Smart Vehicle Investigation System

[1] Snehali Nandurkar, [2] Shubham Gawali, [2] Priyanka Doke, [2] Prachi Pawal,

[1] Assistant Professor, CSE Department, N.K.Orchid College of Engineering, Solapur, Maharashtra, India.

[2] Student, CSE Department, N.K.O.C.E.T Solapur, Maharashtra, India.

Abstract: *This project is totally deals with the vehicle identification, and instant vehicle document check on demand. Vehicle owners can register their vehicles thereby providing personal details along with vehicle details as well as various documents relevant to vehicle. This information will be stored in database, and validated afterwards by police authority. If all information found accurate, then a unique QR code will be generated for that particular vehicle. This QR code can only be scanned and information of vehicle can only be viewed by traffic police. This project helps in identifying stolen vehicles as it shows status of vehicle, this project also helps in identifying vehicles which had an accident, in cases where police want to know about driver, but face of driver is damaged, police can get some information from the QR code of that vehicle."Smart Vehicle Investigation System" is a term applied to vehicle document check system where information is stored in databases and afterwards it is retrieved by traffic police by their smartphones. We create a unique QR code for every vehicle using vehicle information and owner's information .Traffic police can scan the QR code on his phone and get all the details about the vehicle owner and vehicle. This project deals with vehicle registration as well as finding stolen vehicles.*

1. INTRODUCTION

1.1 General Introduction:

This project aims at implementing a vehicle document check system where information of vehicle owner and vehicle is stored in databases and afterwards they are retrieved by the traffic police by their smartphones and the physical documents are not needed to be carried along thereby saving time in document verification. Initially we assign them unique identity numbers and scan their RC, Insurance, PUC, License, vehicle name and number and store it in the database at the back end. Using the above information we create a QR code and stick it on an irreplaceable part of the vehicle. At the front end we create an application with which traffic police can scan the QR code on his phone and all the details about the ownerof the vehicle and all the documents earlier stored will be shown on the phone.

1.2 Motivation

This project is entirely motivated on making the life of people easier by using a smart phone for searching the unique identity and retrieves all the documents and information related to the vehicle owner.

1.3 Problem Statement

On a regular basis we often observe people have to stop their vehicles on the road or toll booth to show their documents for their vehicles and then continue their journey. This not only waste of valuable time for the driver but also for the police who take time in checking the documents and return them back. Sometimes the driver fails to carry the desired documents due to some reason and therefore has to put up with a heavy fine.

2. LITERATURE REVIEW

2.1 Existing System:

On a regular basis we often observe people have to stop their vehicles on the road or toll booth to show their documents for their vehicles and then continue their journey. This not only waste of valuable time for the driver but also for the police who take time in checking the documents and return them back. Sometimes the driver fails to carry the desired documents due to some reason and therefore has to put up with a heavy fine. Many existing system like Automatic Number Plate Recognition System is used only for traffic violations. Smartcards is another system that contains information like details of vehicles and registration numbers, but does not include the insurance papers. The project is entirely motivated on making the life of people easier by using a smart phone for searching the unique identity and retrieves all the documents and information related to the driver.

2.2 Review Of Past Work Done:

The manual system has been facing problems due to its physical document check system. With the increase in the number of vehicle drivers with vehicles around, it has become difficult to check the vehicle documents as well as driver's documents manually. Recognizing legal owner of vehicle and drivers driving that vehicle without documents has become a tedious task. And also it's difficult for a vehicle owner as well as driver to carry all the documents like license, RC book, PUC etc all the time particularly in rainy season. It is becoming wastage of time for traffic police as well as vehicle owner.

3. DETAILED DESIGN

3.1 System Architecture:

Figure 3.1.1 shows the Layered System Architecture of Smart Vehicle Investigation System
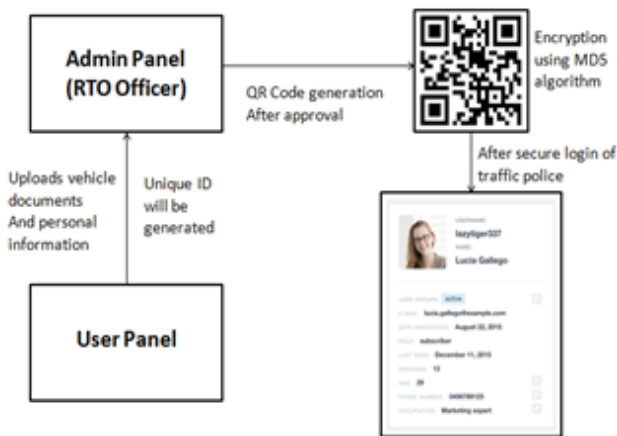

Fig-3.1.1: *Layered System Architecture of Smart Vehicle Investigation System*

USER:- The above system architecture shows the user(vehicle owner) can register his/her vehicle from anywhere and can apply for QR code from anywhere via Internet.

RTO officer:- Inthe above systemarchitecture RTO Officer work as an Admin.He/she gives the approval via internet.

3.2 Use Case View:

3.2.1 DFD:

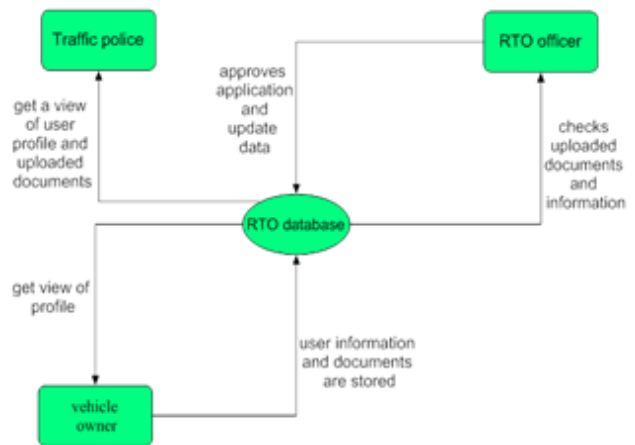The fig. 3.2.1 shows the level 0 data flow diagram for the system.

Fig-3.2.1: *DFD of a Whole System*

3.2.2 Use Case Diagram:

The figure 3.2.2shows use case diagram of Smart Vehicle Investigation system.In this use case diagram there are three actors as Vehicle user, traffic police and RTO officer.Each Vehicle owner will register and login to the site.The RTO officer and traffic police has the authority to approve a data and scan QR code respectively.
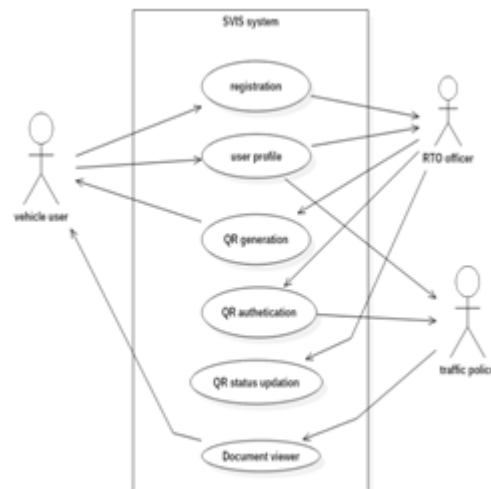

Fig-3.2.2: *Use Case Diagram for Smart Vehicle Investigation System*

3.2.4 Activity Diagram:

Fig 3.2.4 show activity diagram of system. The diagram shows the flow from activity to activity in the system. Each activity ultimately results in some action. First activity is input which takes input as user name and password which is send to validate module. If user name and password is valid then a home page is displayed which shows menus as about us, contact us login page, else if user name and password is incorrect then error will be displayed. Depending on user selection reports will be displayed to user.
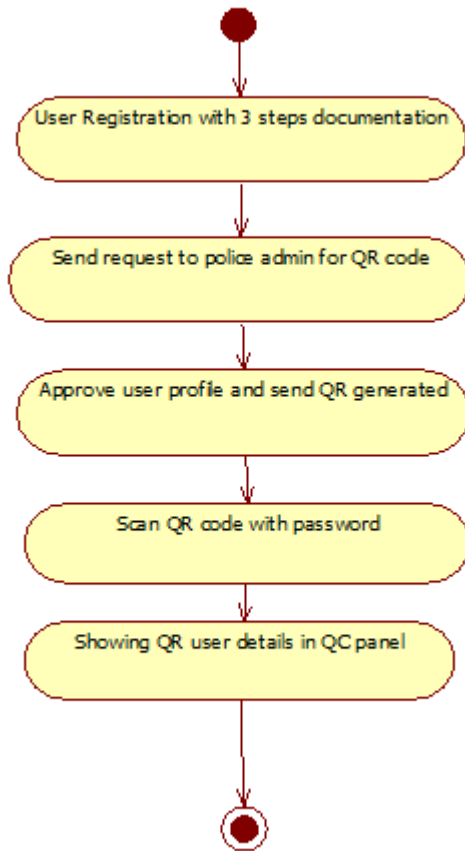
Fig-3.2.4: *Activity diagram of Smart Vehicle Investigation System*

3.3 Algorithm Design:

3.3.1 Algorithm To Register Vehicle And Get The QR Code

1. Input: user name, password

2. Validation: check whether credentials are valid

3. If credentials are not correct then goto step 7

4. Display home page

5. Register a vehicle

6. Upload documents

7. If(approved==true)

    Download or save QR code

    Print QR code and stick it to non replaceable part of vehicle

    else

    go to step 4

8. Go to step 9

9. Error: print error go to step 1

10. Exit.

3.3.2 Algorithm To Scan QR Code

1. Scan QR code using smartphone

2. Input: user name, password

3. Validation: check whether credentials are valid

4. If credentials are not correct then goto step 6

5. Display user profile and uploaded documents

6. Exit.

3.3.3 Algorithm For Approval Of Application

1. Input: user name, password

2. Validation: check whether credentials are valid

3. If credentials are not correct then go to step 7.

4. Display list of user who applied for QR code along with uploaded documents

5. Check whether the uploaded information and documents are valid or not

6. If documents are valid Approve application Else Application failed

7. Exit.

4. RESULTS AND DISCUSSION

In this Smart Vehicle Investigation System as per the requirements we developed this System. In existing system manually work was done that work is over come in this system

Due to these System work had become more easy user does not need to carry documents along with him/her by using smartphone and for searching the unique identity and retrieve all the documents and information related to the driver.

- Identifying approved vehicle:

    Figure 4.1 shows the identified vehicle detail as a results of the experiment. The result shows that vehicle is approved, and vehicle is easily identified and details with documents of the same is shown clearly, there is less false detection.
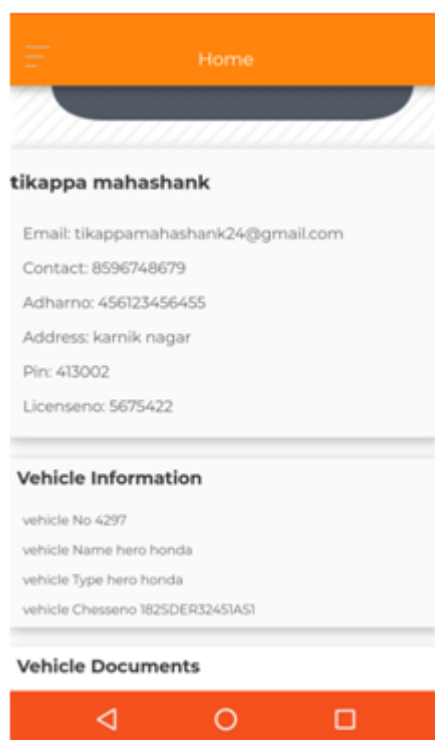
Fig-4.1: *Identified approved vehicle by scanning QR code*

- Identifying stolen vehicle:

  Figure 4.2 shows the identified vehicle detail as a results of the experiment. The result shows that vehicle is stolen, and vehicle is easily identified and details with documents of the same is shown clearly, from that legal owner of the vehicle can be known.
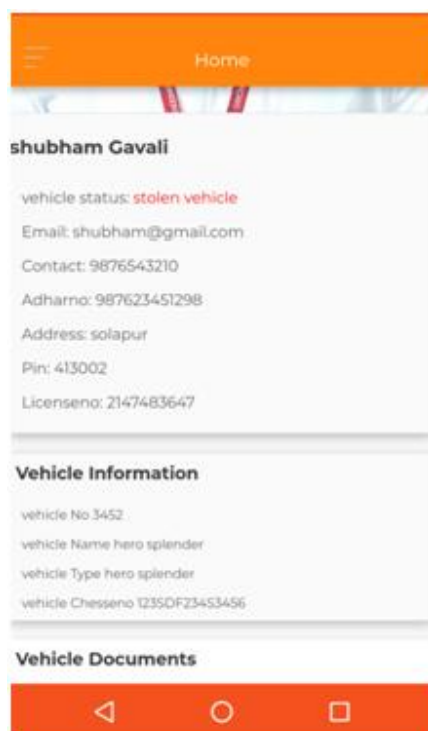

Fig-4.2: *Identified stolen vehicle by scanning QR code*

5. CONCLUSION

5.1 Applications:

- Accident Vehicle Identification.
- Finding Stolen Vehicles.
- Vehicle Identification.

5.2 Advantages :

- **Ease of use:**QR codes can be added to just about anything, from cereal packets to adverts on the Underground, and this versatility can be very useful for marketers.

- **Range of uses**:There are hundreds of potential uses of QR codes. Here are just ten suggestions for marketers, but they can be used to extend the user experience in restaurants, museums and more.

- **QR codes are trackable:**Using web analytics, and by using unique codes for different placements, marketers can gain some valuable information about how well campaigns are going, and what works and what doesn't.

- **Easy way to send mobile users to online content**:The QR code offers, as the name suggests, a quick response mechanism which saves users the effort of typing in a URL or an SMS shortcode.

- **They appeal to mobile users' curiosity**

- **QR codes can be cost effective**

- **Creating the QR code itself doesn't have to cost anything.**

5.3 Disadvantages:

- **Other options are available**: There are alternatives to QR codes which claim to offer a better user experience. For example, Blippar uses the creative itself, whether this is a logo, product image etc, and makes that the trigger for interaction.

- **Users need to download a QR code reader:** This is the big drawback for many. Mobile users have to download a (normally free) QR reader app before they can even begin to use them, which limits the audience.

- **Scanning can be a long process**:With a fast internet connection this may work fine, but on a variable 3G signal, many users may lose patience.

- **Lack of awareness:**we are seeing more and more QR codes being used (I saw one on the BBC's Good Cook programme for instance), but only a minority of people are using them.

5.4 Future Scope:

In case, user need to update document his/she can upload the document after registration also these features are Additional Functionality in this System.

5.5 Conclusion:

It is a real time project that would be useful for the public who are facing problems with the currently existing manual system where the user of the vehicle should carry all the required documents. The proposed system would make it easier for the public as it becomes an automated process. Thereby, relieving the stress imposed on the public. As the documents need not be carried, it wouldn't be misplaced and also misused. Hence ensuring the safety of the documents.

The proposed system also provides an additional feature to the user of the vehicle, the alert message feature, if his/her vehicle is stolen. It provides the means to retrieve the stolen vehicle.

REFERENCES

[1] Pankaj Jalote "An Integrated Approach to Software Engineering", Third Edition

[2] Steven Suehring, Janet Valade"php_mysql_javascript_html5_all-in-

[3] one_for_dummies"

[4] Rogers pressman "Software Engineering" book 6th edition.

[5] The "E-Learning" concept referred from: http://en.wikipedia.org/wiki/E-learning

[6] The "PHP guide" referred from: http://www.w3schools.com/php/php_intro.asp.

[7] The "PHP & MySQL" referred from: Workshop conducted by IIT Bombay.