

VIRTUAL RTO FOR SMART CITY

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Abstract— In today's world, actual record of vehicle and owner of that vehicle or accessible driver is not maintained properly. It result in a theft of vehicles, increases Vehicle crime .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 increases 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. In this system we also include the fingerprint scanner with the RFID license tag. The RFID tag and the tags owner's fingerprint scanned by system if both match then only vehicle will be started otherwise it will be stay off. Check the fingerprint of vehicle driver which is also necessary with RFID tag, if RFID and fingerprint scan successfully then only the switch get ON and vehicle get started.

Keywords— *Android, IOT,RFID,QR_Code reader,web application;*

I. INTRODUCTION

In this current world where technology is growing up day by day and scientific researchers are presenting new era of discoveries, the need for security is also increasing in all areas. At present, the vehicle usage is basic necessity for everyone. Simultaneously, protecting the vehicle against theft is also very important. To prevent non-license from 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 details. 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 scan the RFID license to the vehicle and after verification of RFID code with the vehicle, 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 will not work. This increases the security of vehicles and also ensures safe driving. The system

implementation ensures that license is mandatory to who want to drive and to avoid driving with expired license. The RFID tag and the tags owner's fingerprint scanned by system if both match then only vehicle will be started otherwise it will be stay off.

II. RESEARCH BACKGROUND

In 1945, Leon Theremin invented listening device for the Soviet Union which retransmitted incident radio waves with the added audio information [6]. **Radio-frequency identification (RFID)** is a technology to record the presence of an object using radio signals. It is used for inventory control or timing sporting events. RFID is not a replacement for barcode, but a complement for distant reading of codes. The technology is used for automatically identifying a person, a package or an item.



Figure :Passive RFID Tag

Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and de-modulating a RF signal, and other specialized functions[7]. A **Passive Reader Active Tag (PRAT)** system has a passive reader which only receives radio signals from active tags (battery operated, transmit only). The reception range of a PRAT system reader can be adjusted from 1–2,000 feet (0–600 m), allowing flexibility in applications such as asset protection and supervision. 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 details. 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 scan the RFID license to the vehicle and after verification of RFID code with the vehicle, 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 will not work. This increases the security of vehicles and also ensures safe driving. The system implementation ensures that license is mandatory to who want to drive and to avoid driving with expired license. The RFID tag and the tags owner's fingerprint scanned by system if both match then only vehicle will be started otherwise it will be stay off[8].

III. LITERATURE SURVEY

Current System :

In today's world many people purchasing two wheeler, four wheeler etc as a result the number vehicles are growing with increasing problems of vehicle registration management , License registration, insurance etc. for RTO departments and to handle user and vehicle document verification by traffic police officers.To register the vehicle information ,license issues, insurance policy details is very hectic process for RTO, so to overcome all these drawbacks we developed E-RTO management system .It provide one type of user friendly environment.in this system we also Send notification to inform users about expiry date of insurance and PUC.

Advantages:

- Easy to verify all document related to vehicle.
- Online payment system is used.
- New environment to verify all documents.
- SMS system is also used.
- reduce the corruption in transport department.

Limitations:

- There is no privilege online registration for vehicle
- It is so time consuming.
- RFID reader not in machine
- No data transfer machine to cloud

IV. PROPOSE SYSTEM DESIGN

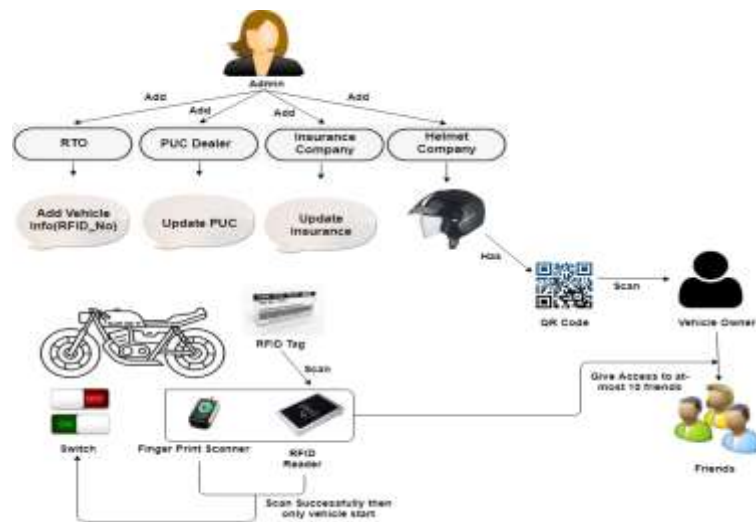


Figure: System Architecture

Admin: Admin Can Login on application and add RTO , Insurance Company and PUC dealer with Helmet Company who provide WR code on his helmets.

RTO: In RTO department they will add Vehicle with their all details like vehicle number, RFID-No and Adhar card number also added in the RTO department.

Insurance Company: Valid Insurance Company can login first. After that they will update insurance of vehicle by entering vehicle number which is already added in RTO. Entering the vehicle number insurance company able to update the insurance of that vehicle.

PUC Company: PUC Company also update the Pollution Under Control of the vehicle only after entering the vehicle number in system.

Helmet Company: Registered Helmet Company can attach the QR code to their helmet for security of their user. This QR code is scan by user.

User: This android application used by users. Users can scan the QR code on helmet which is added by the helmet manufacturing company in built of helmet. This system's access is only registered person only by user. User can give access to his friends (only 10) to handle their vehicle and helmets or delete some user from access. Deleted users cant access original users tag or vehicle. In this system we also include the fingerprint scanner with the RFID license tag. The RFID tag and the tags owner's fingerprint scanned by system if both match then only vehicle will be started otherwise it will be stay off.

Mathematical Model

APPENDIX A:

System S as a whole can be defined with the following main components.

$$S = \{I, O, P\}$$

Where,

S=System

I=Input

O=Output

P=Processing

Input I = {Input1, Input2}

Where,

Input1= Admin

Input2= User

P= { P1,P2,P3}

Where,

P1= credential

P2=>check documents

P3=>check QR code and RFID

Output O = {Output1, Output2}

Where,

{Output1}=Bike ON

{Output2}=Bike OFF

{Initial State}= initially system will be in a state where user is not enrolled, only admin of system.

{Final State}= RFID, Biometric and QR-Code is successfully verify.

Feasibility Study

A key part of the preliminary investigation that reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors. The purpose of the study is to determine if the systems request should proceed further.

Technical Feasibility:

The system being developed is economic. It is cost effective in the sense that it has eliminated the registered work completely. The system is also time effective because the calculations are automated which are made at the end of the paper or as per the student requirement. The result obtained contains fewer errors and are highly accurate as the data is required.

Economic feasibility:

The technical requirement for the system is economic and it does not use any other additional Hardware and software.

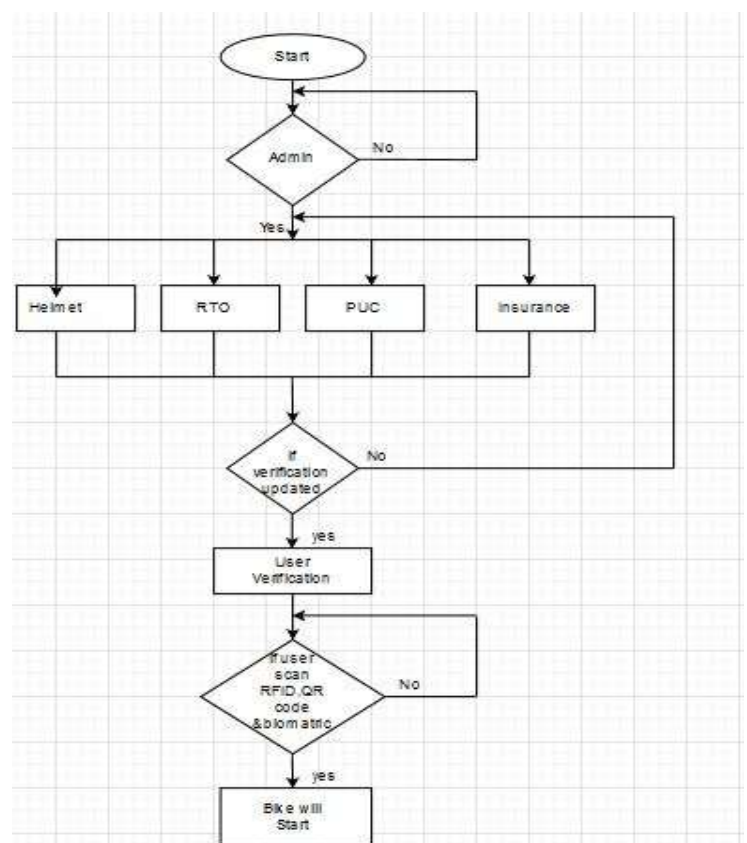
Behavioural Feasibility:

The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system.

Feasibility Assesment:

A key part of the preliminary investigation that reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors. The purpose of the study is to determine if the systems request should proceed further.

Flowchart



ADVANTAGES

- Reduce the workload of RTO officer.
- Vehicle owner no need to Carry document of vehicle.
- Reduce corruption.
- Theft prevention.
- Health Security
- Helmet compulsion

Limitation:

- Internet connection should be Available.
- Hardware damage issue will occur.
- Internet Accessibility.

Application:

- It will useful for RTO.
- Providing Security for bike User
- Save Life.

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CONCLUSION

To overcome the drawbacks of manual checking of all documents related to vehicle we are propose our system. This system will provide security using RFID to the bike user and provide helmet security. Also reduce the Workload of the RTO.

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