Robust RTO System

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Abstract- **The objective of this paper was to propose an efficient and smart way for the vehicle owner to manage the vehicle and documents RFID Reader and Biometric. If all information of owner or accessible driver is correct then only the vehicle engine will get start otherwise engine stay off. Now a day the population is growing day by day hence the need of vehicle is also increasing. So the RTO workers have so much work of registration, license issues etc. In which lot of paper work is required. As a result time is consumed. Similarly the owner of the vehicle sometimes forget to take the license with them and other documents at the time of enquiry. Also manpower is required on the streets for the verification of documents. Theft of vehicle is also a major issue. Corruption is the most important aspect as every government office is den of corruption, but it is on the road that people end up paying bribes most offend, as everything is in the favour of traffic police. Smart Card is into existence which holds the basic information about the cardholder and vehicle. The propose approach can be implemented to perform vehicle authentication using the smart card.**

Index terms- **Android Application, Ardiuno, Biometrics, IOT, RFID System, Web Application**

I.INTRODUCTION

The Regional Transport Office or Regional Transport Authority is the bureau of the Indian government responsible for sustaining a database of drivers and a database of vehicles for various states of India. The RTO Subjects driving licences, organises collection of vehicle excise duty (also known as road tax and road fund licence) and sells customize registrations. Sometimes the vehicle owner tends to forget the license, and forgets the insurance at the time of enquiry. The proposed system has an attitude of solving such problems that is by keeping all the information related to vehicle and driver at database by RTO administrator. The information such as License, PUC, Insurance, vehicle and its owner's details are stored. It comprises the complete registration and insurance method starting from the beginning phase of entering till the result. It is a well-founded, precise, less time consuming and free from any misuse. In case of accidents helps to identify the injured person and also helps to find out stolen vehicle successfully. To offer the drivers to be individualistic of vehicle related papers. The tendency of international logistics globalization has promoted the development of port logistics. The rapid increase of the amount of vehicle that passes through ports is putting high demands on the efficiency of port logistics. RFID technology processes quickly reading and writing capability, high reliability, and convenient operation and so on. Therefore, a new system is needed to create in order to improve the efficiency of clearance. Radio frequency identification is a procedure of isolation keeping and redeeming data using RFID tags. An RFID tag is a small object, such as a stamp, that can be attached to or incorporated into a product. RFID tags contain antennae to allow them to receive and respond to radio-frequency queries from an RFID transceiver. This System can be accepted globally as many people fail to carry the documents with them so this system may help them reduce their efforts and can be able to drive the vehicle stress free. For the sake of future modifications in case of more enhancements, the technology of seatbelt may be applied in which, if the seatbelt is not connected the vehicle will fail to start. Further changes will be made to make this system more powerful, more solid for utilization and less of the rules violation. 1] RTO information 2] RFID card availability System 3] Insurance and PUC availability System 4] Valid RFID card holder System.

II. RELATED WORK

1. Automatic Check-Post and Fast Track Toll System Using RFID and GSM Module with

Security System in- 2016 IEEE Region 10 Conference (TENCON) Proceedings of the International Conference.

2. Author: 1. K. Balamurugan, Asst. Prof. (Selection Grade) Sri Ramakrishna Engg. College Coimbatore 2. Dr.S.Elangovan, Associate Professor, Dept. of IEEE Jonson Institute of Technology Coimbatore Year of Publish: 2016 Conference: IEEE

Findings:

1. This paper works on Automated Toll collection and Check-Post system using Radio Frequency Identification (RFID) and Global System for Mobile communications (GSM) module.

2. This project associate vehicle particulars like unique ID is saved in an RFID tag which is attached in the vehicle. After all the specifications are effectively observe through a computer, it can be saved on a data bank for cyclic gap as for time and date. Individual users clinch the unique ID for their vehicles.

3. RFID uses radio waves to identify and track objects. Endpoint is attached RFID tags that uniquely identify the items. Connectivity is a bi-directional wireless communication network with endpoints. Software is to collect the real-time data and transform data to the information centre for the application purposes.

4. Trace out and monitoring of vehicle location using GPS can be used for control the engine by SMS sending to the controller. This method is very useful for locating and not to operate the vehicle by the third person in real life.

III. PROPOSED SYSTEM

In the world of today where technology is expanding day by day and experimentations are introducing new phase of findings, the need for security is also increasing. In this growing world, the vehicle utilization is fundamental necessity for the whole world. Similarly, defending the vehicle against theft is very much crucial. To prevent from non-licence driving and therefore causing accidents, a new system is proposed. An important and very reliable identification method is RFID license code based authentication for driving. Proposed system consists of RFID license in which license number of a particular person, adhar number. RFID number is converted in the form of RFID code along with the vehicle details like vehicle number, insurance and PUC detail. Vehicle should have a RFID code reader that is RFID scanner using arduino capable of reading the codes of license. A person, who wants to drive the vehicle, should show the RFID license in the vehicle and after verification of RFID code with the vehicle, he/she can proceed for ignition, if he is not owner of that vehicle then firstly he should get the access of drive that vehicle from owner of that vehicle else code does not match with particular vehicle, ignition will not work. This enlarges the security of vehicles and also ensures safe driving by preventing accidents. The system implementation ensures that license is mandatory to who want to drive and to avoid driving with expired license.

The vehicle security system has the following modules. RFID recognition technique, embedded main board with various components. It is important to read the whole data and get whole information about vehicle and driver. Android application sends information about vehicle and the driver using RFID card and reader if there is lack of information then vehicle don't get start.

RFID card: This is the card which contain the whole information about that card holder like license number, adhar number, RFID number, vehicle number, RFID tag, insurance and PUC of that vehicle.
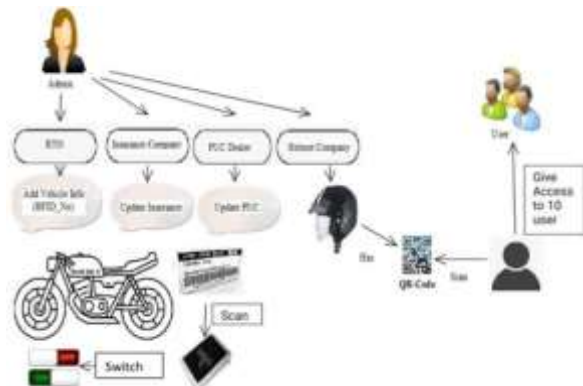

Figure 1: Architecture of System

IV. SYSTEM ANALYSIS

Web Application Model: The web application model is handled by the RTO management system. It

contains four portals RTO, Insurance Company, PUC dealer and Helmet Company

RTO: Has the ability to add the vehicle details and vehicle owner's information as well as it as the authority to add Insurance, PUC and Helmet company details. Insurance company: Insurance company portal add the details of the insurance of which the person has to apply for.

PUC Dealer: PUC portal add the details of the PUC of which the person has to apply for.

1. Helmet Company: Helmet company portal add the details of the Helmet of which the person has taken.
2. Android Model: Android model is handled by the wheeler owner .It consists of various option such as Add New user (Maximum 10 access can be given), Delete the user, Handled logs.
3. Hardware Model: RFID Tag is nothing but the License. License and Biometrics are scanned by the RFID scanner. The information about the vehicle and the cardholder is verified.

V.EXPERIMENTAL RESULTS

This system can reduce the real time problem such as the policeman will not have to stand on the roads for document verification because the documents will automatically be scanned to start the vehicle. It improvises the safety of the vehicle. If the vehicle is stolen, it becomes easy to detect the thief as the logs are maintained in this system. Also physical documents are not easy to carry every time, but in this system all the documents are maintained in the RFID Tag and that is what is the key of the vehicle.

In addition to this work, GPS is combined to mark the position of the vehicle, to keep the record of where the vehicle had travelled. This is embedded in the android application which is used by the vehicle owner.

VI. MATHAMATICAL MODEL

Efficiency issue: Information check when RFID card Scan.

Outcomes: When RFID card scan, it check all information about the accessible driver or owner and vehicle. If all data is correct and full fill the requirement to drive the vehicle then only vehicle will get start otherwise it is off.

Let S is the system; S = I, O, F, DD, NDD, Success, Failure

I = Input to the system I = username, password, add PUC, add RTO, add Insurance, add helmet, scan fingerprint, scan RFID

O = Output of the system O = update PUC, Update Insurance, Scan QR code, match RFID, match fingerprint, vehicle on/off

F = Fusion in system F = adminreg(), adminlogin(), addPuc(), addInsurance(), addHelmet(), addRto(), checkhelmateQR(), checkPuc(), checkInsurance(), checkRFID(), checkFingerprint(), vehicleAccess()

DD = Deterministic data DD = Null

NDD = Non Deterministic data NDD = I, O

Success:

Firstly admin can add the PUC, Insurance, Helmet, RTO in system. The RTO can first get the vehicle owner Fingerprint and give him special RFID tag which is like key of vehicle. When vehicle owner can scan RFID tag and fingerprint the system will check it is valid user of that vehicle or not and check automatically PUC and Insurance of that vehicle also verify the QR code of helmet to drive vehicle. After successfully scanning of above all then only the vehicle will be started else vehicle can stay off.

Failure: When sensor can get fail.

VII. CONCLUSION

This system, perform traffic management system using android App. Increasing vehicles in cities in worlds and increasing rules breaker of traffic as well as signals. That's why we work on this for maintaining data of user breaking rules. In this system also performing generating QR code for security for vehicle owner details like personal documents, vehicles documents and driving license. RTO administrator which stores all the information related to vehicle and driver and generates QR code. Traffic police scan the QR code and retrieve vehicle and license information .Also check user past details i.e. how many times he/she perform unauthorized events (like break the traffic rules),according to that generate fine. It will help the RTO offices to maintain records consistently and reduces lot of paper work and human efforts. Traffic police can easily scrutinize the vehicle documents using RFID - reader card. It is a time saver of user. It decreases the

corruption in transport department and keep the documents safely.

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