Smart Card for E-Rto System

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Abstract:- Nowadays many people are purchasing two wheelers, four wheelers etc. So the RTO employees having lot of work regarding registration, License issue, etc. This required lot of paper works. As a result users cannot get the things done in correct time, which ultimately waste the time, energy. It may happen that the vehicle owner sometimes forgets to carry the license, at the time of enquiry. So to deal with these drawbacks we are developing an enhanced E-RTO Management System. In this method as we introduce NFC as the underlying technology. The project is about developing an Enhanced Driving License (EDL) which provides a proof of identity such as RC Book, PUC and a way to access details about license holders past record. The project consists of three modules NFC tag, handheld mobile device to scan the NFC tag and MVD's database. The NFC stores a unique combination of numbers. This ID is read by the smartphone with the underlying NFC technology that uniquely associates with the driver's master data in the web database of MVD. Now the drivers can perform the automated checks with NFC to web application. They just need to hold their driver's license up to their smartphones. The mobile scans the chip and reads the unique id from the NFC chip that fetches driver's data. The data connection can be either through a mobile data connection or via a local wireless network. In future, as per the user's requirement our whole Program was designed. This system provides a better way of document validation for R.T.O officials. It is also helpful for Traffic police. It is also helpful for Traffic police. The traffic police to be more effectual in controlling repeat violators of traffic rules. Therefore enhanced penalties would be imposed for repetition of violation of traffic rules. Fancy number plates, if any, would be detected immediately.

Keywords:- Enhanced Driving License (EDL), Near Field Communication (NFC), RTO (Regional Transport office), Android, Location Tracking, E-RTO,NFS reader and tags, RTO, vehicle documents.

I. INTRODUCTION

Regional Transport Office (RTO) is an Indian government which is responsible for the registration of vehicles and issue of Driver's License in India. RTO management has to do a lot of work regarding vehicle registration and issue of driver's license. Sometimes the vehicle owner forgets to carry the license. This paper proposed an system to solve such problems that is by storing all the information related to vehicle and driver at database by RTO admin. E-RTO is an advanced "E-RTO management System". It is design to keep the existing registration system easier..[5] The need for manual RTO based systems is completely reduced in this method and works using NFC. A complete NFC system contains a transponder (tag), reader/writer and 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.[2][4] These tags are powered by the electromagnetic signal received from a reader. Development in new technology bring digital world to be end-less. This particular device works using radio frequency.[2] The NFC tag is act as a unique identity for account of a particular user. When a vehicle driver caught by a traffic police, its driver is needed to scan his NFC tag. If the identity i.e serial number of the tag is matched with the one already stored in the system then the historical records of that driver get fetch on a mobile phone. Traffic police can able to add a new complaint about that driver. After adding the new complaint, the fine amount will get deducted from driver's total balance. After this, the driver gets full access to drive through.[2][3] This NFC based RTO system also has some additional features. It may happens that user tries to run away to avoid the fine. To tackle this problem we will be using GPS technology. In this system suppose if a user tries to run away the traffic police just needs to note the number of number plate and need to enter the number by selecting an option of GPS tracker. Then the GPS tracks the user and helps traffic police to reach the place where user is currently traveling and catch the offender and take appropriate actions against him. With the help of this system the chances of an user breaking the rule and being not punished is reduced.[2]Advantages of this application are that, it Considerably reduce the corruption in transport department. Keep the license documents safely. In case of accidents, it helps police to identify the identity of injured person and also helps to find out stolen vehicle effectively. This system offer the drivers to be independent of vehicle related papers.[1]

II. LITERATURE SURVEY

The current system that is used for the fine collection has many flaws in it. So we need to overcome this flaws in the existing system. The existing system is based on the use of pen and paper, In other words challans that are given to the Traffic polic on breaking the traffic rules. It is very difficult for the RTO department to keep the track record of every individual and the amount of offences committed. As the system based on paper work, the papers mostly gets lost or

damaged and tempered. Due to all this it become hard for RTO office to maintain proper records. During patrolling if an offender commits a crime and is caught then it is very difficult to find out whether the license holder's license is fake or real and in the same manner it is difficult for the common people to find out if the officer who is pretending to be an official authority is real or a fake. We have seen many cases where the user runs away after being caught and the police can't take the appropriate action on the offender. Even we have seen many cases where the vehicles contain fake number plate and the police person can't recognize it. So to overcome this flows in the existing system we have proposed a new system to help us solve the issues.[1]

III. PROPOSED SYSTEM

Many modern smart electronic device and tablets have an inbuilt scanner that is used to read NFC chips Automated Fine Collection System is based on digital system which is used to overcome the manual task. The low cost NFC chip stores a unique combination of numbers. This ID is read by the smartphone and tablet contains underlying NFC technology and it is uniquely associates with the driver's master data in the web database. Now the drivers can able to perform the automated checks with NFC to web application. For driver's license check, all one needs to do is attaching a single low-cost NFC chip to the driver's license. The smart phone can able to scans the chip and reads the unique id from the NFC chip that can fetch license holder's data. The data connection can be either using mobile data connection or via a local wireless network. [4]
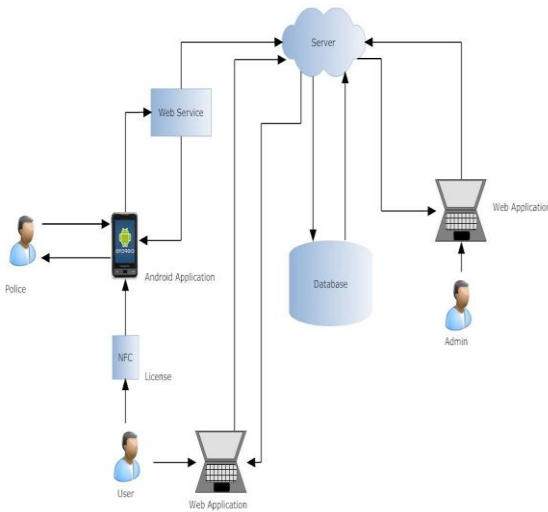

Fig 1:- System Architecture. [3]

A. Modules Of Project

➢ *Admin Module*
• Admin can login the application.

• Admin checks the documents and if those documents are legal then he will make a new user account into the application and provide EDL to the user.
• After creating a new user account user will get the username and password by mail.

➢ *Traffic Police Module*
• 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 place a new complaint.
• After placing a new complaint, the fine amount will get deduct from a total balance of the user.

➢ *User Module*
• User can login into the system using username and password.
• User can view the complaints which are placed against him.

The GPS is a small device used to send and receive the information about the current position of any object. The GPS sends the data to the servers about the information of its location and the object can be traced. With the help of this technology we can even track users who are trying to run away. The data connection can be either a mobile data or via a local wireless network. So basically we are introducing a new system for E-RTO using Android app which combine Near Field Communication and global positioning system. The global positioning system which will be used to track drivers.
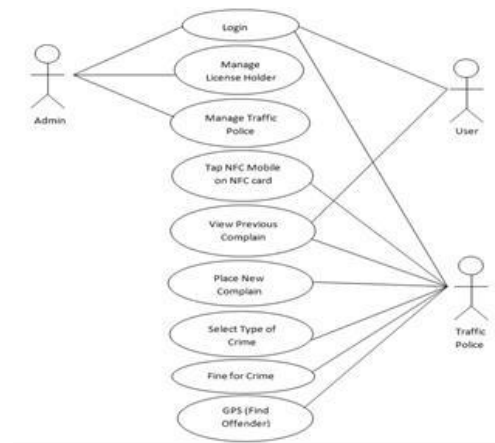

Fig 2:- Proposed system work flow.

B. Technology Used

➢ *Near Field Communication*
Near Field Communication is a wireless close-range connectivity technology which allows data trade between two gadgets. NFC commonly integrated within mobile devices. This will allow the device to establish communication with sim card or other reader devices. NFC works using 13.56 MHz

radio frequency. This technology optimize works under the space of 20 cm. Transmittable data is only less than 1Mbit. This technology developed in 2004. NTC got the transfer speed of 424 Kbps. Moreover, the cell phone can also be used as payment tool and an automatic machine, toll payment, and some other transactions. NFC application is also can be used on a public transportation as a substitute of wallet and as a tool to License penalties.

Basically NFC has 2 different communications which work on different speed, consist of:

- Active NFC Mode, in this mode, initiator and target use self-established radio frequency to communicate.

- Passive NFC Mode, in passive mode, target answer command made by initiators to call modulation scheme. Initiators do the radio frequency creation. [3]

	NFC	RFID	Ir Da	Bluetooth
Set-up line	<0.1 ms	<0.1 ms	-0.5 s	-0.6 sec
Range	Up to 10 cm	Up to 3 m	Up to 5 m	Up to 30m
Usability	Human Centric Easy, intuitive fast	Item centric easy	Data centric easy	Data centric medium
Selectively	High given security	Partly given	Line of sight	Who are you?
Use cases	Pay, get access, share, initiate service, easy set up	Item tracking	Control &Exchange data	Network for data Exchange data headset

Table 1. Comparison of NFC with other technologies. [3]

➤ *Android Based NFC Reader*

The usage of NFC can be done through 3 major ways: card emulation, reader mode, peer to peer (P2P) mode. The function of NFC introduced by Google into Android 2.3 (API level 9) device. In Android 2.3, the ability of device is limited in only reading the tag. In Android 2.3data writing and trading ability through mode Peer to Peer (P2P) began to be implemented within android devices. Then fc android package provides access to NFC function, allows application to read NDEF message (NFC Data Exchange Format) which located at NFC tag. Onandroid.nfc, located several classes which can be used to running NFC function. [3]

➤ *Android for Mobile Application*

Android is an operating system for mobile devices such as smart phones and tablet computers. It is developed by the Open Handset Alliance led by Google.. Google released most of the Android code under the Apache License, a free software license. The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android. Android consists of a kernel based on the Linux kernel, with middleware, libraries and APIs written in C and application software running on an application framework which includes Java-compatible libraries based on Apache Harmony. Android uses the Dalvik virtual machine with just-in-time compilation to run compiled Java code. Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. Developers write primarily in a customized version of Java. Apps can be downloaded from third-party sites or through online stores such as Android Market, the app store run by Google. [4]

IV. CONCLUSION

E-RTO is a web application. Very useful for completion of RTO works online. Our system helps R.T.O Officers to perform their functions electronically. It will also help the R.T.O officials to maintain records systematically and reduces a lot of paper work and manual efforts. We also identified some general requirements of such a system and tried to meet those requirements as much as possible in the design and implementation of our system. Traffic policeman can easily inspect the vehicle documents using NFC reader & card. It saves time of user. Also reduce the corruption in transport department and keep the documents safely.

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