

Vehicle Document Verification Using Vehicle Number (VCOP-App)

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Abstract:- The police forces around the world use vehicle number plate for legal vehicle authorization purposes, to check if a vehicle is registered or licensed. An application which will facilitate the user for not worrying about carrying the documents of their vehicle. We can digitalize all documents which are taken care of with so much efforts and hard work. The aim is to design a app which takes the vehicle number manually, then the details retrieved from the number plate in text format is used to extract all the important information of the vehicle like, the name of the owner, address of the owner, date of registration of the vehicle etc. from the database. The police can verify whether the documents are fake or not. This application will make sure you have all the documents like PUC, RC Book, Insurance papers can be easily handled. This app can help you not to carry all the documents with you every time you drive a vehicle, which is used by the police only. If he breaks any rules of driving the fine can be added. Applied fine details and insurance dues will be sent as message to the owner. If any other person except the owner drives the vehicle, then a message alert will be sent to the owner of the vehicle. For us, it is useful as we do not have to carry our documents to every place with the fear of losing them. The user app can be used by owner of the vehicle which extract the information of his vehicle and user can pay the fine through it.

General Terms:- Optical character recognition algorithm (OCR).

Keywords:- Image Processing PUC, RTO, VCOP, RC Book.

1. INTRODUCTION

This paper focuses on mobile application development for Google's Android OS, a hugely popular open-source platform based on the Linux-kernel and Java development environment. Android market is the online software store developed by Google for Android based devices. An application program called "Google Play" is preinstalled on most Android devices and allows users to browse and download applications published by third party developers, hosted on Android Market.

RTO: Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles and the issue of Driver's Licenses in India. All

motorized road vehicles are tagged with a registration or license number in India. The License plate (commonly known as number plates) number is issued by the District-level Regional Transport Office (RTO) of respective states. This Application will help a traveler or passenger in many ways and even in the case of a Police Investigation of an accident or vehicle-related crime, witnesses usually remember the initial Area Code letters it is then quite simple to narrow down suspect vehicles to a much smaller number by checking the Database without having to know the full number. It is also required during the sale of a Vehicle and transfer of its Ownership. Also this App helps you to find your own city, district or state registered vehicle in a picnic or a tour spot.

For decades, vehicle documents is being existing; the reason it is being playing an essential role is because mandatory rule for the drivers to have a vehicle details with him or her whenever and wherever he or she travels else they can be fined or can also be charged for it. Therefore, it is important for a driver to carry the documents every time. However, what if the driver has lost, stolen, or damaged document? On the other hand, if he has forgot to carry vehicle documents from home or workplace.

Day by day the human population is increasing and use of vehicles is also increasing due to increased human needs. As a result of it, the control of vehicles is becoming a big complex problem system. Most of us keep the vehicle papers in the vehicle itself, which is not at all safe in case of theft. In today's world, it is not secure to carry our vehicle papers and wherever we go. Hence, a system must be designed in which it is not necessary to carry our important documents to each and every place for verification. Number plate recognition is one of the methods that allows the extraction of number plate information. On the other side, the details of each and every vehicles details and owner details are stored in database that is accessible only by the cop or traffic police who catches a driver when they (the driver) break the traffic rules.

Therefore, it is necessary for a cop to have a quick access to the database where any fine can able to add on him or

her and can have a view on his previous or pending fine details. Now a day's Android app has become common and very essential in our daily life and every person carries a phone with him so having this in mind, VCOP (Vehicle Cop) is a mobile app that can provided to every cop through the government, as it used only by a cop to ensure privacy of sensible data.

1.1 Literature survey

The design is based on International Journal on Multimedia and Ubiquitous Engineering, which focus on creation of android app with the use of SDK. VCOP is an android app that is designed to be used by traffic sergeants to check vehicles licenses and details.

In 2015 Sanjeev Shelar and Shinde et al. [3] developed an application which will facilitate the user for not worrying about carrying the documents of their vehicle. This application will make sure you have all the documents with you every time anywhere wherever you go. This approach provides the digitalized documents of the vehicles and used by any android user, hence there is no security for the data. In 2017 Bhonsale Tejas et al. [4] designed a system to captures the image of the number plate of a vehicle using a camera and the details are being retrieved using the character segmentation which is done by a feature extraction optical character recognition algorithm (OCR). Then the details retrieved from the number plate in text format is used to extract all the important information of the vehicles. The above approach includes image processing hence it contains the disadvantages of image processing. In 2016 R.Thirumalai Raj and S.Sivakumar [5] introduced a app called Digital License mv, which is used to access digitally stored license details of all users in MySQL database, which is retrieved as JSON objects through PHP scripts. It provides information only about the license no other details like vehicle license and registration are available.

In the current scenario, the traffic police stop the vehicle if it has broken any traffic rule. He then applies fine accordingly and gives a receipt. Also in the existing system we have to carry our original documents with us. So there is fear of losing them. Existing system does not identify if the vehicle is insured or not. It also cannot identify if the vehicle is stolen. This system can help identify if the vehicle is stolen and all the related details of the vehicle. Also owner does not need to carry his documents.

1.2 Objective

An application which will facilitate the user for not worrying about carrying the documents of their vehicle. We can digitalize all documents which are taken care of with so much efforts and hard work. This application will make sure you have all the documents with you during driving the vehicles and it provides the vehicle information such as vehicle number, chasis number, engine number. Different documents like PUC, RC Book, Insurance papers can be easily handled. This app allows the cop to handle the issues done by driver.

1.3 Problem statement

The police forces around the world, use vehicle number plate for legal vehicle authorization purposes, to check if a vehicle is registered or licensed. So that user needs to carry the documents, sometimes which leads to documents misplacement and losing the documents. Now a days increasing the number of documents frauds and forgeries.

1.4 Scope

An application, which will facilitate the user for not worrying about carrying the documents of their vehicle. We can digitalize all documents, which are taken care with so much efforts and hard work. This application will make sure you have all the documents. Different documents like License, PUC, RC Book, Insurance papers can be easily handled. During accidents by using vehicle number, it is easy to recognize the drivers.

2. PROPOSED SYSTEM

The methodology used in designing and developing this Application is through Android and basic PHP. The database being used is SQL for the records and track of the Owner Vehicle Detail.

The design is based on International Journal on Multimedia and Ubiquitous Engineering, which focus on creation of android app with the use of SDK. VCOP is an android app that is designed to be used by traffic sergeants to check driver's licenses and its originality.

The Registration processes for each cop are done through a webpage that stores Cop's ID and other such details in a MySQL database table. To maximize security, standard encryptions have been done over the server side. The cop simply needs to login into the VCOP App by providing their login credentials.

Once the cop successfully logged in into his account by providing the police id and password, the complete access to the vehicle details database table and app features are provided to the app. Therefore, cop can check documents and details by simply providing vehicle number and can put fine on driver. Similarly, owner details can be accessible.

The cop can view a previous fine which was supposed to be paid. When a cop put a fine on a vehicle the alert message will be sent to the owner of the vehicle. If the owner of the vehicle and driver of the vehicle differ, the alert message will be sent to the owner of the vehicle.

3. IMPLEMENTATION

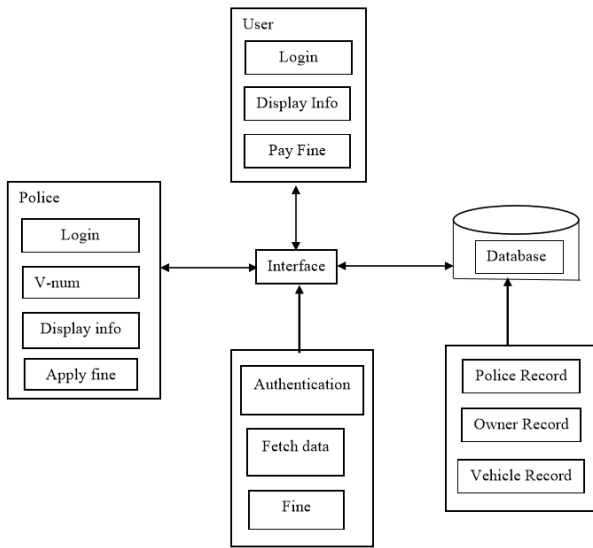


Figure 1: System Architecture

The police app design consists of following modules:

- Input Number.
- Search for Record.
- Display Record.
- Apply Fine (if applicable).

The user app design consists of following modules:

- View the Record.
- Pay the Fine.
- Edit the mobile number.

The administrator system design consists of following modules:

- Manage Owner and Vehicle Details.
- Manage Police.
- Manage Fine Details.

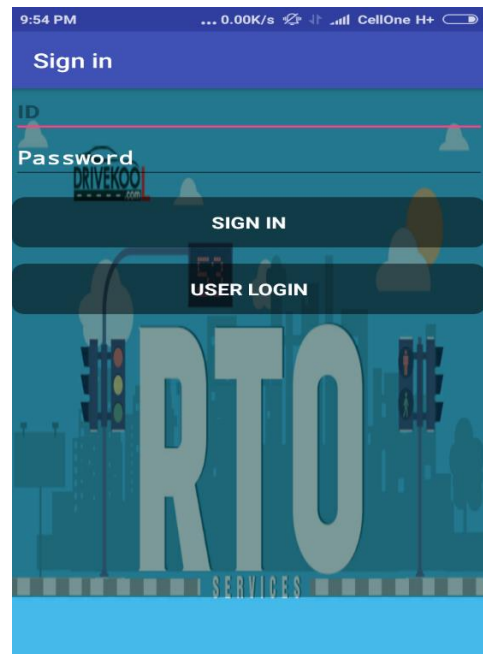


Figure 2: The police can log in with their police id and mobile number as the password. The user can login with their email id and password.

Once the police log in is successful he/she needs to enter vehicle number else he/she can go for recent search. After that list of options will be shown. Shown in figure 3.



Figure 3: List of option for a vehicle number (police as user).

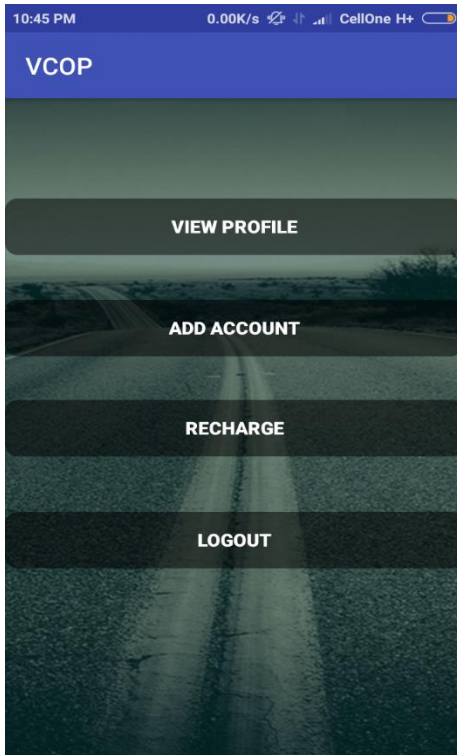


Figure 4: Available user Features.

The user can only the viewing the data, it is not possible to edit any of the document information but the user can modify their mobile number and address. One more feature for user is, he/she can add their bank account and they can pay the fine through this app.

4. CONCLUSION

In recent years the major advancement in mobile technology has led to the development of smartphones and in turn it has led to the rise of various miscellaneous applications serving different utilities. This RTO application aims to serve the people with digitalized documents like PUC, License, RC Book for easy use as these documents can be lost. This process intends to help the customer in saving their time if these documents are misplaced somewhere and lost. It is use full for the police to put fine and see the details of the driver.

The number of documents frauds and forgeries can be reduced or completely eliminated with the help VCOP App. The vehicle documents are very crucial and important in order to drive motor vehicles on public roads. It is more to forget documents at home or workplace, or pretend to forgetting documents at home to escape from Cops. VCOP App is simple and powerful to manage and access details of all vehicles digitally and securely by providing vehicles and owner details database reference to organizations, organization people can verify the authenticity of applicant with ease. It will be trusted source and effective when RTO department adopts this system to provide service across many places.

“VCOP App” is a very unique Mobile App that will be providing the Owners details with the vehicle detail to

police using its Smartphone contain “VCOP App”. The police can view the previous fine details of vehicle owner and also possible to put new fine for breaking the driving rules. Since mobile phones especially smart phones are used on a large scale in recent times this application tends to serve majority of of the people. This app will be very handy in use and is also user friendly. It is a light-weight app and does not incur much data charges as only textual data are retrieved across network.

5. FUTURE ENHANCEMENT

VCOP is in its initial stage and focuses only on driver’s details and vehicles details. This app can be upgraded to manage other facilities like vehicle location tracking. App features can be extended for the crime branch usage. Since the app is in initial stage, it is designed to be used by authorized persons (traffic sergeant) and not available to the public with more features. But the next release can be a user app, with more features. This can be achieved using OTP verification. This user app also generates a QR code for a license, which can be scanned by the cop-app to check its validity.

6. SYSTEM EVALUATION

Advantages:

- User-Friendly.
- It is secure system.
- Memory space utilized efficiently.

Disadvantages:

- Manually entering the vehicle number takes time.
- If vehicle moves high speed with ignoring the police, then app cannot be usable.

Applications:

- Useful in identifying vehicle's documents and getting information of vehicle's owner.
- Digitized and fast crime analyser.

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