

Virtual Traffic Police

Keerthana Shankar^[1], Niket Agrawal^[2], Omkar Tiwari^[3], Mohammed Shujaduddin^[4]

[1] Faculty, Department of Computer Science and Engineering, DSATM, Bangalore-560082, Karnataka

[234] Students, Department of Computer Science and Engineering, DSATM, Bangalore-560082, Karnataka

Abstract- In the new evolving world, business rule violations have become a central issue for the maturity of developing countries. The figures for vehicles are adding fleetly as well as the figures for business rule violations are adding exponentially. Managing business rule violations has always been a tedious and compromising task. Indeed though the process of business operation has come automated, it's a veritably grueling problem, due to the diversity of plate formats, different scales, reels, and non-uniform illumination conditions during image accession. The top ideal of this design is to control business rule violations directly and bring them effectively. The proposed model includes an automated system that uses a camera grounded on a PC to capture videotape. The design presents Automatic Number Plate Recognition(ANPR) ways and other image manipulation ways for plate localization and character recognition which makes it brisk and light to identify the number plates. After fetching the vehicle number from the number plate the SMS grounded module is used to notify the vehicle possessors about their business rule violation. A fresh SMS is transferred to Regional Transport Office(RTO) for tracking the response status.

Keywords — Optical Character Recognition(OCR), OpenCV, CNN(Convolution neural network), image processing, violation detection

INTRODUCTION

In the once many decades, significant sweat in the field of moving object discovery and shadowing has been done to make ensuing operations dependable, robust, and effective videotape surveillance, robotics, authentication system, media product, natural exploration, etc. But numerous challenges produce hurdles in the enhancement of these operations. These challenges may include illumination change, dynamic background, disguise, occlusion, shadow, etc. These obstacles come more clumsy when we perform object shadowing in the low-resolution videotape. In a low-

resolution videotape, it's veritably delicate to directly find out the object of interest because the utmost discriminational details similar to visual features and savages have been lost. It results in inaccurate object shadowing which further leads to hamstrung event discovery. But there are certain benefits of using low-resolution videotape similar as it requires low storehouse, transmission time, and processing time. This paper presents an algorithm suitable for describing unusual events in the low-resolution videotape. The typical operation of our proposed approach is to enhance the security of ATMs without removing conventional low-resolution cameras. It uses rolling average background deduction fashion to member focus objects from scenes with dynamic backgrounds and preserves object features to an extent by simply applying morphological operations with the suitable structuring element. It also doesn't need any classifier or training dataset. It only uses statistical property stand robotization in day-to-day life has gained significance in recent times. The number of accidents on the roads is due to rule violations similar to breaking business signals, over-speeding, driving on the wrong sides, etc. To avoid similar business violations, business police have to be present on the road and have to continuously check if some vehicle is violating the rule. Certain automated results were developed to exclude the violations; still, each of them had certain limitations. For illustration, the videotape capturing cameras excluded the need for an authority to be present to check rule violations. still, the whole stored videotape had to be checked manually for the rule violation script. In this proposed system, a result for signal-breaking violation is given. The system includes an automated system using a camera and a number plate recognition application. However, the desktop operation will be initiated and will capture the number plate image, If any vehicle crosses the zebra line. Number plate recognition

operation by using an image processing algorithm will fetch number plate and SMS will be transferred to the lawbreaker in case of rule violation script. Solid In all countries there are driving rules available for people to drive precisely by being honest and esteeming. When these rules are broken it's defined as a road violation. There are road violations that happen in day-to-day business. For illustration, the most common violations are similar to a red light violation, over-speeding, and catching other vehicles through double white lines and single white lines. These road protocols are applied completely for the places where the utmost of the accidents be. The research platoon has enforced an OpenCV and python grounded system upon a PC. This system is named "VIRTUAL- POLICE ". This system is enforced to ease the work of the police using a stoner interface. The image processing technology is used to descry the lanes and vehicles and will identify vehicles that break rules. The platoon has enforced the system with ultrasonic detectors in order to system to admit conditions to identify when a violation does. It'll be easier for the police to catch those who break the laws of the business and the bobbies who take backhanders and dishonest people will also be reduced. An image of the violation with the position, time, and date and an image of the vehicle to the nearest bobbies bias by inferring bias around the current position the violation happens. As an illustration " When a vehicle pets and if it cuts the line on a business light when it's on red light proposed system will descry them and take prints of the vehicle as attestations according to the protocol that's beggared and shoot an alert to the nearest bobbies device " this exploration is substantially considered about catching who break the rules. This system covers many factors similar to descry vehicles who catch in the wrong places, vehicles that have pets, and business light protocol violations. This system will be more dependable and vehicle discovery and protocol identification will be accurate and divagation of the centroids of the blobs to fete the circumstances of the abnormal events.

LITERATURE SURVEY

[1]Author: Amirgaliyev Beibut, Kairanbay Magzhan, Kenshimov Chingiz Year: 2018. Title: Effective Algorithms and Method for Automatic Number Plate Recognition. Description: Advanced systems for

tracking and identifying stolen, unauthorized vehicles are based on automated number plate recognition technology. Genetic and HOUGH algorithms are used. Merits: The car number plate pictures were taken from different sides and the accuracy is 90%. Demerits: The distance from the camera to the vehicle and the weather conditions decreases the performance of the system.

[2]Author: YuanJing, Bahar Youssefi, Mitra Mirhassani. Year: 2017. Title: An Efficient FPGA Implementation of Optical Character Recognition for License Plate Recognition. Description: In this work, we conducted an attack on an OCR system that is a key component of an LPR system. We used a supervised learning algorithm and designed and tested a robust FPGA-based OCR system that was able to achieve a high level of accuracy (98.2%) when faced with low-quality and noisy license plate images. To achieve these results, we found it necessary to carefully select the network size and optimize the configuration of the neuron activation function.

[3]Author: Farid Bonini, Denis Gingras, Herve Pollart. Title: Autonomous Vehicle And Real-Time Road Lanes Detection And Tracking. Year: 2015. Description: Work deals with road boundaries and painted lanes detection for intelligent and autonomous vehicles. Advanced computer vision algorithmused. Merits: Robust again exogenous perturbations and different constraints, but good enough to control the vehicle with a simple couple of fuzzy logic laws. Demerits: The fuzzy controller handles the vehicle's steering, which has a limitation for a maximum speed of 70 km/h in sharp turns.

[4]Author: Mahesh Babu K. Title: Vehicle Number Plate Detection and Recognition using Bounding Box Method. Years: 2016. Description: The proposed system involves the following steps: selecting the image, removing noise, identifying the region of interest (the license plate), and extracting the license plate using edge detection and the ant colony optimization algorithm. One advantage of this system is that it achieves an accuracy rate of approximately 91.11% after performing character segmentation and recognition. However, it may struggle with blurry images, damaged or partially obscured license plates, and characters that are similar in appearance (such as O and D, 5 and S, 8 and B, etc).

[5]Author: Worawut Yimyam, Mahasak. Title: The Automated Parking Fee Calculation Using License

Plate Recognition System. Year: 2017. Description: We propose the use of automated license plate recognition and fee calculation for parking to reduce the need for manual identification and calculation of fees. This system will utilize computer vision and character recognition algorithms to automatically identify license plates and calculate the corresponding fees. One benefit of this system is that it can significantly reduce the time and effort required for manual license plate identification and fee calculation. However, it is important to note that the system may be less effective if the license plate images are unclear or if there are reflections, patterns, or other distractions in the background. To achieve optimal results, it is necessary for the license plate images to be sharp and for the background to be a light color with minimal distractions.

CONCLUSION

Then in this thesis, the styles for business surveillance have been presented and the work on stir discovery, license plate birth, and character recognition is carried out. In stir discovery, a study on different background deductions available in the literature has been studied and their performance test on the different videotape test sequences are given. The fitness measure and error measure are also calculated for all the styles. It should be noted that robust stir discovery is a critical task and its performance is affected by the presence of varying illumination, background stir, disguise, shadow, etc.

REFERENCE

- [1] "Implementing Lane Departure Warning System on Raspberry Pi", University Tunku Abdul Rahman, May 2016, [Online] Available: www.eprints.utar.edu.my/1950/1/CN-2016-1308318-1.pdf [Accessed 20-JULY-2016]
- [2] "A Real-Time Vision System for Nighttime Vehicle Detection and Traffic Surveillance", IEEE transactions on industrial electronics, Volume-58, No-5, May 2011, [Online] Available: <https://ir.nctu.edu.tw/bitstream/11536/8964/1/000289478000054.pdf> [Accessed:18-July2016]
- [3] "Morphological Image Processing Approach of Vehicle Detection for Real-Time Traffic Analysis", Science International Journal of Computer Science and Engineering, Volume-2, Issue- 5, May 2014.[Online] Available: http://www.ijcseonline.org/pub_paper/IJCSE-00312.pdf [Accessed:14-JULY-2016]
- [4] "Development of an automated Red Light Violation Detection System (RLVDS) for Indian vehicles", IEEE National Conference on Computing and Communication Systems, COCOSYS-09, CS11 [Online] Available: <https://arxiv.org/ftp/arxiv/papers/1003/1003.6052.pdf> [Accessed:14-JULY-2016]
- [5] "Vehicle Detection under Day and Night Illumination", Proc. of ISCS-IIA99, May 2016, [Online] Available: <http://imagelab.ing.unimore.it/pubblicazioni/pubblicazioni/iia1999.pdf> [Accessed 21JULY-2016]
- [6] "A real-time computer vision system for vehicle tracking and traffic surveillance", Transportation Research Part C 6, CA94720-1776, USA, Dec 1998, [Online] Available: <http://people.eecs.berkeley.edu/~malik/papers/coiffmanBMM.pdf> [Accessed: 21-July2016]
- [7] "Automated Driving Vehicle Using Image Processing", International Journal of Computer Science and Engineering, Volume-2, Issue-4, April 2014, [Online] Available: http://www.ijcseonline.org/pub_paper/IJCSE-00220.pdf [Accessed: 19-JULY-2016]
- [8] Handrail R. et al. "An Image Recognition Software Tool for Car Identification Based on License Plate", Transylvania University of Braşov Series I: Engineering Sciences, Volume-5 (54) No. 1, 2012, [Online] Available: http://rs.unitbv.ro/BU2012/Series%20I/BULETIN%20I%20PDF/Handaric_R.pdf [Accessed 19-JULY-2016].
- [9] "Object Detection in Image Processing Using Edge Detection Techniques", and IOSR Journal of Engineering, ISSN (e): 2250- 3021, ISSN (p): 2278-8719 Vol. 04, Issue 03, March 2014 [Accessed: 21-JULY-2016].
- [10] "Hybrid Parking Detection", the United States Patent Application Publication, Patent No. - US20150117705A1, April 2015 [Accessed: 19JULY-2016].