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IOT based traffic signal voilation detection and finger print based lisencing system

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ABSTRACT *-Driving license system is a very difficult task for the Government to monitor. Many projects have been developed previously that is related to GPS vehicle tracking, Anti-theft prevention, Accident detection auto informing ambulance and hospital, traffic light control system etc., but in this project, we are going to give solution to recent problem statement in road transport by implementing wireless sensor network. Fingerprint licensing system helps in profusion of traffic management system The Real-time routing of vehicle that also helps to find the person involved in criminal activities. While traffic police are in checking we can see many criminal activities in this scenario. The crime will be done by both the side (people and police). To avoid such cases, we are implementing one more portable fingerprint sensor module that is given to the traffic police which is integrated with IOT where the person license information is stored. If the person places his finger then the device will tell you whether they had a license or not. The vehicle routing concept is used for finding the person who are all involved in criminal activities.*

Keywords: ***Accident detection, conjunction control, Finger print, Lisencing Check ,Traffic control,***

1.INTRODUCTION

The rapid growth in population during years has increased the number of vehicles on road abruptly which is causing traffic management issue and the major issue with increasing traffic density is traffic signal violation which is causing major life risking accidents to occur in traffic signal junction, this human negligence is punishable by penalty and the penalty is collected only when traffic police officer collects it. But due to increasing number of vehicle this is causing major issue to receive the penalty and signal violation by driver due to negligence is continued. To overcome the problem we are developing a technology based solution where wireless technology concept is implemented to detect the traffic signal violation done by the vehicle and instant penalty is deducted from vehicle. We are also implementing a fingerprint-based licensing system where traffic police officer can scan the fingerprint with the handheld device and after scanning, it will provide the driver license details. The proposed system also uses alert system implemented on vehicles which will send the GPS location of vehicle via SMS to ambulance and 3rd person for help. Vehicle is also implemented with system that enables the vehicle to scan Driving License which is a mandatory process to start the vehicle.

2. Related work

The literature survey is carried out related to technology impact in the "E-License System", as follows. ALPANA GOPI introduces an Automation of Road Transport Department through Cellular Network, verification of the License and Vehicle documents electronically, and reduces a lot of paper work and manual efforts. NILAV MUKHOPADHYAY proposed a novel method called QR code in Smartphone. With this system, the driver goes through the verification process in a reliable and efficient manner. PRAVEENKUMAR N.HADAPAD Developed "Cross Verification of Driver and License for RTO", a system that a facilitates for RTO officers to perform verification of license and vehicle documents through an android application. SANJEEV SHELAR presents an application which will facilitate the digitization of all documents which are required for the vehicle verification.

3. Literature Survey

We surveyed the paper on international journal advanced research in electrical and communication and instrumentation engineering on the project smart vehical routing system and finger print based licensing system. Previously the system consists of a smart card readrer and finger print scanner placed in the vehicle itself,the entire system will be processed by micro-controller.while the user want to drive the vehicle,he/she has to insert the smartcard and then finger print,when both the details are matched with the existing database,and when the system identified the person is licensed.This method will improve the security scope and avoids the accidents occurrence due to the non licensing driving.

4.Objectives

- Detect the finger of the vehicle driver and display the info on the LCD display
- To design the key less vehicle using RFID technology
- Real-time routing of vehicle that also help to find the person involved in criminal activities
- Fingerprint licensing system
- The profusion of traffic management system

5. System Overview

The proposed project is mainly streamed towards the traffic signal violation and instant fine deduction technology on spot from moving vehicle directly using wireless technology, and also fine system can be paid and managed via Traffic Fine Management App which can be used both by Traffic police authority to search for existing fines on vehicle and also by the vehicle owner to pay fines and recharging the vehicle balance. Hence the system contains Lane devices which will be installed at the lane entry and exit and that device can detect and communicate with approaching vehicle towards the lane entry or exit. Smart traffic pole is placed between two lanes which monitors the vehicle for signal violation with help of lane devices. The system also includes fingerprint licensing system handed over to traffic police authority.

1] Traffic Signal Violation and Automatic Fine deduction unit:

`Considering two different lanes as Lane-1 and Lane-2 which is divided by the junction where Smart Traffic Signal pole is placed at the junction. At entry of Lane-1 the Lane-1 device is placed which works on wireless technology, as soon the Lane-
1 device detects the vehicle has entered the lane-1, it will update the vehicle details in the online cloud

server where database is maintained.Now as soon the vehicle moves to lane-2 by performing signal violation, the lane-2 will fetch details of vehicle and it will verify with traffic signal status, if the signal status was red then it is considered as signal violation and fine is deducted from the vehicle balance.Vehicle can be recharged with Traffic Fine Management App by the vehicle user.If the vehicle is maintained with zero balance during signal violation then the balance of vehicle will be in negative and it keeps going negative, this negative balance is considered as pending fines to be paid to authority, so that fines will be updated to the central online server and traffic police authority is provided with Fine management App where they can search vehicle by its number and App will display/list all the fines which are pending on that vehicle by fetching all the details from online cloud server. The vehicle owner can pay fines by recharging the vehicle balance to positive value.

2] Fingerprint based Licensing system:

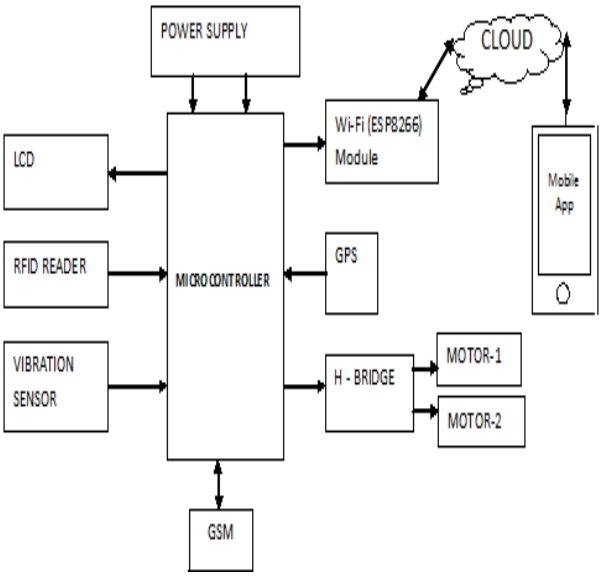
Traffic police authority will be given with handheld device which contains fingerprint scanner and LCD, which will display the details of driver from its license database when driver will scan his finger on fingerprint scanner. This module will avoid the duplicate license used to drive vehicle which can be cross- verified on spot by using this system.

3] Driving License (DL) and Learning License (LL) Validation: In this system Scanning License card is mandatory to start the vehicle, where one should scan the valid DL or LL card to start the vehicle.When scanned card type is of DL then vehicle will start immediately.When scanned card type is of LL then next DL card is to be scanned to start the vehicle, this system is to make sure LL holder will always be under guidance of DL holder during his learning period.

4] Emergency alert System:

As soon the vehicle is met with an accident an automatic emergency system will fetch the current location of the vehicle using GPS and that location is sent to the hospital unit via SMS using GSM module so that ambulance will approach the location on time and also the SMS is triggered to 3rd party who will be a known person to the driver whose number is already stored in the system.

1.vehicle unit



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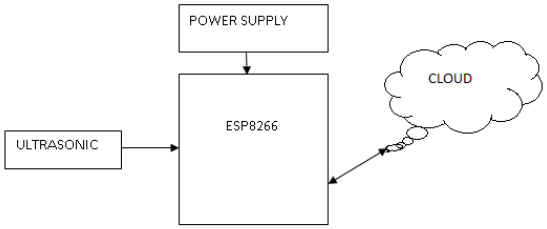
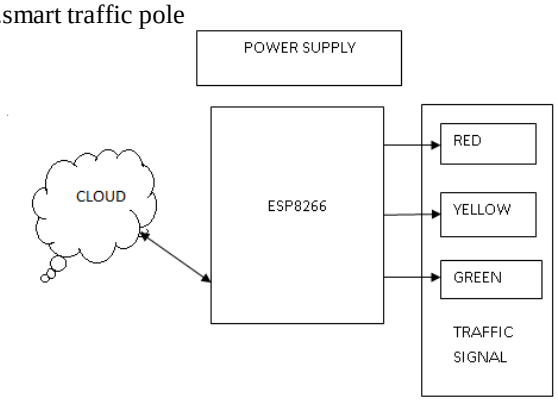
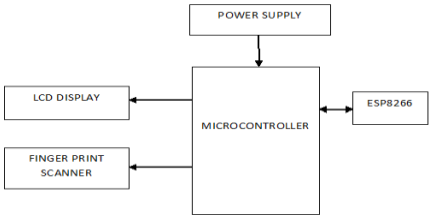
2.lane device



3.smart traffic pole



4.finger print license setup



6. Expected result

The prototype made on this finger print based licensing system would take the print of a person whose license has to be checked and would work on data provided on the data sheet by the smart search through micro controller programming and display the

The proposed system will improve the traffic management system efficiently without changing the overall existing system.

10.Conclusion

This concept will implemented by minimum modification with the existing traffic management system. Due to this traffic will iciently monitored and accident due to heavy traffic is also

ed. The licensing system which will improve the license ing process and reduce the checking time duration. So the e who has fake license are also identified.

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Based On Triangular Matching and Dynamic Time Warping

7.Advantage

1.Anti-theft of vehicle can be controlled and theft can identified in easy way.

2.Automated system for smart working.

3.Secured Transport System for population to drive safer way

4.Biometric Based Licence reduce risk in traffic management

8. Disadvantage

1.Initial investment requied for RTO to install feather.

9. Applications

1.RTO to maintain traffic conjunction

2.National Highway Traffic Safety Administration(NHTS