MAJOR PROJECT

on

TRAFFIC SURVILIANCE USING YOLO V3 AND COMPUTER VISION

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By

G SAI NIKHIL (21036132)

G REVANTH (21036123)

C VAMSI KRISHNA (21036119)

B.Tech, 8th semester

Under the guidance of

Mrs. ARADHANA SONI

(Assistant professor)

DEPARTMENT OF INFORMATION TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR, CHHATTISGARH

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DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY,

GURU GHASIDAS VISHWAVIDAYALA

CERTIFICATE

We are here to declare that the major project work being presented in this report entitled **TRAFFIC SURVILIANCE USING YOLO V3 AND COMPUTER VISION** submitted in the department of information technology, Guru Ghasidas Vishwavidyalaya, Bilaspur,is authentic work carried out by us under the guidance of **Mrs. ARADHANA SONI, ASSISTANT PROFESSOR,** department of information technology, Guru Ghasidas Vishwavidyalaya, Bilaspur

DATE: 03/04/2025

Sai Nikhil, Revanth, Vamsi Krishna

8th semester,

Department of Information Technology,

Guru Ghasidas viswavidyala, Bilaspur

This is to certify that the above statement made by the students is correct to the best of my knowledge.

Dr. Manoj Kumar
Head, Dept of Information Technology

Signature of Supervisor
Mrs. Aradhana Soni
(ASSISTANT PROFESSOR)

ABSTRACT

This paper presents an automatic traffic surveillance system to estimate important traffic parameters from video sequences using only one camera. Different from traditional methods that can classify vehicles to only cars and noncars, the proposed method has a good ability to categorize vehicles into more specific classes by introducing a new "linearity" feature in vehicle representation. In addition, the proposed system can well tackle the problem of vehicle occlusions caused by shadows, which often lead to the failure of further vehicle counting and classification. This problem is solved by a novel line-based shadow algorithm that uses a set of lines to eliminate all unwanted shadows. The used lines are devised from the information of lane-dividing lines.

Therefore, an automatic scheme to detect lane-dividing lines is also proposed. The found lane-dividing lines can also provide important information for feature normalization, which can make the vehicle size more invariant, and thus much enhance the accuracy of vehicle classification. Once all features are extracted, an optimal classifier is then designed to robustly categorize vehicles into different classes. When recognizing a vehicle, the designed classifier can collect different evidences from its trajectories and the database to make an optimal decision for vehicle classification. Since more evidences are used, more robustness of classification can be achieved. Experimental results show that the proposed method is more robust, accurate, and powerful than other traditional methods, which utilize only the vehicle size and a single frame for vehicle classification.

Index Terms—Linearity feature, occlusions, shadow elimination, traffic surveillance, vehicle classification