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VEHICLE NUMBER PLATE IDENTIFICATION USING IMAGE PROCESSING

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Abstract:

In our current society transportation plays a major role in all our individual's life. This proposal talks about tracking a vehicle and recognising the type of said vehicle which the individual uses. In this journal we use the image processing concept when the image is recorded from the cctv footage. The image is processed by taking advantage of the edge mapping technique and processed image gets stored into a database. From the database created, we can recognise the vehicle by comparing it with the other images.

This way we are identifying the correct vehicle using Edge mapping and we will be able to track the details of the vehicle such as its make, model which the individual is registered to the vehicle in the database at present. Then after identification it displays the vehicle details in a website.

The website which is created using the information-entertainment display and the website is also made in a way that is possess RSS feed so it displays the edited and recorded information to its subscribers, on the data which is updates onto the website using the information-entertainment display.

Keywords:

CCTV footage, Image processing, Database, Edge mapping, website with infotainment display, RSS feed.

Introduction:

The transportation plays a vital role in the every persons life. In this we are discussing some concepts of recognising the vehicle model with details by identifying the details using the image processing method and by recording the vehicle. This journal paper exactly recognises the vehicle which is recorded and manufactures the output about the kind of the vehicle being used by the individual.

The vehicle is initially recorded by the CCTV frames and then it is given as input to image processing, Here we are taking use of the method known as edge mapping in which all the corners of the pixels in the image are clearly mapped and they are recognised easily.

Then the image which is processed and is given to the database. Afterwards the image which is stored already onto the database and the image is processed and gets compared and if both the captures images got matching then the type of vehicle can be easily Identified.

This will be delivered to the developers or the users in the form of the website by using the RSS feed and through the information-entertainment display.

Literature Survey:

In the preceding techniques pitched the vehicle identification can be done using the RFID tags.RFID stands for Radio Frequency Identification Device. Here, the designer has to make sure that the RFID reader is positioned everywhere in-order to trace vehicle's model wherever it is. If the vehicle runs over the RFID reader with a high pace then this system is a failure. Next system which was pitched consists of a micro-controller and the modules which are installed into the micro-controller.

This suggests a vital con. that is, if the micro-controller fails the entirety of the system, if the module fails. Next system used is the connectionless tracing of the vehicle identification where, if there was any error or faults in connectionless medium then they said system module gets corrupted and fails.

This journal detail all the vital disadvantages of all of these system as it uses CCTV footage, By using the frames of the CCTV footage and by using the image processing methodologies. This is the heart advantage of this journal paper's overview.

Proposed Methodology:

This paper consists of the three stages; they are:

1. Input Data
2. Processing Data
3. Output Data

Input data; is where the image captured by the CCTV footage is processed. The portion holding the image of the vehicle especially its number plate is cropped and inverted and Edge mapping is done to the image. the pixels are recorded and is given as the input into the database.

Processing Data; is where the data such as the number plate which is the unique Primary key of the metadata. Metadata also includes the Make of the vehicle, its model name and number, and its registered owner and other official information.

Output data; is given out to the particular designer or the programmer or the user after the recorded meta data is cross checked with the existing data in the database. The three stages proposed is further explained in detail later.

Architecture :

Implementation:

As per the proposed methodology the implementation of this process involves three stages. The stages are 1. Input Data, 2. Processing the Data, 3. Output Data.

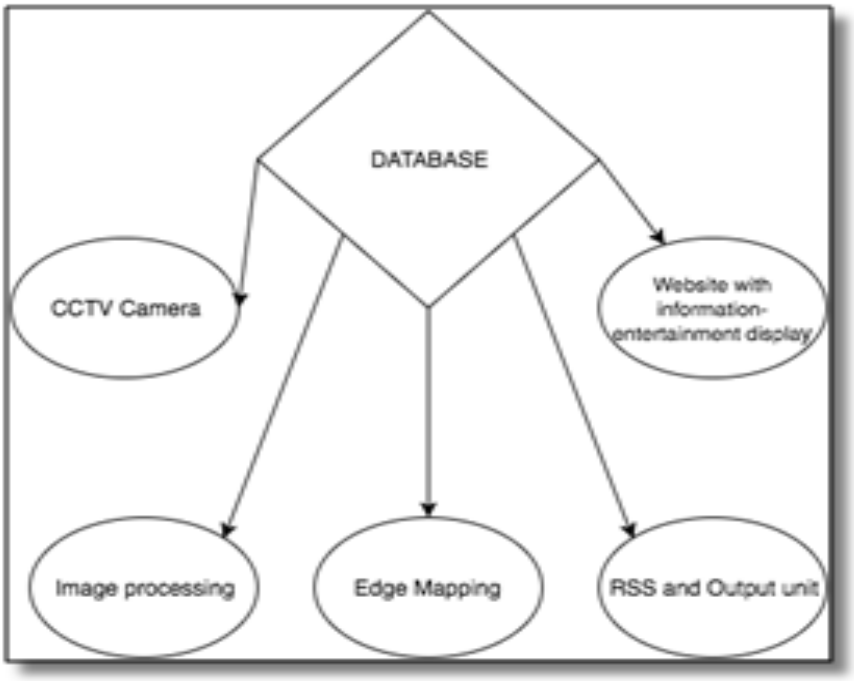
Input Data Stage :

In the Input Data Stage we are going to make use of the CCTV frames and the image processing method to record and manipulate the picture which is going to be identified. The CCTV footage is highly beneficial in gives the metadata to the database to recognise the information easily.

This CCTV images are very beneficial in recording the data at actual period environment and this gives the accurate recording of all the pictures. The camera used here has the feature of covering upto 360 degrees rotation, capturing everything around the camera, so that it can able to record the pictures of almost 360 degree at a certain time. So, this also brings down the budget of the designer and brings down the amount of resource in-order to fix the CCTV camera for the angles necessary.

The image processing method is used after recording the pictures. In image processing, Edge mapping is the process used to capture the edges/corners of the cleaner pictures by using the threshold level data. So, the images are recorded and modified and then they are given as input into the database to perform comparison or for the verification of the accurate information(metadata).

Then the frames gets saved in the database. This is the working of the Input Data stage.



Processing Data Stage:

In the Processing Data Stage the database is made and initialised and is used to store the frames which are modified from the input data stage.

We already are going to save the first frames of the vehicles in-order to contrast it with that of the modified input to check and recognise the kind of vehicle the personnel is making use of. The database can be made using the programming language, C programming language. and as per the designer orders the program to be the database gets acted.

The functions are performed according to the particularly asked code. There might be no amount of loss in data or no possibility of operations loss because if there is any error in the program then it can be edited and changed without any difficulty and suddenly with lesser amount of effort and accuracy. Therefore, in the database and in the processing data stage cleanly identifies the details of the vehicle and also the individual is using that is using the said vehicle. It gives the edited information and updates onto the database.

Output Data Stage:

The output data stages contains of the website design using the information-entertainment display including the RSS feed to provide the consumers the modified metadata which the designer wants to provide it to the consumers that have subscribed.

The web document which is designed provides the designers the kind of the vehicle which the personnel is taking uses of and this also provides the informations of the certain vehicle and the individual using the vehicle. The website provides a vital role so this makes the consumer exchange of information with the information-entertainment display.

The developer designs the website using the idea of the exchange of data by the user and the graphical manner of attracting the consumer that he already holds, with all their needs and goals. The data is given with the combo of entertainment to the consumers so that the consumers can without any difficulty, with all their needs use the website.

The RSS feed is also being used in output data stage.

RSS feed stands for Rich Site Summary feed this gives the edited data to the database and website to users that are subscribed. If there is any sort of modification or modification made in the existing scene or in website or by the designer after that particular data is given to consumers who are using the existing website using the help of RSS feeds. This provides the data with great pace and detail with no loss of information. This gives the data only to the subscribed consumers for website with specific designers.

Therefore, by this vehicle metadata can be easily traced and consumers can take use the website for extra data which they require at the actual time scene of tracing of transportation information. Using this vehicle model, the information of vehicle can be without any traced using few amount of effort and data can be recognised without any difficulty.

Tracking And Counting:

Tracing is taken out only within a particular portion of image, called Count Box, to make sure unneeded redundancy in calculation and greater performance. The green box in picture below is the count box region. Tracing is made by looking for centroids in minimal rectangle area around centroids detected in the previous frame, if it was not to be found then is summed to 'tracks'.

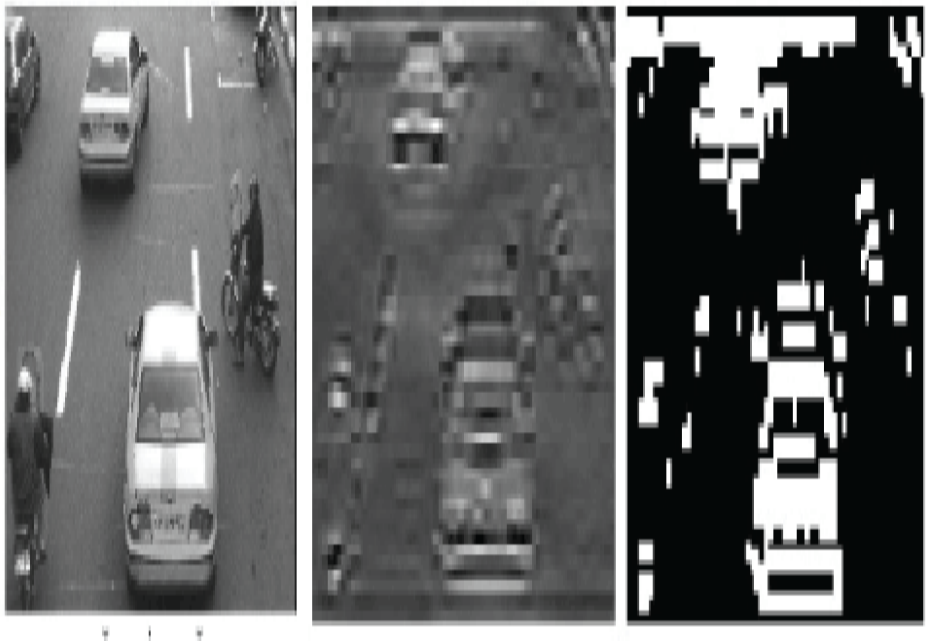


Table I. Counted vehicles from traffic videos using our method and comparison of our method with reference (2).

	Our Proposed Method			Similar Method [2]		
Vehicle Video	Exact No. of Vehicles in Video	No. Of Vehicles Calcul- ated by Sys	Success Rate in Percent	Exact No. of Vehic- es in Video	No. Of Vehicles Calcula- ed by System	Success Rate in Percent
1	17	13	76.4%	17	21	80.9%
2	27	24	88.8%	27	34	79.41 %
3	59	57	96.6%	59	73	80.8%
Avg.	103	94	91.26	103	128	80.46

Conclusion:

In this journal we pitched a method to recognise the details of the vehicle. This helps us to recognise the transports from the thieves and notifies the consumers through the information-entertainment typeface of website or through our wireless machines directly. This also aids the traffic officers with help of database which is attained to figure out the analysis of traffic scenarios and also the vehicles being stolen by the robbers. This system cleanly recognises the vehicle make, model, number etc and the details of the consumer who owns and uses the vehicle.

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