Stolen Vehicle Detection And vehicle Document Identification Using RFID And QRC

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Abstract- *Now a day's most of the people are using their own vehicles. Due to that road traffic has been increased tremendously. So workload of police man has been increased to verifying the licensed driving. Firstly, if the vehicle owner sometimes forgets to carry the documents and face the problem at the time of enquiry by police. Secondly, now a day's automobile theft crime has increased, it is very difficult for police to find out the stolen vehicle. This system will be the approach to solve such problems that replaces the current manual process for checking the vehicle document and user detail by using QR code and RFID. Android app with which traffic police can scan the QR code on his phone and all the details (Driving licenses, Insurance, Adharcard, etc) about the user will be verified. The stolen vehicle will be detected by using RFID reader and tag. And instantly alert message will be send to police as well as to the owner of vehicle. The public are in a need to maintain the entire document and update them regularly by keeping track of renewal/expiry date; in this case notification will be sent to owner of vehicle.*

Keywords- Dataset, Document retrieval, QR code, RFID reader and Tag, RTO.

I. INTRODUCTION

In day to day life there is lots of increment in population. Now a day's most of the people are using their own vehicles. Due tothat road traffic has been increased tremendously. Due to this traffic Police work has been increased. Regional Transport office (RTO) responsible for the registration of all vehicle related document. RTO management has lots of work related to registration of vehicle documentation.

Regularly we observe that people have to stop their vehicles on the road or toll booth to show their documents for their vehicles. This is waste of time for the driver and also for the police who take time in checking the documents and return them back again. Sometimes the driver forgot to carry the vehicle related documentation due to some reason and therefore he have to pay fine. In this proposed system we solved all this issue related traffic police management. The proposed system aim is reducing traffic police work and also driver no need to carry vehicle document manually. If someone vehicle is robbed we can easily detect stolen vehicle also using RFID. RTO administration stored vehicle related documentation in QR code.

Quick Response codes, commonly abbreviated as QR codes, used as a 1-D barcode, a QR code is nothing but a 2-D matrix code. QR code conveys information by the arrangement of its dark and light elements in columns and rows. QR code can be accessed by scanning the QR code and processing it with a QR code reader. The QR code can be identified by a scanner. The bits are used to encode the message, and the specific amount of available space leftover is dependent on the version of the QR code. The information dense QR codes used can store just under 3,000 bytes of raw data.

Radio Frequency Identification (RFID) technology uses radio waves to identify objects. RFID is a device that reads information contained "tag" from a distance without making any physical contact. RFID technology has been available in one form or another since the 1970s. It is now part of our used and can be found in carkeys, employee identification, medical history/billing, Highway toll tags and security access cards. RFID can automatically identify the objective and obtain the data from radio frequency signal without man-made interference .

This paper represents the advanced vehicle identification system RFID technology. The system uses RFID technique for identification. When a vehicle carrying an RFID tag passes a checkpoint equipped with an RFID reader, the identification data of the vehicle is transmitted to the RFID reader and RTO server, which already associates the vehicle's ID with a pre-existing database entry. If the transmitted data matches with the database entry, then the vehicle is considered to be unauthorized. The remarkable feature of this system is the easy implementation and gives faster response.

II. PROBLEM STATEMENT

To design and implement a system for vehicle user which make easy to carry all vehicle related Document digitally using QR code so that user will not face problem during enquiry and detect stolen vehicle using RFID reader and tag. We also send vehicle document expiry alert message to vehicle owner

III. LITERATURE SURVEY

Inthis paper author surveyed problem of RTO, RTO employee having lot of work burden of making registration ,license issue, transfer etc., which requires lots of paper work. As a result people cannot get things done in right time this system helpful for RTO officials to maintain record systematically and reduces lots of paper work and manual effort.[1]

In this paper, technique has been discussed for challan system. here user provide details to RTO database. by scanning QR code which contains overall information of the vehicle we get vehicle owner details. This system also detect culprit vehicle.[5]

This paper introduces system would make it easier for the public as it becomes an automated process. As the documents no need be carried, it wouldn't be misplaced and also misused. Hence for the safety of the documents. This system Make one unique identity as a driver license.[8]

This system proposes, "cross verification of driver and license for RTO", effectively verifies documents related to vehicle and license. This system introduces facility for RTO officials to maintain records systematically and reduces lots of paper work and manual effort .[3]

In this paper, we have designed a security system for QR codes. Since QR code security is essential and QR codes are increasingly used in all fields, this system can protect users' privacy and identity in addition to their smart phone devices. Security system can detect attacks like: QR code fabrication, Phishing and fraud attacks. The proposed secure QR code application provides more security level as well as maintains backward compatibility with QR codes that do not incorporate security features.[6]

This paper proposes the optimization of traffic light controller in a city using RFID technology and microcontroller as the entire system is automated, it require very less human intervention. With stolen vehicle detection, the signal automatically turns to red, so that the police officer can take appropriate action.[7]

This paper proposes RFID tag will be tracking millions of consumer product world wide. The RFID auto ID system can be most effectively employed for the students attendance in campus management .thus making the digitization of the old attendance registers will minimize the time required to track & maintain the diff type of record.[9]

IV. PROPOSED SYSTEM

Using QR code digitally open vehicle related documentation and using RFID stolen vehicle detected.

Objectives

- Our goal of traffic police system find out authorized user
- Reduce The traffic police work to obtaining information about the vehicle.
- User does not need to carry their vehicle document every time.
- Document expiry alert message send to user.
- If person doing unauthorized task according to that generate fine.
- Detect stolen vehicle.

V. SYSTEM ARCHITECTURE

Following figure shows the architecture of the system

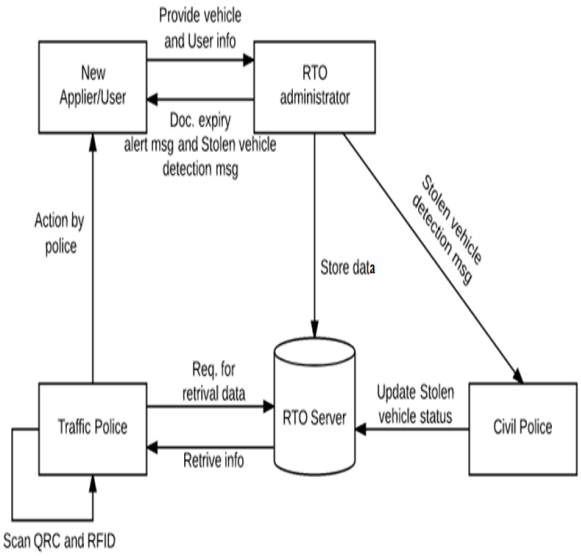

Fig.1 System Architecture

Proposed system mainly consists of four modules

- Driver/Owner
- RTO administrator

- Traffic police
- Civil police

- Driver/Owner:

Provide vehicle and personal information to RTO administrator (name, address, license no., mobile no., adhar number, vehicle number, bill of sell etc.) and get QR code and RFID.

- RTO administrator:

RTO administrator stores all the information related to vehicle and driver and generates QR code and RFID. Also send document expiry alert message to owner when stolen vehicle detected then instantly alert message will be send to police as well as owner of vehicle.

- Traffic Police:

Scan the QR code or RFID and retrieve vehicle and user information. Also check user past details i.e. how many times he/she violating the traffic rules(like breaking traffic rules), according to that generate fine.

- Civil Police :

Civil police plays an important role, since a web page will be provided to civil police in order to update the stolen vehicle status to the RTO database.

Mathematical model

System description:

Let S be the whole system,

S = I,P,O

I-input, P-procedure, O- Output

• I = UI, UP, QRC, RFID

I0 = UI (User id)
I1 = UP (User password)
I2 = QRC (QR code)
I3 = RFID (Radio frequency identification)

• P = P0, P1, P2, P3...

P0 = QR code scan
P1 = RFID detect stolen vehicle
P2 = Vehicle document identification
P3 = Fine generate and document expiry alert message

• O = (S)

S = Successfully identify the vehicle document and stolen vehicle

- Input: User Id, Password, QR code, RFID
- Output: Vehicle document identification and stolen vehicle detection
- Functions : User login, Document registration, User Information
- Success condition : Search the required information from available in datasets.
- Failure conditions: Record is not available. Huge database can lead to more time consumption to get the information

VI. RESULT ANALYSIS

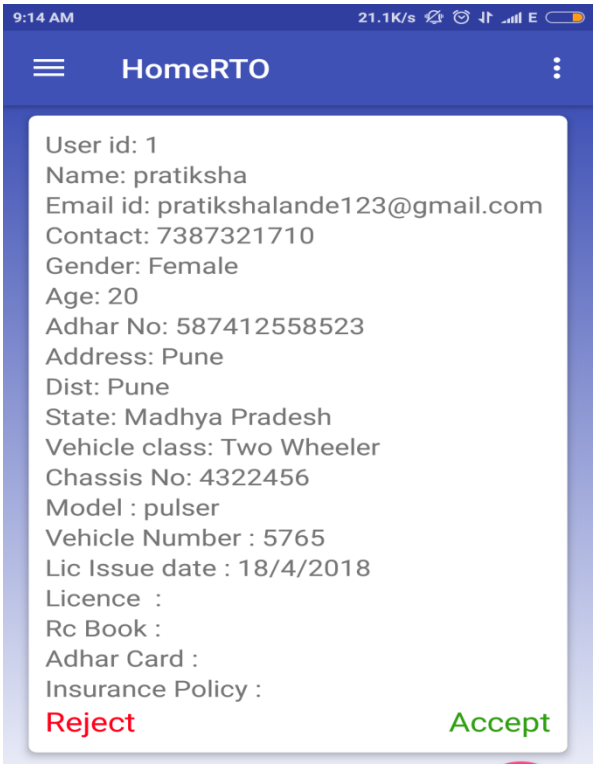

Fig. Owner/Vehicle Details

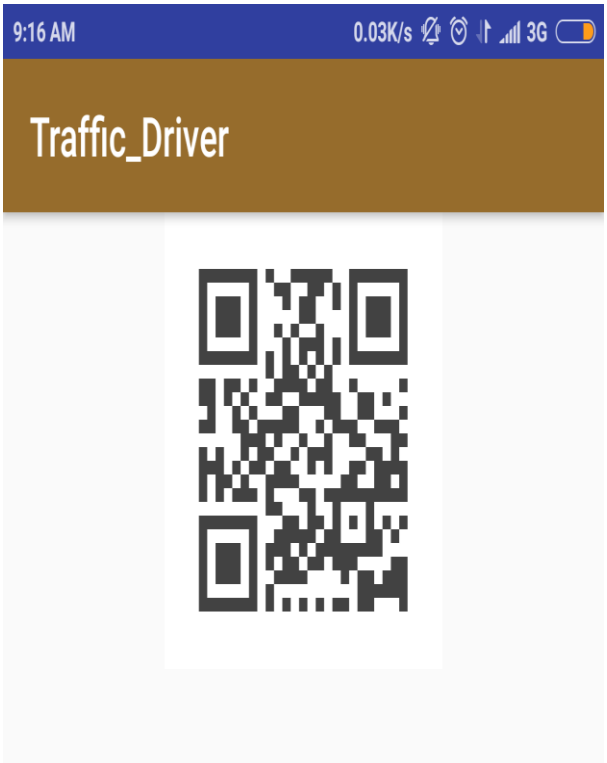

Fig. Owner QR Code

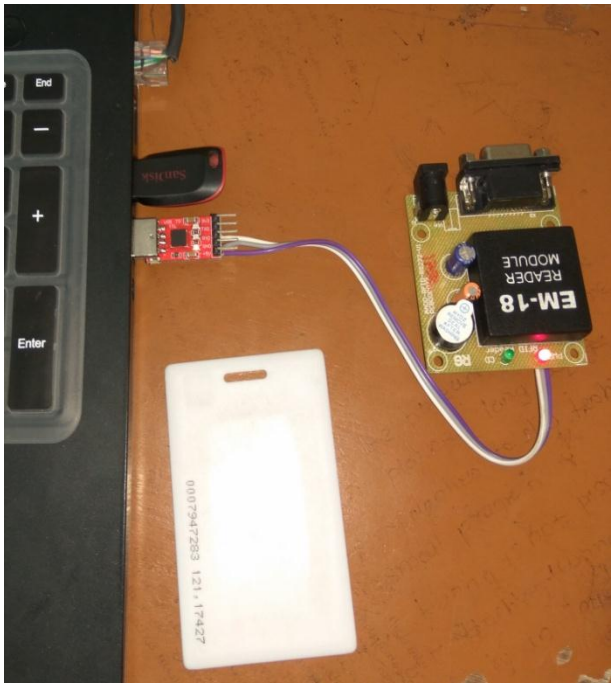

Fig. RFID Reader and Tag

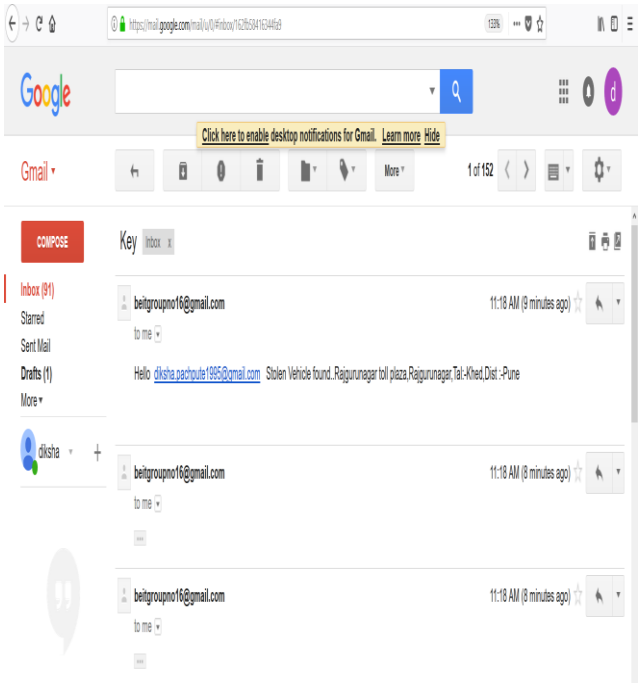

Fig. Sending Stolen Vehicle Detection Mail

VII. CONCLUSIONS

Regularly we observe that people have to stop their vehicles on the road or toll booth to show their documents for their vehicles. This is waste of time for the driver and also for the police who take time in checking the documents and return them back again. This system will be the approach to solve such problems that replaces the current manual process for checking the vehicle document and user detail by using QR code and RFID. Android app with which traffic police can scan the QR code on his phone and all the details (Driving licenses, Insurance, Adharcard, etc) about the user will be verified. The stolen vehicle will be detected by using RFID reader and tag. And instantly alert message will be send to police as well as to the owner of vehicle. The public are in a need to maintain the entire document and update them regularly by keeping track of renewal/expiry date; in this case notification will be sent to owner of vehicle.

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