RTO Automation System using Near Field Communication (NFC)

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Abstract: Road Transport Authority has developed an online service for consumers to complete various procedures like applying for licenses and registrations this information service is known as Regional Transport Office Information System (RTO). RTO information service helps in flow of information within the organization. RTO provides the facility of applying licenses online, issuance of permanent license and tax challans, and receiving payments against challans. The Existing system of RTO services has been is usage for two years. The existing system is not giving accurate results while doing transactions. and It doesn't provide security, anyone enter into the system and can do their own transactions. It is not flexible in generating reports and many manual processes are made computerized. To overcome problems in the existing System a new RTO services "Road Transport Authority Information System" is proposed after study of system

Keywords: Road Transport Authority, Road Transport Authority System, RTO, NFC.

I. INTRODUCTION

The need for manual RTO based systems is completely reduced in this method and the RTO system works through NFC. A Near Field Communication system typically includes following components: (i) transponder (tag), (ii) reader/writer, and (iii) computer host. The transponder, better known as the tag. The microchip contains memory to store a unique data and to receive and send data back to the reader. The transponder tags are hopped up on electromagnetic signals these signals are received from the reader. Development in technology bring digital world to be border-less. It's proven through a developed technology, when trade and transaction can be done not only using real money but also virtual one. The Near Field Communication (NFC) devices also support virtual money for shopping purposes. The NFC uses radio frequency to make itself worth. In the year of 2011, Google was integrating this device into an Android-based cell phone, which made transactions using virtual money gradually developed.

The NFC tag is used as a unique identity for account of a particular user. When a traffic police catches a person driving a vehicle, He asks the driver to show his NFC tag and scans it. When the scanned id is already available in system it automatically matches it with the tag id and fetches the required data such as historical records and driver bio etc. Traffic police can also place a new complaint about that driver. If police placed a new complaint, then the fine amount will get deducted from his total balance. After this, the vehicle gets immediate access to drive through. With the help of NFC architecture in RTO our system provides some additional features such as a system can register a new user at any time, the old users can recharge his account balance. The amount for recharge can be entered in the system. In beginning, the user is prompted to scan his tag or ID. The serial code of the tags identified by the reader module and is sent for comparison with stored data. If the ID is matched by the microcontroller, the fine amount is deducted from user's balance and user gets to drive through the area.

II. EXISTING SYSTEM

The Existing system of RTO services has been is usage for two years. The existing system is not giving accurate results while doing transactions. It doesn't provide security, anyone enter into the system and can do their own transactions. It is not flexible in generating reports. And many manual processes are made computerized

A. Drawbacks of Existing System
- It is not efficient in performing office work in RTO services.
- It includes much manual process and time consuming.
- It is not user friendly.
- Maintains local data base.
- It is not Generating Accurate Reports.

B. Following are some points that came across while surveying,
- In this system Traffic police using receipt book by which he can make penalty charge by writing on that receipt. So paper work is there.
- All charges entries are not stored on server automatically.
- There is user who stores this data manually into the system.

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- Corruption occurs in this system.
- User some time may charge higher of lower that the actual charge by police mistake.

III.PROPOSED SYSTEM

Many modern smart phones and tablets have an integrated scanner that can read NFC chips. All one needs to do for driver's licence checks is attach a single low-cost NFC chip to the driver's licence.

A. System Architecture

The NFC chip stores a unique combination of numbers. This ID will be read by the smartphone and the NFC to web app with the underlying NFC technology and uniquely associated with the driver's master data in the web application. Now the drivers can perform the automated checks with NFC to web application. They just need to hold their driver's licences up to their smartphones. The phone scans the chip and fetch the unique id from the chip. The data connection can be either through a mobile data connection or via a local wireless network.
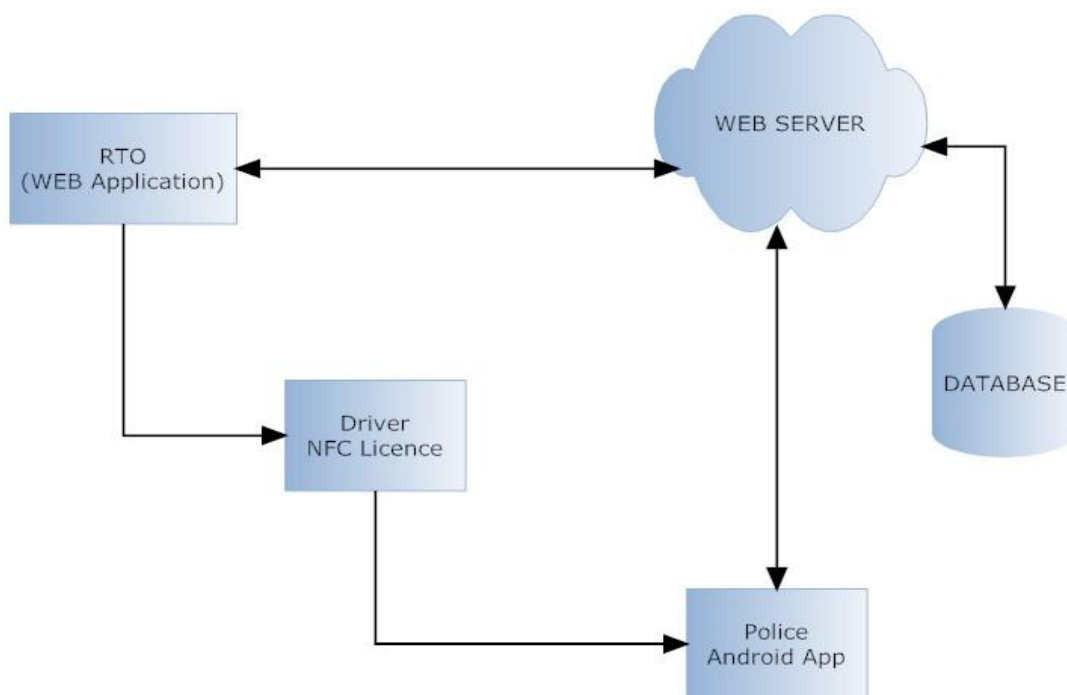

Fig. 1 Basic System Architecture of RTO Automation

B. Entities involved in this system

Admin: -
- Admin can login into the application.
- Admin check the documents and if those documents are legal then he will make a new user account into the application and provide a new licence to the user.
- After creating a new user account user will get the username and password by mail.

Traffic Police: -
- Traffic police login to the android application.
- If any user caught by traffic police, then police will get the driving license and tap using android phone.
- After tapping, police can view the previous records, can placed a new complaint.
- After placing a new complaint, the fine amount will get deduct from a total balance of the user.
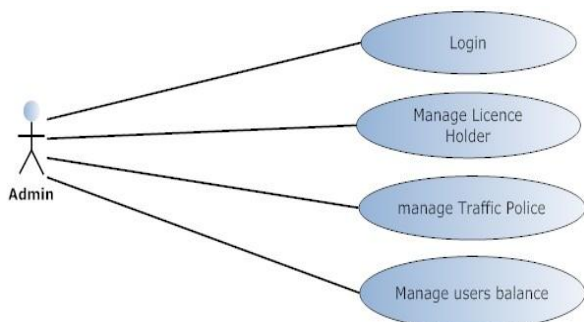

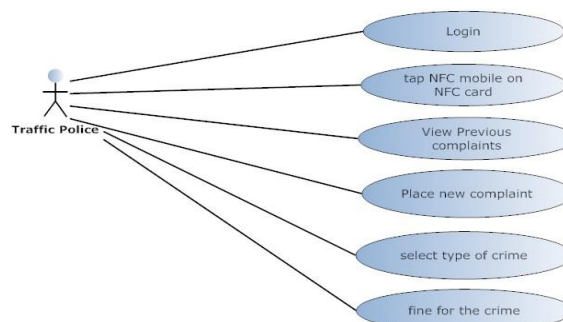Fig. 2 Admin use case diagram

Fig. 3. Traffic police use case diagram

User: -

- User can login into the system using username and password.
- User can view the complaints which are placed against him.

IV. CONCLUSION

In this paper we are using Near Field Communication (NFC) technology which is a new technology. Most of the smartphones are now NFC enabled, using this NFC system we are proposing a system for RTO officers. This makes the Regional Transport Office system an automated RTO system. Using this system will make the work of officer easy as we are using NFC the system will be easy to implement.

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