



African Journal of Biological Sciences



Research Paper

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DRIVING LICENSE KEY

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Article History
 Volume 6, Issue 8, 2024

Received: 19 Mar 2024

Accepted : 22 Apr 2024

doi: 10.33472/AFJBS.6.8.2024.482-486

Abstract-

India as a developing nation with the second-largest population in the world, faces significant challenges in managing its roadways due to the high density of vehicles. Two-wheelers, four-wheelers, buses, trucks, and various other vehicles crowd the roads, with nearly every household, regardless of socioeconomic status, owning at least one two-wheeler. However, this increased vehicle presence has led to a sharp rise in traffic accidents, posing a persistent danger to commuters on a daily basis. In recent years, the government has implemented stricter enforcement of traffic rules and regulations, recognizing the urgent need to address road safety concerns. Despite these efforts, many individuals continue to drive without proper licenses, further exacerbating the risk of accidents. Unfortunately, adherence to traffic rules remains a challenge in India, influenced by cultural attitudes and issues of corruption to address these challenges and improve traffic management, there is a pressing need for a more robust system to identify and penalize offenders. One proposed solution is the development of an application or system that links a user's driving license to their vehicle registration. This system would serve as both authentication and a key for their vehicle, ensuring that traffic violations are associated with the individual's license rather than the vehicle's registration number. Under this system, offenders would receive fines or penalties directly tied to their driving license, with notifications sent to their registered login ID. Until these fines are duly paid through the login ID, the vehicle would be prevented from starting, serving as a deterrent against repeated violations. By implementing such a system, India can take significant strides towards improving road safety, reducing traffic violations, and fostering a culture of compliance with traffic regulations. However, the successful implementation of this proposal would require robust infrastructure, technological innovation, and ongoing efforts to address systemic challenges such as corruption and cultural attitudes towards rule enforcement.

Keywords:-Smart Technology, Data Privacy, Cyber security Access to Transportation, Autonomous Driving

I. INTRODUCTION

India is a developing nation with a huge population, which means the roads are often packed with vehicles of all kinds. And yes 20, it's unfortunate that there's been an increase in accidents due to people not following traffic rules and even driving without a license. But you know what? It's great that the government is taking steps to address this issue. They've implemented strict traffic rules and are looking for ways to identify offenders and ensure their accountability. One proposed solution is an application/system where a user's vehicle number is registered with their driving license, making it easier to

track and penalize rule breakers. It's definitely a step in the right direction!

Traffic can be a real challenge in India with so many vehicles on the road. It's important for everyone to follow traffic rules and have a valid driving license. I agree that a strict system to manage traffic policies and identify offenders would be helpful. The proposed application/system sounds like a good step towards ensuring accountability. It would definitely make people think twice before breaking the rules [1].

II.METHODOLOGY

The hardware components involved in the invention or the system architecture that enables implementation of the computer program are –

1. Node MCU
2. 16x2 LCD display
3. I2c module
4. Relay
5. Register

Certainly! Let's explore each of these hardware components in brief:

1. NodeMCU Microcontroller:

The is an open-source development board based on the ESP8266 Wi-Fi module. It provides Wi-Fi connectivity, making it suitable for (Internet of Things) projects. You can program it using the Arduino IDE or MicroPython. Common applications include home automation, sensor networks, and smart devices.

2. LCD Display (Liquid Crystal Display):

An LCD display is used to show information visually. It can display text, numbers, and even graphical elements. Common applications include showing sensor data, system status, or user prompts. Available in various sizes and types (such as character LCDs or graphical LCDs).

3. I2C Module (Inter-Integrated Circuit):

The I2C module facilitates communication between devices using the I2C protocol. It allows multiple devices to share the same communication bus. Common I2C devices include sensors, real-time clocks, and EEPROMs. Useful for minimizing wiring complexity in projects.

4. Relay:

A relay is an electrically operated switch. It can control high-power devices (such as motors, lights, or heaters) using a low-power signal. Relays are commonly used for home automation, industrial control, and automotive applications. Example: Turning on/off a water pump using a relay.

5. Register:

A register is a small and temporary storage unit inside a computer's central processing unit (CPU). It plays a vital role in holding the data required by the CPU for immediate processing and is made up of flip-flops. It usually holds a limited amount of data ranging from 8 to 64 bits, depending on the processor architecture. Registers act as intermediate storage for data during arithmetic logic and other processing operations.

2. Basically, it's a IOT based device which gets connection of internet by the mobile hotspot.
3. User login through their driving license, and then enter the vehicle number in the android application.
4. It will authenticate Valid Driving License, Registered Vehicle, Valid Vehicle, Diving License Type, Challan on User and Challan Date. If there are any authentication steps failed then the user won't be able to turn on ignition of their vehicle.
5. A vehicle has new locking patterns, authentication is through driving license that will increase the safety and avoid duplication of key at a very strong end. Engine will ignite when the user will turn on ignition of his vehicle by his mobile phone.
6. Our server is not only for the vehicle system. It is also accessed by the traffic authorities and traffic police system.
7. As the Vehicle is connected with the driver phone system can track them
8. By this system all rules, regulation and standards for driving a vehicle is been followed. Without following the standards for driving, driver shouldn't able to start or ignite the vehicle.
9. If the user having pending challan, then user get warning for that pending challan, and if the challan is not paid within 15days then the user will not able to connect on to their vehicle.
10. The real time tracking and monitoring of the person who is driving that vehicle is possible in our system. This system will manage all driver logs digitally.
11. Original owner of that system gets notified when someone wants to login on to their vehicle.
12. On road driving penalty checking for breaking the rules is been possible with this system, also driver can pay online for driving and regulation breaking penalty.
13. Each activity of each driver such as vehicle number, which vehicle is been pickup at last, vehicles name and who is driving the vehicles is logged and reports is stored in our server and checked by our server.
14. Only Authorized driver can drive particular vehicles.
15. Driver can only operate that type of vehicle which he has license to drive like 2 wheeler or 4 wheeler.
16. This system will help government to manage records of all drivers and it increases the revenue & efficiency.

III.WORKING

Working of the Driving license key

1. In software part there is a web server, website and android application

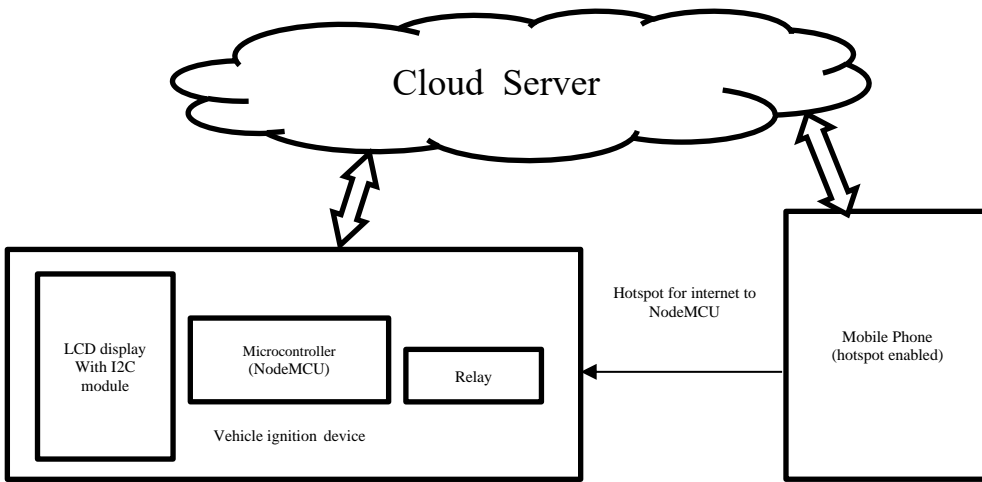


Fig no. 1 Connection Through Server

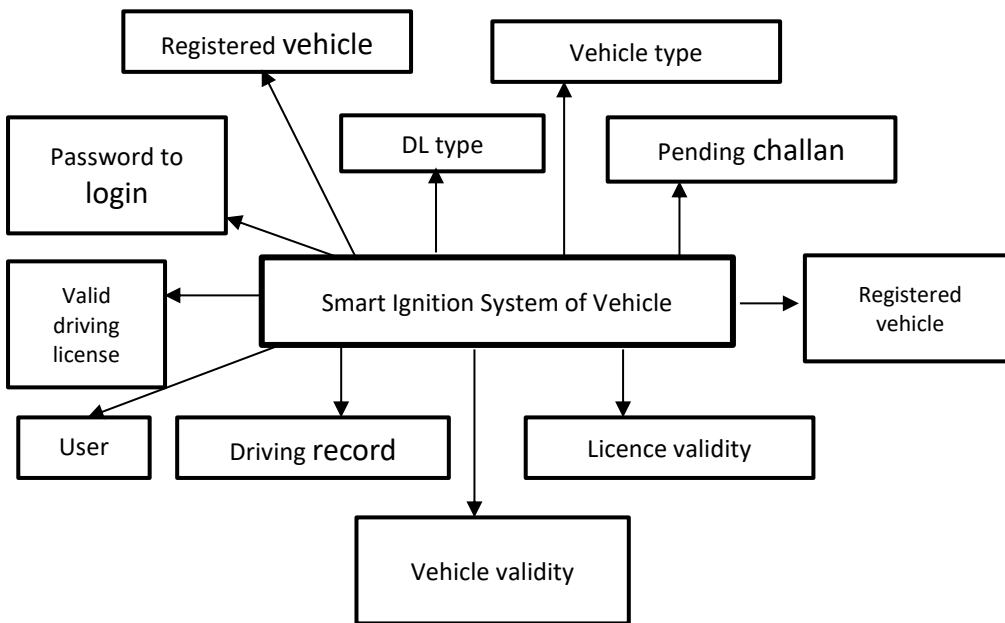


Fig no. 2 Smart Ignition System of vehicle

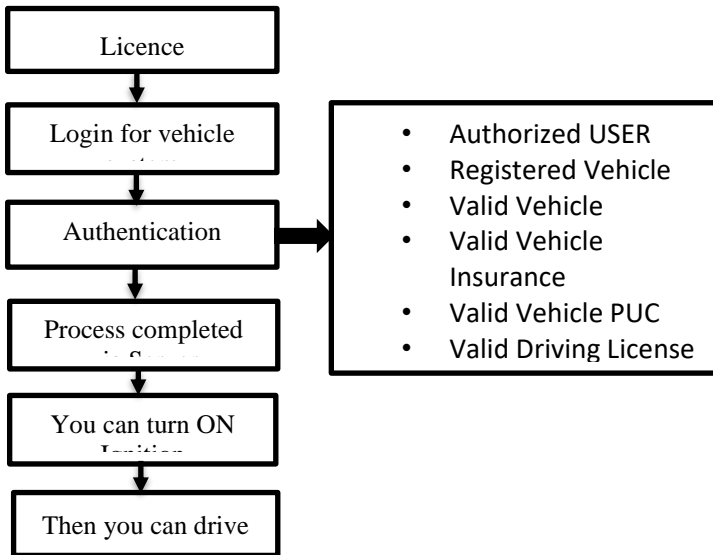


Fig no. 3 Flowchart upon the working .

IV. RESULT

The results from implementing the proposed vehicle authentication system show several key benefits and implications for traffic management and road safety.

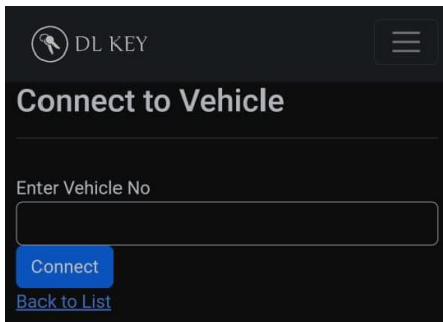


Fig no. 4 Vehicle Login

The system allows users to log in with their driving license. Once logged in, they can enter their vehicle registration number into the system via a mobile app. This feature creates a direct link between the driver and the vehicle, providing an additional layer of security and accountability.

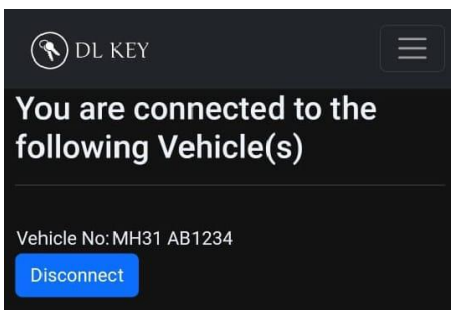


Fig no. 5 Vehicle Logout

The system allows users to log out with a single click. If the user has completed their ride or reached their destination, they can log out from the system by clicking the disconnect button.

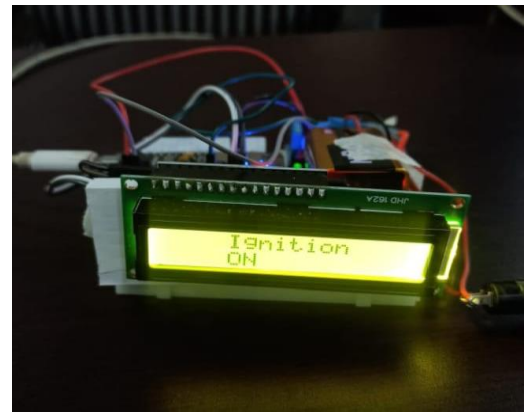


Fig no .6 Hardware For Vehicle

This device communicates with the mobile application and the system's backend, allowing for vehicle authentication and control. It connects to the vehicle's ignition system, enabling or disabling the vehicle's start based on user authentication and other checks.

Login Time	Logout Time	Vehicle no
8/21/2022 4:55:04 PM	8/21/2022 5:46:36 PM	MH31 AB1234
8/21/2022 5:45:17 PM	8/21/2022 5:50:10 PM	MH31 AB1234
8/21/2022 5:50:49 PM	8/21/2022 5:50:54 PM	MH31 AB1234
8/21/2022 5:53:36 PM	8/21/2022 5:53:43 PM	MH31 AB1234

Fig no .7 Login Logout History

The system maintains a detailed login history for accountability and auditing purposes. It tracks when users log into the system, which vehicle they log into, and when they log out. This feature is valuable for traffic authorities and system administrators to monitor usage patterns, detect unusual activity, and investigate incidents.

By linking a user's driving license to their vehicle's ignition system, the proposed system could significantly reduce traffic violations. This direct association between a person and the vehicle's operation would make it easier to enforce penalties and deter non-compliance.

The immediate result could be a decrease in traffic accidents, as drivers are more likely to follow traffic rules knowing that the ignition system could be locked due to pending fines or other issues.

By focusing on these core functionalities, the proposed system has the potential to significantly improve traffic management, reduce road accidents, and ensure greater compliance with traffic laws. However, challenges like data privacy, implementation costs, and public acceptance need to be considered for successful deployment. If these issues

are addressed, the system could offer a safer and more organized approach to managing traffic in India.

V. CONCLUSION

The proposed vehicle authentication system offers a comprehensive and innovative solution to enhance traffic management and safety in India. The system ensures compliance with traffic laws by verifying the driver's information in real-time. Drivers with pending fines or invalid licenses cannot start their vehicles, encouraging them to comply with regulations. By linking vehicle ignition to a valid driving license, the system helps prevent unauthorized driving, which is a major safety risk. This reduces the potential for vehicle misuse and illegal activities, thereby contributing to a safer road environment. With GPS tracking and login history, the system allows traffic authorities to monitor vehicles in real-time. This capability enhances traffic management, facilitates emergency response as traffic authorities can track violations and take appropriate action.

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