Real Time Bike User Document Validation and Lock System

Prof. P.P. Boraste[1] Vaishnavi Bhausaheb Bachhav[2] Santosh Shrihari Mundhe[3]
Pooja Sanjiv Lahase[4] Avinash Vinayak Chavan[5]
[1,2,3,4,5]Department of Computer Engineering
[1,2,3,4,5]NDMVPS's KBT COE Nashik, India

Abstract— In current world where technology is growing 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. In present situation vehicle checking is huge trouble to the people with regard to license, Insurance and PUC. To prevent non-licenses from driving and to reduce the number of accidents, a new system is proposed. An important and very reliable identification method is RFID license code based authentication for driving and Helmet scanning with QR code. This system consists of RFID license in which license number of a particular person, Aadhar number. RFID number is converted in the form of RFID code along with the vehicle details like vehicle number, insurance and PUC details. Vehicle should have a RFID code reader that is RFID scanner using Arduino capable of reading the codes a 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 and Helmet scanning is done with their unique code, user can proceed for ignition, if user is not owner of that vehicle then firstly he should get access of drive that vehicle from owner of that vehicle else code does not match with particular vehicle, ignition will not work. It increases the security of vehicles and also ensures safe driving by preventing accidents. The system implementation ensures that license is mandatory for who want to drive and to avoid driving with expired license.

Keywords: Arduino, RFID Code, QR Code, RFID Scanner, RFID Smart License, Fingerprint Scanner

I. INTRODUCTION

The RFID technology is capturing many areas now-a-days such as healthcare, construction, hospitality, transportation sectors etc. RFID sensors are being used in evaluating the health and performance of systems such as power facilities in buildings which helps to identify problems which may occur so as to improve them quickly and easily. RFID is an automatic identification technique which relies on data storage and trance receiving of data using devices known as RFID tags or transponders. An important and very reliable identification method is RFID license code-based authentication for driving and Helmet scanning with QR code. This system consists of RFID license in which license number of a particular person, Aadhar number. RFID number is converted in the form of RFID code along with the vehicle details like vehicle number, insurance and PUC details. Vehicle should have a RFID code reader that is RFID scanner using Arduino capable of reading the codes of license.

II. PROBLEM STATEMENT

In today's world, actual record of vehicle and owner of that vehicle or accessible driver is not maintained properly. It results in a theft of vehicles, increases road accident and crime. System should increase the security of vehicles and also ensures safe driving by preventing accidents.

III. LITURATURE SURVEY

A Survey On Unique Identity Tag Using R A Survey On Unique Identity Tag Using RFID Technology (Dr.C.PunithaDevi, T.Selvanayagi, D.Josephine Sylvia - 2017): Due to the recognition of RFID in the area of manufacturing, retail and pharmaceuticals, RFID Technology is now in contemplation for use in the various different field like pervasive processing, health care, agriculture, transport and security, license arenas.Smart Governance is about a technology to make better decision making.[1]

Automatic Check-Post and Fast Track Toll System Using RFID and GSM Module with Security System (K. Balamurugan, Dr.R.Mahalakshmi, Dr.S.Elangovan, R. Pavithra-2017) : It has Automated Toll collection and Check-Post system using Radio Frequency Identification (RFID) and Global System for Mobile communications (GSM) module.[2]

The recognition is succeeded with the guidance of passive radio frequency. Its 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. When the vehicle crosses the Toll-Plaza the reader reads the tag and the tax amount will be detected from their account balance by employing of RFID and GSM module.[2]

An Intelligent Sys an Intelligent System for Vehicle Access Control using RFID and ALPR Technologies (M. Mohandes, M. Deriche, H. Ahmadi, M. Kousa, A. Balghonaim -2016): It introduces a hybrid system for vehicle access control using RFID and automatic license plate recognition (ALPR) technologies. RFID technology is proven to provide an effective solution to different tracking and localization problems. It implements technology with ALPR to control the access of different types of vehicles during Pilgrimage seasons. [3]

Intelligent Cars using RFID Technology (Gurjot Singh Gaba, Nancy Gupta, Gaurav Sharma, Harsimranjit Singh Gill-2012): RFID system (Radio Frequency Identification), an automatic identification system relying on exchange of information through radio frequency, is emerging as one of important technologies that find its use in various applications ranging from healthcare, construction, hospitality to transportation sector and many more. It

describes about RFID technology, concentrating its use in improving performance of cars. It shows how RFID technology facilitates some new different features in the car that are helpful for one and the society.[4]

IV. SYSTEM ARCHITECTURE

A. Admin:

Admin can login on application and add RTO, Insurance Company and PUC dealer with Helmet Company who provide QR code on helmets.

B. RTO:

RTO department can add vehicles with their all details like vehicle number, RFID number and Aadhar card number of vehicle user.

C. 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.

D. PUC Company:

PUC company can update the Pollution Under Control (PUC) of the vehicle only after entering the vehicle number in the system.

E. Helmet Company:

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

F. User:

User can scan the QR code on helmet which is added by the helmet manufacturing company. User can give access to his 10 friends to handle their vehicle and helmets or delete some user from access. Deleted users can't access original users tag or vehicle. System also include fingerprint scanner with RFID license tag. The RFID tag and tag owner's fingerprint scanned by system if both match then only vehicle will be started otherwise it will be stay off.

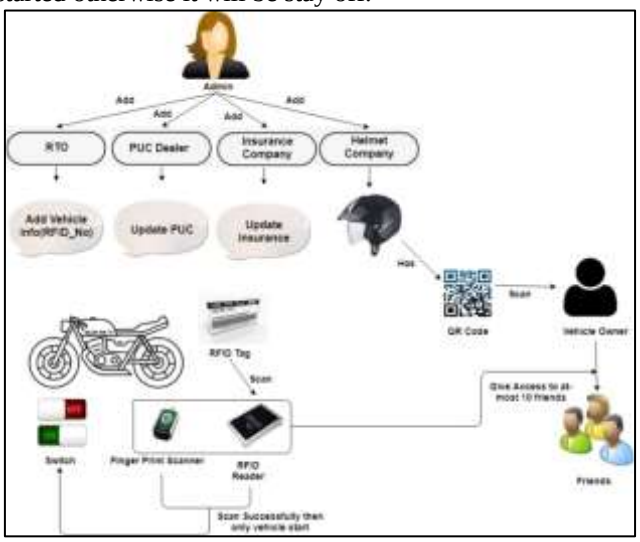

Fig. 1: System Architecture

V. EXTERNAL INTERFACE REQUIREMENTS

A. User Interfaces:

RFID tag and fingerprint scanning will be allowed system to check detail of owner and vehicle documents availability.

B. Hardware Component:

- System: Windows 7 and Upgrade version/Linux
- RAM: 4 GB
- Hard Disk: 500 GB
- CPU Speed: 2 GHz
- Switch

Fig. 2: RFID TAG [1]

[1] RFID Tag which is used to scan and only valid user can drive the vehicle using the Rfid tag. This Rfid tag is provided by vehicle owner of that vehicle.

Fig. 3: R307 FINGERPRINT SENSOR [3]

[3] R307 unique mark module is a unique mark sensor. Utilizing unique mark sensor client validation is simple and the client can store the fingerprint data in the module and can configure it one to one or one to ten mode for identifying the person. The Fingerprint Sensor can directly interface with Microcontroller.

Fig. 4: EM 18 RFID READER [3]

In this project, we use EM 18 RFID Reader to read the information or detect the information using RFID Reader.

In the RFID tag id is unique every time because it can't copy and any other person can't use the same tag.

Fig. 5: ARDUINO UNO [2]

In this system Arduino Uno used. It is a microcontroller board based on Atmega328.

In this Arduino there are 14 input/output pins. this Arduino uno microcontroller connected to fingerprint and RFID Reader to control the system. It contains everything needed to Support the microcontroller simply connect it to computer. "Uno" means one in Italian and is named to mark the upcoming release of Arduino.

C. Software Interfaces:

- Operating System: Windows / Linux.
- Programming Language: java
- Web based and application-based system.

VI. RESULT:

A. Working all modules:

In this module the both (RFID tag and fingerprint) will checked, If the user has RFID tag and identify the fingerprint then the status shows matched and otherwise the will not matched status appears as not matched. Result will show if matched then user can drive the vehicle otherwise can't drive the vehicle.in this system user can add the any person to drive the vehicle by using the license and adhar number etc.

B. Web based application

Graphical User Interface (GUI) of system:

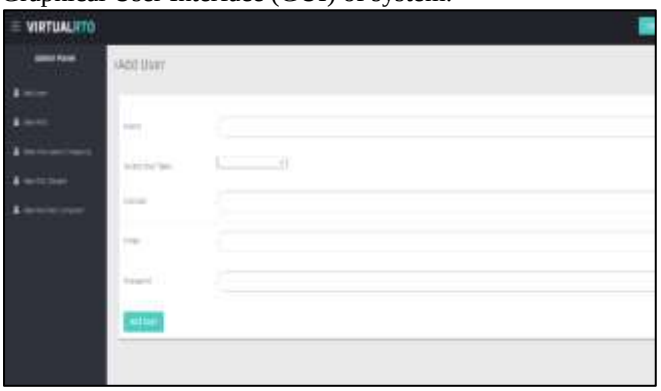

Fig. 6: Admin Module

Fig. 7: RTO Module

VII. CONCLUSION:

Thus, we have studied an application system to check the information of accessible driver or owner and registered vehicle based on RFID card using RFID module. This system also shows information of 10 accessible persons who will drive that vehicle assign by owner of that vehicle.

REFERENCE

[1] Dr.C. PunithaDevi, T. Selvanayagi, D. Josephine Sylvia "A SURVEY ON UNIQUE IDENTITY TAG USING RFID TECHNOLOGY". [i-PACT2017]
[2] Gurjot Singh Gaba, Nancy Gupta, Gaurav Sharma, Harsimranjit Singh Gill. "Intelligent Cars using RFID Technology". (June-2012)
[3] K. Balamurugan, Dr.S. Elangovan, Dr.R. Mahalakshmi, R. Pavithra, "Automatic Check-Post and Fast Track Toll System Using RFID and GSM Module with Security System".
[4] M. Mohandes1 · M. Deriche1 · H. Ahmadi1 · M. Kousa1 Balghonaim1 "An Intelligent System for Vehicle Access Control using RFID and ALPR Technologies".
[5] Identification And Verification Of Vehicle Using Rfid Technique (2, July-August, 2016)
[6] Real Time Biometrics based Vehicle Security System with GPS and GSM Technology (47 (2015) 471

