European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 07, Issue 01, 2020

PRIOR OCCLUSION, PRIOR QUEUE, RESOLUTION DETECTION FOR MULTIPLE-VEHICLE DETECTION & TRACING SYSTEM

G Ahmed Zeeshan[1], Nuzath Unnisa Begum[2], MD Zaki Hassan[3]

[1] Department of Electronics and Communication Engineering, Global Institute of Engineering and Technology, Hyderabad.
ahmedzeeshan_eng87@yahoo.com.

[2] Dept of Electronics and Communication Engineering, Global Institute of Engineering and Technology, Hyderabad.

[3]Department of Electronics and Communication Engineering, Global Institute of Engineering and Technology, Hyderabad.
mohdzakihassan418@gmail.com

Abstract*: The proposed system for detecting and monitoring multiple vehicles is based on a color backdrop for moving objects, which utilizes associations between moving subjects and current tracking trajectories. In the beginning, grouping extracts the history. Then, prior traveling artifacts are regularly updated to ensure stable separation under the situation of luminance shifts. In the case of some misconvergence because of roadside parking cars, a test on input trajectories will be remedied later in an attempt to avoid erroneous identification as automobiles move away. The distance or distance and angle relation is used for the tracking phase to decide whether a direction should be formed, expanded or removed. When occlusion is observed after development of a route, the rule-based monitoring logic should overcome it. Lane details will be used otherwise. In addition, a queue identification and resolution technique shall be used when monitoring before further resolution occlusion has occurred in the road. Finally, automation parameters for the device are suggested for easy setup.*

Index Term*: Prior Occlusion, Prior Queue, Resolution Detection Multiple-Vehicle Detection & Tracing System (MVDT)*

I. INTRODUCTION

MVDT system is proven [1] that multiple traffic parameters can be capture the moving vehicle or objects in video. The work extends Multiple-Vehicle Detection & Tracing System approach to tackle a queue that occurs frequently prior to traffic light. Therefore, both moving and stopping trajectories should be maintained. The suggested plan is to break queued vehicles into vehicle sensing and to split-split vehicles into vehicle tracking. Advances in road-view vehicle detection, tracking and behavioral study, especially in vehicle sensors and representative detection and tracking for vision-based vehicles. Aspects such as features and occlusion should be considered in addition to classification. Aeronautics, Salgado and Nieto, where "a new descriptor is set out based on the analysis of gradient directions in clustered rectangles," involving "a much smaller space than conventional Describers that are too costly for real-time applications, is another interesting paper. Surveillance cameras are capturing video and recorded in the

tape and human need to monitor the video all the time. Here a framework needs to recognize moving object and concentrate the data dependent on that without drawing in the human to screen the video constantly. Transient separating, Background deduction and optical stream are the ways to deal with distinguish the moving objects. For vehicle-mounted camera The SVM is being educated in a new database of vehicle images. On the other hand, Huang's background research is extensive and the entropy is used for an algorithm of motion detection, although this paper is a very good one, the exactness obtained was relatively low Due to perspective effects, shadows, vibration of the camera, changes of lighting and other factors, several vehicles could be detected in one engine, which greatly affected system performance. Therefore, after vehicle identification, occlusion control is an important step. Multiple ways are available to reduce occlusions. Many researches has been carried out on moving object detection using back ground subtraction algorithm and one of them is a contour based approach. It generates the contour map based on foreground and background information of each region and size and amplification varies depends on halo that surrounds the people. At the overlapping pixels the contour saliency become decreases due to the similarity between the back ground cross walk line and the thermal intensity of the people which results the contour completion grows slightly into the similar background region. The other methodology is self arranging which is appropriate to be received in a layered structure at area level; it can improve location results permitting to all the more productively handling the disguise issue. An epic closer view and foundation identification model is presented dependent on shading space. Partial occlusion was placed at vehicle corner. The disruption issue is addressed at functional control intersections. The vehicle counting is done of two-show classifications. Shows heuristic analysis / counting-related functions

II. LITERATURE OVERVIEW

R.Bhuvaneswari, and R. Subban, [1]developed a new object recognition system on the basis of feature extraction and points of interest. Initially, the point of interest of the image was selected using derivative kadir-bradydetector and the neighbourhood pixels of a particular window size was selected for further processing. In this literature paper, the Gabor and curvelet features were extracted from the area of interest, and classified by utilizing Support Vector Machine (SVM) classifier [2]. The performance of the developed object recognition system was evaluated in light of accuracy, precision, recall and f-measure. From the experimental outcome, the developed approach outperforms the existing approaches with satisfactory result. Classification by utilizing substance based neural network [3]. Initially, wavelet transform was utilized to extract the feature vectors form the collected image in order to achieve more accurate information. Finally, the misclassification between the foreground and background images was reduced by using the neuralnetwork classifier model. Moreover, the substance based neural network involvesthe removal of the regions in the surrounding image to increase the accuracy of object classification. Performance evaluation reveals that the developed system reduces theoccurrence of misclassification and reflects the exact shape object accurately X.S. Tang, et al, [4] utilized a multi-stream systemon the basis of different geometric feature spaces for object recognition. In order to assess the robustness and smoothness of the proposed representation, four representative geometric feature sets were examined. To further verify the effectiveness of the proposed system, the geometric feature sets were applied on the four challenging datasets. The developed multi-stream method achieves comparable or better results compared to the existing performers. W. Tao, et al, [5] presented a new algorithm for object localization and classification on the basis of Spatial Adjacent Bag of Features (SABOF), Superpixel Adjacent Histogram (SAH) and multiple segmentation cues. The following reviews previous work on both processing configurations, which are simple, cost-effective and multifunctional are able to adapt lighting varies in real-time, with an approximate context dynamically modified to detect moving objects. The methods, nevertheless, relied on an original context which did not contain moving objects. [6] The class and partition estimation parameter of the Chen et al. applied without any reference to the initial

context to moving objects. Nevertheless, when the luminance changes, the iteration function converges gradually. For processing vehicle tracks, Kaman extended filter (EKF) has been applied to estimate vehicle positions and speeds, as shown in. It is proposed that all the unwanted shadows with horizontal and vertical lines be removed in a line based algorithm, for example. The lines are based on information about lane-dividing line. Therefore, a picture samples collected from many cameras are fused to solve the occlusion problem. In addition, a windshield-based algorithm is proposed for deep occlusions of traffic. In a cutting area, when observed in convex regions, occlusion is eliminated.

III. PROPOSED METHODOLOGY

Complex segmentation and regulatory rationalization form the current MVDT framework. First, the current video image, previous moving objects and previous paths across current segments of moving subjects are used for the dynamic segmentation. The rule-based monitoring logic then uses the existing moving objects with past trajectories to identify existing pathways. This proposes a UAV-based Multi-vehicle monitoring and vehicle counting detection system for both set and traveling past. Next, the UAV collects and transmits the detector image sequence separated through 2 parts: stationary context and moving rear. The tracker monitors all identified automobiles in long-sequence video to ensure correct vehicle identification. We create a multi-object management system, monitor tracked vehicles in a single node, and to provide intelligent stats to each wheeled vehicle. They can manage tracked vehicles effectively, preventing confusion. In addition, multi-objective management module incorporates parallel processing technology to improve computational performance. The app has four key components: vehicle control, multi-vehicle tracking and vehicle counting. Briefly, this approach requires.

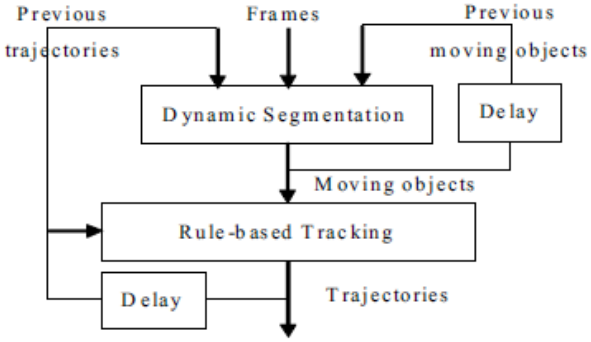


Fig. 1. Block Diagram

A. Prior Occlusion slitting by lane

The monitoring system could be confused if vehicles are hidden when the frame enters. Thankfully, many cars are horizontally hidden side by side across adjacent lanes. Accordingly, lane awareness is recommended for prior occlusion detection and resolution.

B. Update Trajectories

The pathway core is used to link current moving objects with the current trajectory to reduce the calculation capacity. This relation is used to depart from the center of the current moving object

C. Static Background Vehicle detection

. For vehicle counting, vehicle detection is a key process. We address mostly how the UAV operates in floating mode in this section. We can remove moving vehicles with context modeling in the case of a fixed context. A set of N background sample values is used to model each Context pixel [v1, v2, vN]. The pixels values of their neighbors are randomly chosen as their reference models. A difference D between

the pixel values is specified for v(x) pixel classification in point v(x) centered region. Equation defines D for gray image. D = JV(x) to vij.

IV. RESULT AND DISCUSSION

An image sequence recorded before the Cihyun road traffic light is tested in the experimental results (shown in Fig. 1). The size of the frame is 10500, 320 to 240 and 30 fps. The transfer time per frame is average of 14.8ms. The machine is being built with a Pentium-4 2.8 GHz CPU, 512 M RAM on the Windows XP platform.

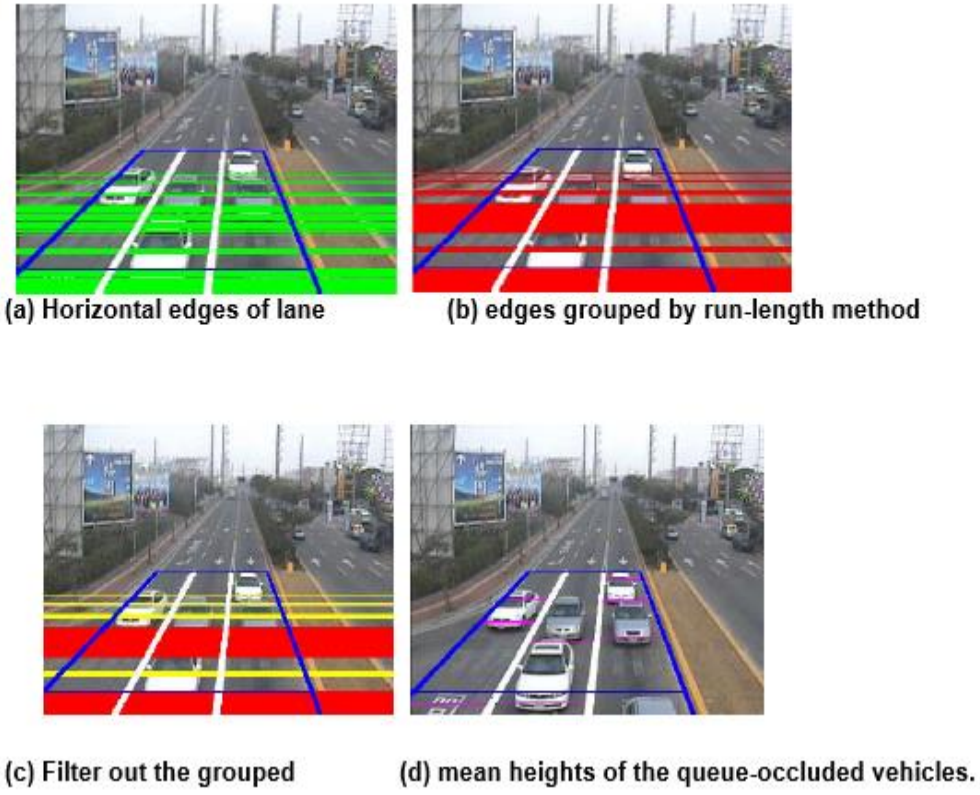
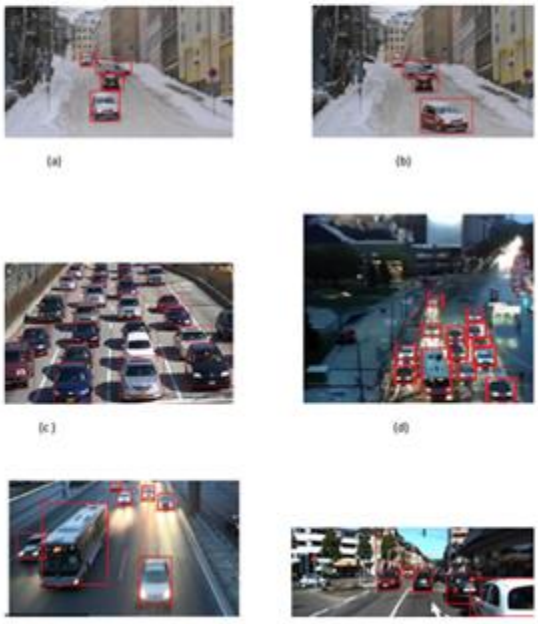


Fig.2. Output Result1

Picture. 1. (a) Lane 2 horizontal borders are contained in green colours; (b) The edges of the lane 2 are further grouped by the length process. The grouped ends are shown in red colours; (c) filter out the grouped ends, which are below an earlier threshold. Yellow is shown on the filtered edges. (d) To break queue-occluded vehicles take the medium heighs of the minimum height and maximum heights of the other grouped ribs. The broken lines are magenta-colored.

(e) Vehicle detection



(f) Prior occlusion, prior queue, resolution detection

Fig.3. Output Result2

Table 1. The accuracy rate of queue resolution

Total test quantity	48
Number of splitting queuing vehicles	42
Accuracy rate	87.5%

V. CONCLUSION AND FUTURE WORK

This research proposes an MVDT program with parameter automation, vehicles identification, path details previous to breaking, vehicle monitoring and a detailed calculation of traffic parameters. At first, a color context extraction technique based on spatio-temporal data, with a luminance correction and an incorrect convergence balance is robustly used for segment movements. First, before dividing the vehicle into the detection area with the information on the lane, obscure vehicles are resolved. Proposed prior queue based article overcome the queue occlusion for vehicles occluded at queue time. Finally, vehicle tracking is achieved by the spaces & elevation. Above results demonstrated that proposed system is very accurate in terms of the real time application.

REFERENCES

[1]R.Bhuvaneswari, and R. Subban, "Novel object detection and recognition system based on points of interest selection and SVM classification",Cognitive Systems Research, vol.52, pp.985-994, 2018.
[2]P.Sengottuvelan, and R. Arulmurugan, "Object classification using substance based neural network", Mathematical Problems in Engineering, 2014.
[3]H.Ren, and Z.N. Li, "Object detection using boosted local binaries",Pattern Recognition, vol.60, pp.793-801, 2016.

[4]X.S. Tang, K. Hao, H.Wei, and Y.Ding, “Using line segments to train multi-stream stacked autoencoders for image classification”,Pattern Recognition Letters, vol.94, pp.55-61, 2017.
[5]W.Tao, Y. Zhou, L. Liu, K. Li, K. Sun, and Z. Zhang, “Spatial adjacent bag of features with multiple superpixels for object segmentation and classification”,Information Sciences, vol.281, pp.373-385, 2014.
[6]http://www.vision.caltech.edu/Image_Datasets/Caltech101/
[7] J. P. Kiran Kumar and M. C. Supriya, "Towards continuous logo location and characterization utilizing profound learning," Int. J. Control Autom., vol. 13, no. 2, pp. 63–73, 2020.
[8] N. J. Uke, R. C. Thool, and P. S. Dhotre, "Languor Detection – A Visual System for Driver Support," Int. J. Electron. Commun. Comput. Eng., vol. 3, no. 2, pp. 29–33, 2012.
[9] N. M. furthermore, F. P. J. Fernández, R. Guerrero, "Staggered Paralelism in Image Identification," Mec. Comput., vol. 28, no. 3, pp. 227–240, 2009.
[10] L. Cai, L. He, Y. Xu, Y. Zhao, and X. Yang, "Multi-object location and following by sound system vision," Pattern Recognit., vol. 43, no. 12, pp. 4028–4041, 2010.
[11] R. Tapu, B. Mocanu, and T. Zaharia, "Profound SEE: Joint object location, following and acknowledgment with application to outwardly weakened navigational help," Sensors (Switzerland), vol. 17, no. 11, 2017.
[12] Nilesh Uke, Shailaja Uke: "Closeness Approach for Object Detection in Video" International Journal of Control and Automation Vol. 13, No. 2, (2020), pp. 868 - 876