MINI PROJECT- II
Synopsis

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Acknowledgement

It gives us a great sense of pleasure to present the synopsis of the B.Tech mini project undertaken during B.Tech III Year. This project is going to be an acknowledgement to the inspiration, drive and technical assistance will be contributed to it by many individuals. We owe special debt of gratitude to Mr. Amir Khan Sir, Technical Trainer , for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal and for his constant support and guidance to our work.

His sincerity, thoroughness and perseverance has been a constant source of inspiration for us. We believe that he will shower us with all his extensively experienced ideas and insightful comments at different stages of the project & also taught us about the latest industry-oriented technologies. We also do not like miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind guidance and co-operation.

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ABSTRACT

WheelDefender is a cutting-edge project aimed at providing advanced security features to drivers while also ensuring adherence to traffic rules. The system is designed to monitor the driver's behavior on the road and detect any violations of traffic laws. If a violation is detected, the system automatically generates an e-challan, which is deducted from the driver's account.

The project is based on state-of-the-art technologies such as API's and computer vision, which allow for accurate detection of traffic rule violations. The system is also equipped with advanced security features that protect the driver from potential threats on the road.

WheelDefender is a comprehensive solution that not only improves road safety but also provides drivers with peace of mind. With its advanced features and intuitive interface, the system is easy to use and highly effective. Overall, WheelDefender represents a major step forward in the field of road safety and driver security.

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INTRODUCTION

Road safety is a critical issue that affects everyone who uses the road, whether as a driver, pedestrian, or cyclist. Traffic rule violations and accidents can result in serious injuries and even fatalities. Therefore, it is crucial to take measures that promote safe driving practices and ensure compliance with traffic laws.
Moreover, WheelDefender also provides drivers with enhanced security features to protect them from potential threats on the road. The system monitors driving behavior and alerts drivers to potential dangers, helping them to avoid accidents and stay safe while on the road.
In summary, WheelDefender is a comprehensive solution that not only improves road safety but also provides drivers with peace of mind. Its advanced features and intuitive interface make it easy to use and highly effective, representing a significant step forward in the field of road safety and driver security.

SOFTWARE AND HARDWARE REQUIREMENTS

- VS CODE
- POSTMAN
- MONGO COMPASS/ATLAS
- GOOGLE CHROME
- 512 MB Ram
- Window 10 and more

PROJECT DESCRIPTION

WheelDefender is a comprehensive driver security solution designed to keep you safe on the road. Our cutting-edge technology provides drivers with a suite of advanced safety features that protect you from all kinds of hazards on the road. With WheelDefender, you can feel confident and secure behind the wheel.

The project is divided into 4 modules – . The roles of the modules are as follows:

- **Know your driver**

"Know Your Driver" which includes a search option where the end user can search and see all the information about the driver, including how many challans he has received and how his driving is.

Know Your Driver" section! Providing end-users with the ability to search and view a driver's information, including their driving history, number of tickets or fines they have received, and any warnings they have received, can help users make more informed decisions about who they choose to travel with. Additionally, having feedback from previous passengers can also be helpful for users to understand how others have perceived the driver's driving and behavior.

Overall, this feature can help increase transparency and accountability in the ride-sharing industry, which can ultimately lead to a safer and more reliable transportation experience for everyone involved.

- **Driver**

We implemented a robust system for driver registration and management. By validating important details like date of birth, phone number, and driving license, you can ensure that only qualified drivers are able to sign up and use your platform and we verifying the driver from GOVT data using Invincible API. This can help increase the safety and reliability of your ride-sharing service.

The points system that we implemented can also encourage responsible driving by drivers. We provide the 300 points at the time of sign up and upon the breaking rules the point will be deducted.Deducting points for violations like reports or challans can act as a deterrent and motivate drivers to be more careful on the road. The warning message system you have put in place can also act as a reminder for drivers to drive safely and responsibly, and can help prevent accidents and incidents from occurring.

And one more incident is happening these days where teenagers or adults in the house misuse their elders' or parents' driving license ID and create an account on WheelDefender. If they do not drive safely, their parents will have to suffer for it. To prevent this, we are providing face verification which matches the photo on the driving license and the one taken recently by the driver.

- **Vehicle Owner**

We implemented additional security measures in our software to prevent users from accessing vehicle information by simply entering the number plate. Instead, you require users to enter the chassis number along with the number plate to retrieve the vehicle details.

Here we focused on concerns about the security of certain apps on the app store which allow users to obtain information about a vehicle just by entering its number plate. You are worried that if someone obtains the car owner's details through such an app, they may use it to commit a robbery.

It's true that there are apps available that allow users to obtain information about a vehicle just by entering its number plate. However, the information available through such apps is usually limited to public records, such as the make and model of the vehicle, and the owner's name and address. In most cases, this information is already available to the public through other means, such as government databases.

That being said, it's always a good idea to be cautious when sharing personal information online or through apps. It's also important to ensure that the apps you use are reputable and have strong privacy and security measures in place. If you have any concerns about the security of a particular app, you may want to consider not using it, or contacting the app's developer to ask about their security practices.

We using the API of vehicle challan so its prevent vehicle’s data from hacking by avoiding the store of data/information in the database.

- **<u>Traffic Police</u>**

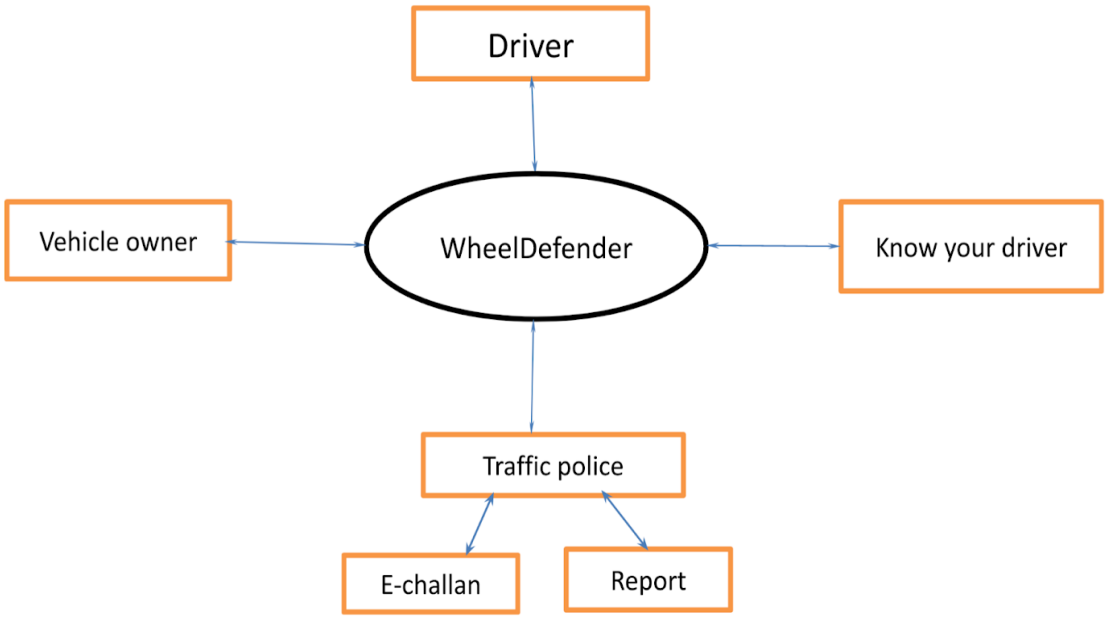
  Here the work of traffic police is divided into two parts, one is "report without fine" and the other is "e-challan with fine". In the "report without money" section, if there is any traffic violation such as over-speeding, jumping red light, or any type of traffic rule break, a report is filed without imposing a fine. However, in the "e-challan with fine" section, if a traffic violation occurs, a fine is imposed and the challan is either cut on the driver's license or issued on the vehicle number through e-challan.

As we know that the challan is always issued on the vehicle, but often the mistake is made by the driver and the driver is just doing his job, so he may not care if his owner suffers a loss or not.

We providing some rules that will indicate when to impose a challan on the driver and when to impose it on the vehicle.

1. **Vehicle**
   - **No Vehicle Documents**
   - **No Insurance**
   - **Service Period Expire**
   - **Safety Tools are not fit**
2. **Driver**
   - **Signal Violation**
   - **No Driving License**
   - **Road Safety Violation**
   - **High Speed**

DFD (Data Flow Diagram)



REFERENCES:

DOCUMENTATION

- MDN
- W3SCHOOL,JAVATPOINT

Faculty Guidelines:

Mr. Amir Khan (Technical Trainer in GLA University)

GitHub Repository link:

https://github.com/iamkrati/WheelDefender

FUTURE SCOPE

The future scope of WheelDefender is quite extensive with the addition of features like a software application that can automatically read notifications on a single click and an alcohol sensor that uses IOT technology to detect if the driver has consumed alcohol and sends a message to three emergency numbers in case of any emergency. These features can help prevent road accidents and promote safer driving practices.

In addition, WheelDefender can also provide a platform for common people to report incidents such as reckless driving by capturing a video and uploading it to the portal. The video can then be analyzed using artificial intelligence and machine learning techniques to detect the speed of the vehicle. If the speed limit is exceeded, a challan can be issued and sent to the registered number of the vehicle owner. This feature will not only promote responsible driving but also help in enforcing traffic rules more effectively. Overall, the integration of technology can revolutionize the way we approach road safety and make our roads safer for everyone.