

Automatic Challan System with Vehicle Verification Using OCR

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ABSTRACT

The main objective of this project is to design a Quick Response code which contains overall information of the vehicle and to introduce a system which helps R.T.O officer's to identify the owner of the vehicle and take fine easily from them. Breaking traffic rules on road is a major issue now a day. Due to large population and traffic congestion it is difficult to identify which vehicle has broken traffic rules. To monitor culprit vehicle manually is very difficult. Therefore, there is need to monitor these vehicles automatically. Hence, we propose a smart monitoring system that will monitor the culprit vehicle. The proposed system will generate detailed data at the time of incident and that data will be send to the R.T.O office database which is handling by the authorized person. With the help of these details the officer can take further action. It reduces the time in writing. Just by scanning the QR code the Officer easily get all the information about the vehicle on his screen. The existing system is tedious and time consuming, it requires stopping the vehicle, collecting the owner information, checking his license and collecting Fine, giving the acknowledgment and then allowing the vehicle to pass by. The Challan System for vehicle verification is a new system which is designed to enhance the convenience for officers and vehicle owners. It saves lots of time.

Keywords: QR-code, Camera, Application program, .Net, Android, Identify every vehicle uniquely, Pay Challan, Sms-gateway

I. INTRODUCTION

Due to traffic congestion and increasing number of user onroad it is difficult to identify every vehicle uniquely. To monitor the vehicle manually is very

difficult task. The aim of this research is to automate the identification of the vehicle. In today's time there are so many people breaking traffic rules without any fear, one of them is jumping red light signals. Sometimes due to this the vehicle meets an accident

with another vehicle. In today's world there are lots of junctions and crossings of road where traffic lights are fitted, but at only few places the duty of traffic police is assigned where they monitor traffic. With the ever increasing vehicles on road and the number of users on road, limited resources are available to monitor the vehicle uniquely. Hence, an intelligent monitoring of vehicle uniquely is an important issue to be considered. The traffic monitoring authorities need to find new methods of overcoming this difficulty. In our research, we are designing a system which will tell about Vehicle by just scanning QR code which is situated on vehicle.

It is popular to use mobile phone daily in modern life. QR code is the abbreviation for quick response 2-D code, which is a machine-readable optical label with information on the associated item or product. Compared with 1-D codes, 2-D codes can hold a larger amount of data in a smaller space and other feature comparisons are mentioned in TABLE I. In barcodes, information is coded in one direction or one dimension only. On the other hand, in a two-dimensional code, which the QR code is, information is coded in two directions: horizontally and vertically. A QR code uses four standardized encoding modes to efficiently store data. The QR Code conveys information by the arrangement of its dark and light elements, called "modules," in columns and rows as below figure 1

II. LITERATURE REVIEW

The proposed approach provides quick response, overcomes the noise issues in image processing and at the same time fine tunes the detection technique. [1]

The QR Code system has become admired outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. This paper takes account of QR codes basics, its real time application in day to day life and research areas associated. With the technology of mobile phones constantly emerging, especially in the area of mobile internet access, QR codes seem to be an adequate tool to quickly and efficiently convert URLs to users. This also allows offline media such as magazines, newspapers, business cards, public transport vehicles, signs, t-shirts and any other medium that can embrace the print of a QR code to be used as carriers for advertisements for online products. QR code being so versatile because of its structural flexibility that it leads to so many diverse fields for research such as increasing data capacity, security applications such as different kinds of watermarking and steganography as well. Some experiments have also been done for better recognition of the QR code image that includes scratch removal techniques. Thus, this paper is an attempt to highlight some of possible research areas while considering QR codes. [2]

The volume of automobile crimes has been on the increase and many new crime detection techniques have evolved on its account. High-speed car chases, automobile thefts are now-a-days very common. The

best way to keep track of the cars is their registration numbers. The number plate recognition system is the most suitable solution for such cases. The number plates often get corroded and the detection process becomes erroneous. Our contribution towards ANPR is the inclusion of the QR codes (Quick Response codes) on the automobiles, fine-tuning the detection technique. The proposed approach provides quick response, overcomes the noise issues in image processing and at the same time fine tunes the detection technique.[3]

This paper seems quite obvious that nowadays we are able to do transactions, shopping, banking, sharing and storing confidential data like other online services which aims to highly secured. The design and implementation of QR is easy to use and read, combined with multifactor (ID/Password which only user knows, Detail information that only the user has, Unique QR code that shows only the user is), camera based all hardware. The information is in the QR code is transmitted in the encryption form. It is portable and cost efficient. The system uses QR codes which are small two-dimensional pictures that encode digital data. This can be used for all hardware camera equipped platforms that are for tablets, personal computers, laptops, cell phones. QR is readable even if it is partially damaged. It provides high level of security and authentication with untrusted devices. Its versatility has made them quite popular, where these are today widely used as a way to quickly store by scanning it with a camera-based mobile device. [4]

III. OBJECTIVE OF THE PLAN

1. To verify vehicles information along with owner's detail.
2. Take challan charges easily without any paper work.
3. Culprit confirms their challan charges through SMS gateway.
4. All information viewed by the head of the police Department.

IV. WORK PLAN AND METHODOLOGY

The aim of the present work is therefore to propose and experimentally evaluate an automated system, called Challan System and vehicle verification. In this we create an application for traffic police officers to scanning the QR which are present on the vehicle. So, they can verify the vehicles easily just by scanning the QR scan code that required minimum time for the process.

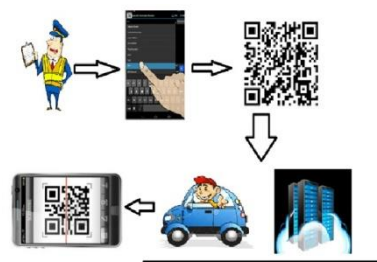


Figure 1. System Architecture design

4.1 The Working of the System:

TRAFFIC POLICE OFFICER's END:

This side of the application is only restricted to the use by the traffic police and the government authorities. The application is not available for the use

of public. In short the officer can issue challan, check the details of the vehicle, alert other officers or the police department about any theft of vehicle or any crime attempt by a vehicle.

On Logging in the officer get a menu of two options shown,

1. Alert: The alerts will have sub options where officer alerts other officers and police department about any theft of vehicle or crime committed by a vehicle. The other option will let the police officer view the alerts that have been triggered by other officers.

2. Vehicle Check: The vehicle check contains further sub options to check owner details, an issue challan option.

The camera of the mobile can scan the QR Code. Therefore the QR Code that will be provided to owner at the time of registration has to be available on the vehicle. So that the police officer can scan and take input.

1. Check Owner Details: The officer has option to check owner of the vehicle where full detail about vehicle as well as the owner is given.

2. Issue challan: The issue challan option lets the officer issue fine against the vehicle in case any rule has been broken.

In the issue challan option the officer check the check-boxes against the rule broken. Then selects the 'submit and send to owner' button which will generate a receipt and will be sent to owner's mobile number.



Figure 2. QR Code

VEHICLE OWNER'S END:

The mobile application is available for free to download for mobile. The owner has to register himself to acquire the user name and password. Click on register and fill in the details requested in the form. The form will consist of the following details –

- ✓ Vehicle Registration Number (this will also be the user name example: MH-12-XX-0000)
- ✓ The details mentioned in the Registration Certificate (RC) like, chasis number, Vehicle type, etc.
- ✓ Details of Insurance of vehicle
- ✓ PUC details
- ✓ Owners Personal information – name , address , contact information

Post submission of the form, an appointment page will appear where the owner selects an available date and time for verification of the documents with the RTO. Post selection of the appointment timing and date, the owner gets an appointment number on his

mobile. Owner visits the RTO to verify the details. The original documents have to be carried for verification

After Verification the RTO issues a temporary password, the user name will be the Vehicle Registration number (i.e., the number on the vehicle's number plate).

The RTO also issues a QR Code Sticker for the vehicle. This QR Code is for the convenience of the Traffic Police Officer which will be explained later in this document. Now that the owner has a user name and password he can proceed with the login by selecting the login option.

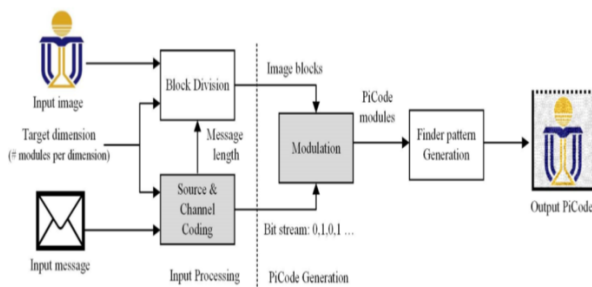


Figure 3. Encoding Flow Diagram

The given figure shows the flow of the work in which we performing the task by scanning the QR code.

V. REFERENCES

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