of Student: Ijas Ahammed (SCM20CS063)

Class: S7 B.Tech CS2

Date: 27/09/2023

1. Area of seminar topic: Image Processing – Vehicle Detection

2. Title of Seminar — Emergency Vehicle Prioritization with Enhance YOLO-v7 and GBM

3. Literature Referred

Sl No.	Journal Name	Paper Title	Authors	Month & Year	ISSN/ Issue/ Volume	Page No
1.	Springer: Multimedia Tools and Applications	Faster CNN-based vehicle detection and counting strategy for fixed camera scenes	Gomaa, T. Minematsu, et al	Jan 2022	Vol. 81	25443
2.	MDPI: Applied Science	A Fast and Accurate Real-Time Vehicle Detection Method Using Deep Learning for Unconstrained Environments.	A. Farid, F. Hussain, et al	Feb 2023	Vol. 13	3059
3.	International Journal of Computers and Applications	A modified deep learning architecture for vehicle detection in traffic monitoring system	H. Haritha and S. K. Thangavel	Sept 2019	Vol. 43	-

4. Seminar Abstract

In the present day, the detection and classification of vehicles has become a major challenge due to the rapid increase in the number of vehicles of varying sizes on the roads, especially in urban areas. In the last few years, we've seen a lot of research and development into promiscuous models for detecting and categorising vehicles. Unfortunately, these models have some problems with the accuracy of identifying the vehicles, like the shadow issue, which makes it harder to prioritise emergency vehicles. Plus, these models take more time to set up and keep up with in real-time, so they're not as easy to use.

A new vehicle detection and classification framework is proposed in this research work. This framework is based on the Yolo v7 and the Gradient boost machine (GBM). The objective of this framework is to prioritise emergency vehicles faster and more accurately. The proposed framework focuses on the precise identification of vehicle class in ITS for the purpose of prioritising emergency vehicles to gain a clear path.

The results of the framework are really good, and they're even better than the older models. The performance metrics - accuracy, accuracy, recall, F1 score - are all pretty good, with 98.83, 96%, 97%, and 98% respectively. This research work could be expanded in the future to make it easier to identify vehicles that can handle all kinds of tough conditions, like snow and rain, or even during the night.

Approved by

Seminar Guide   **Seminar Coordinator**   **HOD**