A REVIEW PAPER ON SPEED DETECTION AND NUMBER PLATE RECOGNITION SYSTEM

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ABSTRACT

Nowadays, Speeding is a common issue and the accidents occurred due to speeding is dangerous not only to the people occupied inside the vehicle but also to the innocent people that come in contact to the same. An automatic speed limit detection system would be important in a driver's assistance while driving. In this paper, an approach for detecting speed limit is proposed. It consists of four major steps: vehicle speed detection, making real time video of moving vehicles, detection of numbers on the number plate and then sending a message to the driver of the vehicle regarding the increased speed limits and the fine or charges that has to be paid by him/her for that.

KEYWORDS: *Embedded System, Image Processing, MATLAB etc.*

1. Introduction

A system for automatic speed limit detection would probably be of great importance for traffic safety in the future. Such systems could assist and inform the drivers on speed they did not notice while driving. Studies in this paper, could inform drivers by giving an alert to them if the vehicle is driven faster than the provided speed limit. In the future, autonomous vehicles would probably have to be controlled by automatic speed limit detection system and accordingly penalties will be charged by sending them a message or an e-mail or through a phone call if they cross the particular speed limit. The system proposed here aims to inform the exceeding speed limit at any given point of time based on the automatic detection and recognition of speed limit. A video of the vehicle is made via camera as soon as sensor detects the exceeding speed of a moving vehicle and a fine is charged for the same. The system offers low cost, reliable, efficient results and real time notification.

2. Literature Review

Narendra Singh [5]: In the first paper designing of a Smart Display controller is utilized for vehicle's speed limit and crash alerts which can run on an embedded system. Smart Display & Control (SDC) has been designed to fit into a vehicle's dashboard, and displays information on the vehicle. Once the information is received from the area where the vehicle is, the vehicle's embedded unit automatically alerts the driver with an alarm, so that it can slow down the speed, if vehicles speed is not reduced after the instructions are received, vehicle's SDC unit automatically sends the details of vehicle and speed limit zone through a message to the traffic police system. When a vehicle meets with an accident, immediately with the help of GPS receiver, it identifies latitude and longitude and the details are sent through GSM modem to the traffic police system. Thus, accident location is identified and necessary action is taken by concern authority.

Moutarde F.,Bargeton ET LA [2]: The second paper here aims to inform the driver about the current speed limits at any given point in time based on the automatic detection and recognition of roadside restriction signs. Further it can also allow such a system to be employed as part of an adaptive cruise control system or on-board driver information display.

J. Torresen ET LA [3]: The third paper for automatic recognition of traffic signs is very important for to assist drivers on signs they did not notice before passing them. Specifically speed limit sign recognition – studies in this paper, could inform drivers about the present speed limit as well as giving an alert if a car is driven faster than the speed limit.

Balasubramonian ET LA [4]: In the fourth paper, for Image processing, the camera ISPs process raw data from a camera sensor to produce appealing images for display. Most camera sensors record only one color per pixel, requiring other channels at each pixel to be estimated from its neighbors. ISPs also correct noise, optical aberrations, white balance, and perform other enhancements. Camera ISPs are typically implemented as fixed-function ASIC pipelines. Each clock cycle, the pipeline reads one pixel of input from the sensor or memory, and produces one pixel of output. ISPs are extremely deep pipelines: there are many stages, and a long delay between when a pixel enters the pipeline and when it leaves.

Hiasat ET LA [6]: In the fifth paper a system was designed that integrates Radio Frequency Identification (RFID) along with Global System for Mobile Communications (GSM) to manage the traffic and detection. This paper gives an approach to a system that uses components that includes Radio Frequency Identification (RFID) which could be placed wherever you wish the road then the gathered real-time data are transmitted to the server that stays on static stationary. And above that, it supports sending a message in the form of SMS or phone call or email to closest or nearest traffic police incharge or police station via GSM module in order to cease the vehicles with higher speed, and has the capability to inform the driver with the speed limit, also instant salary payment for the fine thru E-Government system is also possible through this system.

Sushama ET LA [8]: This paper is based on number detection from the number plate using image processing. In this paper there are certain steps which are followed for the number detection from the number plate. First the image of the vehicle is taken using digital cameras then on that image, image enhancement and some image processing other technique is applied to improve the quality of the image and then on that image the location of the number plate is searched, after that character segmentation is applied and then extraction of the number or character from the number plate is done. Beside the number detection the paper also provide an algorithm for those images whose background are similar to the number plates. In this algorithm first the image is taken and then it is converted from RGB to gray scale, after that the noise is removed and then the contrast is enhanced, after the enhancement number plate is located in the image and characters are extracted by character segmentation.

SonaliSonavane ET LA [9]: This paper based on the number detection for that they give an algorithm to detect the number from the number plate. The algorithm says first get an image of the vehicle and remove the shadow or noise by novel shadow removal technique, after removing the shadow locate the number plate and then use character segmentation technique, after the segmentation extract the characters.

3. Conclusion

Based on the literature survey and observing different traffic management systems which are using different technologies and components, this project will be helpful in the speed limit detection without any extra human effort. In future, speed of multiple vehicles can be detected at the same time using large setup and highly enhanced equipments.

It has been designed in order to avoid accidents and to alert the drivers about the speed limits for safe traveling. Many existing systems have discussed about the road safeties and have proposed many methods for the speed limitations and accident detections. Controlling the vehicle speed automatically in real time is very difficult. So, in order to avoid those difficulties, instead of controlling the vehicle speed automatically, our project will help in alerting the driver about the speeding and avoiding the chances of accidents. When they enter into the speed limit zones, using GSM technology if driver neglect the speed limit in the zone, the details of zone and vehicle will be sent through message to the traffic police system so that challan can be sent to the driver's phone number.

Acknowledgement

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