Digital License Card Using Data Mining

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ABSTRACT

Digital Life Card is an electronic smart card which will provide information from the user's profile in the central database. Central database will be synchronized with other databases in which information of user related to various subjects are stored. Making free from legacy paper format, it will make easier, faster and more reliable ensuring high secure medium for all to do any kind of task like data storing, collecting, submission, lots more. In our proposed system, we additionally extend the data module by extending the driving license information with existing digital identity cards. The digital driving license card also has information about license details such as LMV, two wheeler and HMV etc. And also we attach the RC book details of the vehicles owned by the owners. This type of information helps more for the traffic police department and also we facilitate to store and trace the traffic related crime records. In this application we facilitate the police department to store a distributed record sharing over the multi locations. Our system helps the common people for keeping a single card for multipurpose. Record verifications are much faster everything

Keywords—*Data integration, Data validation, Data authentication.*

I. INTRODUCTION

The smarter way to reduce traffic rules violation and to increase traffic security is by digitalizing the license card that would help the police department to verify and validate the information of user with ease. This system has the ability to prevent others from illegal authorization of information. All the information about the user will be stored in a centralized server which makes possible to retrieve all the information about the user at any time and at any place.

Now a days there are a large number of people who are driving vehicle without authorization . This illegal activity will be reduced with our system since each user's information will be updated in the server which will beperiodically monitored by the government. So people who drive any vehicle without his identity will be tracked and punished. This also helps to automatically make everyone to drive with his own identity card rather than creating a duplicate for it.

The existing system provides the easy way for authentication but it has many flaws which will not be sufficient enough in certain circumstances to catch the victim. Also in the existing system people need to carry multiple documents for verification which sometimes makes people to miss out some documents. All the verification works are been carried out through paper formats which again increases the possibility for fraudulent activity by taking multiple copies of information and using those copies whenever he/she is caught by the police.

In our proposed system we extend the driving license information with the existing digital identity cards. The extended digital card has driving license details like two wheeler, Light Motor Vehicles(LMV), Heavy Motor Vehicle(HMV) etc. It also

has information regarding RC book of the vehicle, insurance of the vehicle, etc. Our system facilitate to store and trace traffic related crime records. We also facilitate police department to store a distributed record sharing over multiple locations.[4] So a victim who is driving in other states can also be tracked. In case of booking the penalty we propose a limited amount of transaction in which amount will be automatically debited from his digital card. Record verifications are much faster, easier and secure.

II. RELATED WORKS

There are many related works which has been carried out in order to provide the smart card authentication for the users like in Multipurpose smart card system where as mentioned in[6]. The usage of smart card is very popular in the world. Some institutions use smart card to support their business for example, identity card, stored digital money. This paper proposed design multi purpose smart card to create identity card and payment transactions. The design make smart card doesn't save some data directly in the smart card but in the server for account based system. Authentication process must be fast to serve many transactions on client. The existing technique like DSA, RSA, Elgamal in public key cryptography has more computation effort. This design would alternate public key cryptography authentication process with AE to increase the transaction speed and also keep to secure transaction process. And then this implementation has small data size to be stored in smart card so support to many applications to be embed in this smart card.

Also in order to store and access the data requires database that could help in accessing the information whenever it is required.

And thus as mentioned in[4] we store and access the information whenever needed.

It is also important to combine link and access the information whenever we are in need of in order to generate a better information.[1][9]This paper shows the necessity to store large amount of collected information under one roof particularly known as database to access and improve the information which is desired. It also shows that by generating this type of information we could get important information about various people.

So we are clubbing all these practices into a single process in order to facilitate and improve the traffic processing in our country.

III. SYSTEM ARCHITECTURE

The process involves the verification of Aadhar card number to process the details of the person applying for any of the important documents.

Then the RTO checks for the information which is passed to him and after performing the initial tests approves the license, or register and deregister the vehicles.

The renewal of license being the third party process can be linked with the number which is updated in the database.
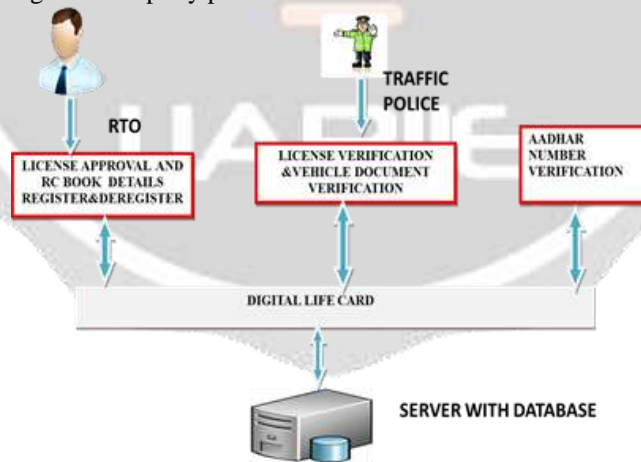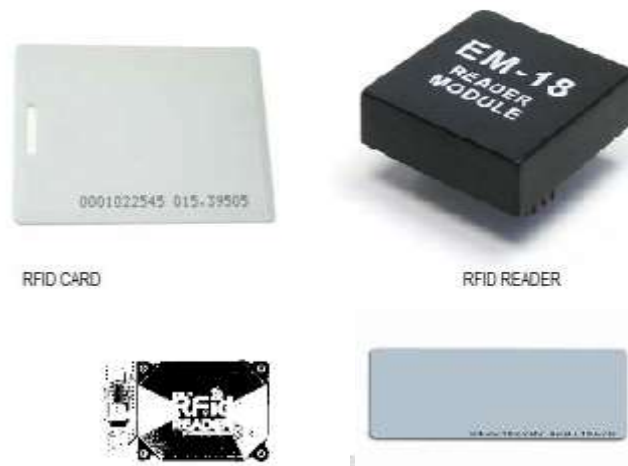

Figure 1: System architecture

All these information are combined to form a digital card that could be accessed by the RFID Module. And all these information are accessed through the database.

IV. METHODOLOGY

Radio Frequency Identification technique is the methodology used to identify information about the user

RFID (Radio Frequency Identification) is a technology that uses electromagnetic fields to identify objects and it is also named proximity identification. There are 2 elements in RFID communications: the RFID module (or reader/writer device) and an RFID card. The RFID module will act as the master and the card will act as the slave; this means the module queries the card and sends instructions to it. In a normal RFID communication, the RFID module is fixed and the user takes his card near it when he needs to start the interaction.

An RFID card can be understood as a remote storage unit where we can read and write information without physical contact. The RFID module must create an electromagnetic field in order to power the card. The RFID card's antenna gets the power from this field.[8] Also, an RFID card has a basic microcontroller which manages the communications and memory access.

Working
1. The processor controls RFID send/receive.
2. The antenna sends high frequency electromagnetic waves out.
3. The transponder or tag converts the waves into an electric current.
4. The tag responds with its own unique radio wave.
5. The reader unit receives the tag's wave, which is then processed to retrieve information.
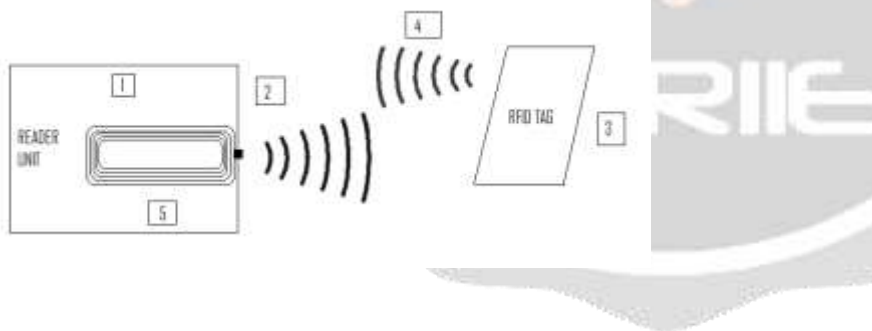

Figure 2: Working of RFID Module with the Card

V.   OVERALL PROCESS

The following process shows how verification will be done in our system. Various Process involved in obtaining the digital card is given as,

A. Aadhar card creation

This is the initial step involved in the system. Each user must have the card issued by government. This is mandatory for every user. The process of using this Aadhar card reduces the time taken in RTO office for Identity and address verification as it is already mentioned in the Aadhar card. Initially the information about user is added on the database which is then digitally printed as the Aadhar card.

B. Digital license card creation

After creating the Aadhar card user is now permitted to apply for digital license card.

a)   RTO verification and LLR issue

This process involves submission of his/her own identity card. Now the Regional Transport Officer (RTO) verifies his information from the central database. Now the RTO issues LLR(Learner's License) which will be updated in the database and digitally recorded in his/her identity card.

b) License approval

This process happens only after 30 days of LLR issue. In this phase the driving license for the user will beapproved by RTO once the user gets the eligibility to receive the license. i.e. once the candidate clears all the tests conducted by the RTO. Now the license information will be updated in the database and it is digitally recorded in the identity card. This card is known as the digital license card.[9]

C. Vehicle registration/deregistration

This process involves the addition/updation of information about the vehicle which shows that the vehicle is owned by him/her.

This may take place in two different cases.

- First whenever anyone buys a new vehicle then it is necessary to add the information about his new vehicle with the digital license card which shows he/she is the owner of the new vehicle .In this case registration process happens in the database to show the respective owner of the vehicle. [5]
- In the next case someone may sell his/her vehicle and someone may buy that vehicle which involves deregistering the vehicle from old user and registering with the new user. Now the database will be updated with the information of new user.

D. Information verification and penalty

This process will be carried out by the traffic police department. It involves verifying the information of the driver like license, RC book, insurance details through Digital License Card. In this process the police officer gets the digital license card from the driver and reads the information from the card using RFID reader. The RFID reader fetches information from the database and displays it to the police officer who verifies the information about the driver and the vehicle.

A person who violates the traffic rules can be fined through a process called Card Deduction.

E. Card deduction

The Card deduction is the process where the traffic police fines the driver through the limitations that are fixed on the card. For eg. In our proposed system we have a fixed limitation as say Rs.300.[6] So the first time a person is caught by the traffic police Rs.100 is deducted from the card. So after two more times the amount in the card will be 0 thus the card automatically becomes invalid. So to obtain the card again the person has to go to the RTO and has to get a replacement.
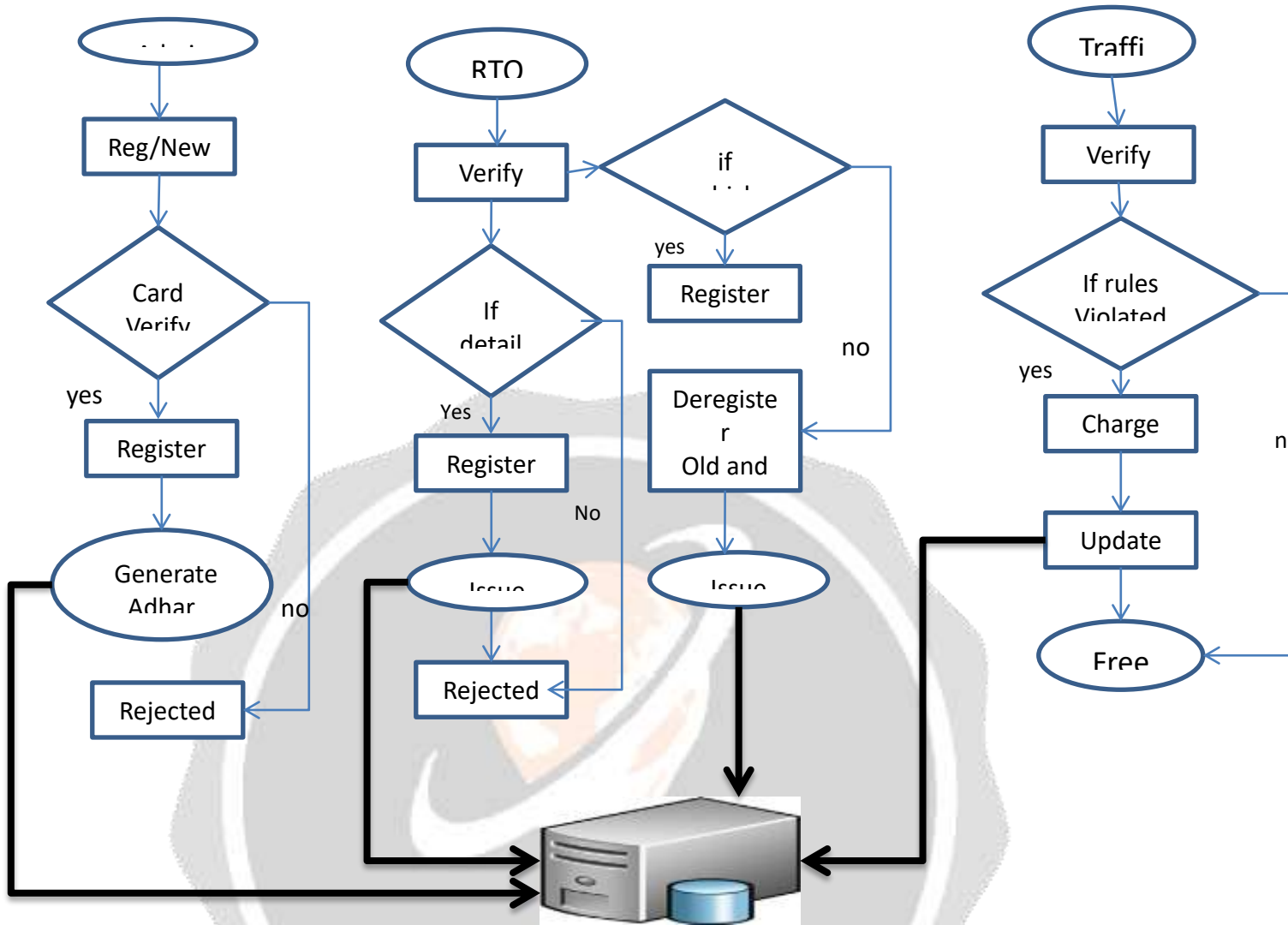
Figure 3: Overall working system flow

VI.   FLOWCHART EXPLANATION

A.   ADHAR CARD:

- Register for Aadhar card and verify for the number availability
- If the registration is success then generate Aadhar card
- Or else reject it and generate a new number.

B. RTO (REGIONAL TRANSPORT OFFICER)

- In the RTO office we perform two operation that is, license obtaining and RC Certificate.
- The RTO verifies the details of the Aadhar Card and registers for the LLR and after a certain period license test will be undertaken by the Transport Inspector.
- If the details are valid then the license is issued.
  Incase of vehicle registration the details are checked
  and if they are legal then deregistration or registration
  are performed.

C. TRAFFIC POLICE LOGIN:

- The traffic police while catching a person verifies his card through RFID card which could be used to have an access to all the information.[7][13]
- If he is found guilty then Card deduction takes place which depends on the rules imposed by the government.
- The traffic police can have access to all the information about the person but cannot edit any kind of information which can be done only by the RTO.[8]
- Also he can have access to all the criminal records of the person which would be based on the FIR database of the police department.

VII.   FURTHER ENHANCEMENT

- ATM Card could be linked with Aadhar Card to perform Money Transactions

- GPS chips could be attached with the card to locate a particular person anywhere.

- The Concept used in digital license card could be used in banking all the banks could be brought under a roof.

VIII.   CONCLUSION

We proposed a system that could make the people work easier during identification at the same time will decrease the work load of police department to verify the information. Our system also increases the road security. Future enhancement of the project may be linking of digital license card with tolling system to easily access it.

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