

Real time number plate recognition and tracking vehicle system

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ABSTRACT: Recently we used the GPS technology to find the location of objects. In this project we improve the GPS technology using various algorithms. A camera based algorithm for real-time robust number plate detection and recognition was proposed, and especially designed for autonomous vehicles. The image processing of can be divided into three steps, including pre-processing, detection and recognition. Firstly Vehicle information registration module involves- main content of pre-processing. Such as new registration, Username, Vehicle Number Plate, Image of Vehicle and Related information about vehicle. In detection step, Video and Image as the prior knowledge is performed to scan the scene in order to quickly identify the number plate. Using image processing characters has been analysed as position of pixels. For recognition, Optical character Recognition (OCR) Algorithm is used. By using these three steps number plate should be recognize. Global Positioning System (GPS) tool kit analyse the speed, working of engine and SMS service has been provided. Project presents a novel vehicle speed measurement method, which contains the improved three frame deference algorithm and the proposed grey constraint optical algorithm. The contour of moving vehicles can be detected exactly. Through the proposed grey constraint optical algorithm, the vehicle contour as optical own value, which is the speed (pixels/s) of the vehicle in the image, can be computed accurately. Then, the velocity (km/h) of the vehicles is calculated by the optical flow value of the vehicles contour and the corresponding ratio of the image pixels to the width of the road experimental comparisons between the method and other VSM methods show that the proposed approach has a satisfactory estimate of vehicle speed

Keywords — OCR, GPS,

I. INTRODUCTION

Vehicle tracking is important in many applications traffic information Collection, intelligent transportation systems. Real time number plate recognition is important for person as well as police in order to find lost vehicle. Number plate recognition used by various police forces and as a method of electronic toll collection on pay-per-use roads and cataloguing the movements of traffic or individuals .Automatic Number Plate Recognition is useful for the many applications because the license number is the most widely accepted, primary, mandatory X identifier for vehicles. Number plate recognition system is useful to

Detect and arrest criminal at a local, regional and national level. In order to detect number plate of vehicle in real

Time environment as well as to track that vehicle which is helpful for police to arrest that thief, we proposed one complete and novel system which will use technologies like GPS, Image Processing etc. There is a separate interface for the police station, and through that authorized person is able to provide information of lost vehicle. This information forward to the toll service for further processing. Using inbuilt CCTV, system can recognize and detect particular Number plate. As soon as the number plate is detected by a system, our system is going to track the position of that vehicle using vehicle speed, vehicle movement through GPS. Finally all information will be send to the police station for the further

II. LITERATURE SURVEY

Ms T.K. Deshmukh , MrsV.M.Deshmukh,2013[1] This paper proposed the Vehicle License Plate Recognition System project is to build a real time application which recognizes license plates from cars at a gate, for example at the entrance of a parking area .The system ,based on regular PC with video camera, catches video frames which include a visible car license plate and processes them. Once a license plate is detected, its digits are recognized , displayed on the User Interface or checked against a database. This project will focus on the design of algorithms used for extracting the license plate from a single image, isolating the characters of the plate and identifying the individual characters .XY.

Guo Mu, Zhang Xinyu, Li Deyi, Zhang Tianlei, An Life ng[2] Robust detection and recognition of number plate is essential for autonomous vehicle to take appropriate actions on intersection in urban environment. However, robust detection of number plate is not easy to be carried, for there would be a dreadful mess of objects in an image in which colors are similar to the one of the traffic lights, and the shape of traffic light is so simple that it's hard to extract sufficient features [3].The worse situation may be met that the traffic lights have a variety of types, of which, some are horizontal arrangements while some are verticals, Human

vision is seemed the only way to detect the state of number plate. Almost all experimental autonomous vehicles for urban environment are equipped with cameras used to detect and recognize number plate. Some traffic light recognition algorithms have been proposed in recent years. [4] Achieved the spotlight detection and template matching methods to identify the traffic lightsD.

F. Gleich and L.-h. Bhavin A Patel¹, Ashish Singhadia².2014 [3] this paper number platelocalization and recognition system for Indian ve-hicles. This system is developed based on digital images and can be easily applied to car park systems for the use of documenting access of parking services, secure usage of parking houses and also to prevent car theft issues. Automatic license plate recognition system is to extract vehicle license plate from a digital image. The paper based on a combination of thresholding, labelling, filling up the holes approach method and region props method with areacriteria test for the number plate localization. Segmentation of the plate characters was achieved by horizontal and vertical scanning method. The character recognition was accomplished with the aid of optical characters by the process of Template matching. We mainly concrete on three steps: one is to locate the number plate, second is to segment all the number and to identify each number separately, third is recognize each character. Traffic control, stolen cars tracking, maintaining traffic activities and law enforcement etc. several techniques have been proposed for plate recognition.

A. Klementiev, D. Roth, K. Small, and I. Titov[4], provides the information that many applications in information retrieval, natural language processing, data mining, and related fields require a ranking of instances with respect to a specified criteria as opposed to a classification. Furthermore, for many such problems, multiple established ranking models have been well studied and it is desirable to combine their results into a joint ranking, a formalism denoted as rank aggregation. This work presents a novel unsupervised learning algorithm for rank aggregation (ULARA) which returns a linear combination of the individual ranking functions based on the principle of rewarding ordering agreement between the rankers.

A. Klementiev, D. Roth, and K. Small[5], explains the need to meaningfully combine sets of rankings often comes up when one deals with ranked data. Although a number of heuristic and supervised learning approaches to rank aggregation exist, they require domain knowledge or supervised ranked data, both of which are expensive to acquire. In order to address these limitations, they propose a

mathematical and algorithmic framework for learning to aggregate (partial) rankings without supervision. The framework for the cases of combining permutations and combining top-k lists, and propose a novel metric for the latter. Experiments in both scenarios demonstrate the effectiveness of the proposed formalism.

III. EXISTING SYSTEM:



Vehicle tracking is important in many applications traffic information collection, intelligent transportation systems.Real time number plate recognition is important for person as well as police in order to find lost vehicle.Number plate recognition used by various police forces as a method ofelectronic toll collection on pay-per-use roads cataloguing the movementsmining and leading sessionthere are two main steps for mining leading sessions. First, need to discover .leading events from the App's historical ranking records. Second, we need to merge adjacent leading events for Constructing leading sessions Specifically, Algorithm 1 demonstrates the pseudo code of miningleading sessions for a given App.

IV. PROPOSED SYSTEM:

In proposed system we overcome the drawbacks of Mining leading session algorithm which is based on ranking, review & rating. First, the download information is an important signature for detecting ranking fraud, since ranking manipulation is to use so-called "bot farms" or "human water armies" to inflate the App download and ratings in a very short time. However, the instant download information of each mob. App is often not available for analysis. In fact, Apple and Google do not provide accurate download information on any App. Furthermore, the App developers themselves are also reluctant to release their download information for various reasons. Therefore, in this paper, the focus is on extracting evidences from Apps' historical ranking, rating and review records for ranking fraud detection. However, our approach is scalable for integrating other evidences if available, such evidences based on the download

information and App developers' reputation. Second, the proposed approach can detect ranking fraud happened in A,' historical leading sessions.

Ranking fraud detection in mobile apps is actually to detect ranking fraud within leading session of mobile apps. Specifically we identified first leading sessions based on Apps historical ranking records. Then with the analysis of Apps' ranking behaviors we characterized some fraud evidences from historical records.

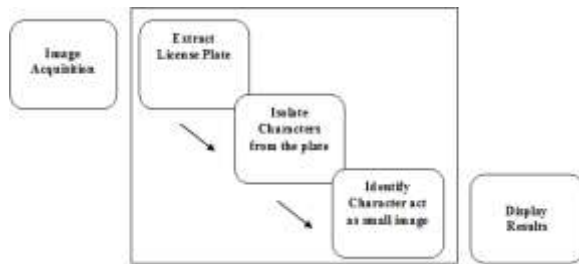


Fig1: System architecture

Purpose and Scope of Project

Number plate detection and tracking are two fundamental tasks in camera Surveillance. The most important technique of this camera related technique is to track and analyse within the images. The core technology of camera analysis is used in detecting, analysing, and Tracking the objects motion. In addition, when the lights colour or direction Changes, it is difficult to trace the object. Firstly use the blob based algorithm for detecting the change scene in video if the scene is change is detected then Video is stored on the server for further analysis. This project makes use of OpenCV library to capture camera images and detect intrusion using Comparison - blob based motion detection method. Once the comparison is done and an intrusion is found, it saves the streamed video on server. Application consist of following modules Video recording takes place using OpenCV. Image capturing and comparing with template image takes place. Once the difference between template image and current image found then it means that intrusion is detected. Finally the intruded video is stored on the server for analysis. Analysis is performed using Hadoop technology.

Product Functions

License Plate Recognition: License plate recognition is the image processing part, which used the OCR method to recognize the words from license plate. Amount Deduction: Toll/MSEB/BANK Account after detecting the vehicle, the amount is deducted from the users account. User Registration: User will register on

the toll collection web site, with all required details, like personal details, MSEB, Bank account Number. Stolen Vehicle Detection: User has to register the complaint for his vehicle which stolen. After that when that vehicle pass through the toll booth, user, police will get notified about the stolen vehicle.

Mathematical Model

Let S is the Whole System Consist of

$$S = \{I, P, O\}$$

I = Input.

$$I = \{U, Q, MA\}$$

U = User

$$U = \{u_1, u_2, \dots, u_n\}$$

Q = Query Entered by user.

$$Q = \{q_1, q_2, q_3, \dots, q_n\}$$

MA = Mobile Apps

$$MA = \{ma_1, ma_2, ma_3, \dots, ma_n\}$$

P = Process.

Feasibility Study:

Feasibility is the determination of whether or not a project is worth doing. The process followed in making this determination is called feasibility Study. This type of study if a project can and should be taken. In the conduct of the feasibility study, the analyst will usually consider seven distinct, but inter-related types of feasibility. Technical Feasibility: This is considered with specifying equipment and software that will successful satisfy the user requirement the technical needs of the system may vary considerably but might include:

1. The facility to produce outputs in a given time.
2. Response time under certain conditions.
3. Ability to process a certain column of transaction at a particular speed.

Operational Feasibility:

The system is providing of input that is keypad and touchscreen. The users who are comfortable with using mobile user interface with touchscreen find this application operationally much more feasible.

Economic Feasibility:

The resources required by the system are available easily in the market at reasonable cost. This

procedure is to determine the benefits and savings that are expected from a candidate system and compare with cost. Otherwise further justification or alterations in proposed system that have to be made if it is having a change of being approved. This is an ongoing effort that improves in accuracy of each phase of the system lifecycle. For my project I am not expecting any feasibility costs spent on this on this project because here I am using open source environments.

V. CONCLUSION

A camera based algorithm for real time number plate detection and recognition was proposed. This algorithm is designed mainly for autonomous vehicles. The contour of moving vehicles can be detected accurately by the improved same difference algorithm. In the presented work we have designed the Number Plate Recognition System. In this system we have developed a new method for detecting and recognizing car license plates. Future work is intended to be done in improving and testing the system on a larger number of images. It is found that it is working robustly and finely. The implementation language Java has given wide portability and simplicity. It is very simple to install and operate. Not more manual energy is required. Security is provided to system itself by maintaining valid usernames and passwords.

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