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Traffic Dapper Mobile Application: An Online Solution

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ABSTRACT

Traffic congestion and road violations have become persistent challenges in urban areas, necessitating the development of efficient systems to address these issues. This abstract presents an overview of a mobile application called Traffic Dapper, designed to make traffic management and empower both traffic police and users. The Traffic Dapper mobile application aims to provide a comprehensive solution by enabling users, traffic police, and administrators to effectively collaborate and communicate. The application comprises three main components: the mobile app for users, the mobile app for traffic police, and the web-based administration portal.

The Traffic Dapper mobile application strives to improve traffic management and user engagement through seamless communication and digitalization. By leveraging real-time data, the application empowers users to make informed decisions, promotes transparency in law enforcement, and enables administrators to efficiently oversee the system.

Keywords: Traffic Dapper, mobile application, traffic management, police stations, complaints, fines.

INTRODUCTION

With the ever-increasing traffic congestion and road violations in urban areas, there is a pressing need for effective solutions to manage traffic and ensure public safety. In response to these challenges, a mobile application called Traffic Dapper has been developed. This application aims to streamline traffic management, enhance user engagement, and facilitate communication between users, traffic police. The Traffic Dapper mobile application offers several key features to address these issues.

First and foremost, it provides an administrative web application that enables administrators to manage users and add nearby police stations. This ensures that users have accurate and up-to-date information about the nearest police stations, allowing them to seek assistance promptly when needed. According to an investigation, one of the causes of these collisions is inadequate road infrastructure. Furthermore, it is human nature for people to resist persuasion unless they are compelled to do so by law and face severe penalties or fines [1]. Active safety systems help drivers by providing visual and/or audio warnings, in contrast to passive safety systems like seat belts and air bags that protect against collisions [2]. The technology collects information on traffic infractions and keeps track of each record. A copy of the license is stored by the system. In accordance with the circumstances surrounding the traffic infraction, the police officer may present a guilty party to the courts. The system retains all of the court records in this instance [3]. The safety and effectiveness of transportation systems will grow if traffic management system operations are improved. The lack of priority given to emergency vehicles like ambulances, firefighters, and police cars under a common traffic control system could result in the loss of lives, damage to or destruction of property, increased fuel costs, pollution, and congestion [4].

The mobile application also empowers traffic police officers by enabling them to book complaints or issue fines directly from their mobile devices. Through the application, traffic police can easily capture essential details, such as vehicle registration numbers, violation types, and supporting evidence like images or videos. This digital process eliminates the need for cumbersome paperwork and facilitates the creation of immediate digital records. The Traffic Dapper mobile application offers a user-friendly interface for the general public. Users can access real-time traffic updates, including information about congestion levels, road closures, and alternative routes. By logging into the application, users can also view fines or complaints that have been filed against their vehicles. This feature promotes transparency and allows users to stay informed about any violations or penalties associated with their vehicles.

By combining these features, the Traffic Dapper mobile application aims to improve traffic management and user engagement. It fosters efficient communication between traffic police and users, enabling prompt reporting and handling of incidents. Additionally, it enhances transparency and accountability by providing users with visibility into fines and complaints filed against their vehicles. The Traffic Dapper mobile application is a comprehensive solution for traffic management and user empowerment. By leveraging the capabilities of mobile technology, it simplifies the process of reporting and addressing traffic violations, while simultaneously providing users with real-time traffic updates and information. Through this application, administrators, traffic police, and users can collaborate effectively to create a safer and more efficient road environment.

LITERATURE REVIEW

Saed Tarapiah et al

Nowadays, the evolution in transportation technologies makes the necessity for increasing road safety. In this context, we propose the implementation of a smart onboard GPS/GPRS system to be attached to vehicles for monitoring and controlling their speed. In case of traffic speed violation, a GPRS message containing information about the vehicle such as location and maximum speed is sent to a hosting server located in an authorized office so that the violated vehicle is ticketed. Moreover, this system can also track the vehicle's current location on a Google Map, which is mostly beneficial when vehicles should follow a specific road and in case of robbery.

Nourdine Aliane et al

The present paper presents an in-vehicle system for traffic violation alert and management. The system hardware consists of a combination of an on-board computer vision system for traffic sign detection and recognition with a data recorder device for traffic violation alert and management. At present, traffic violations are only focused on three signs: namely speed limit, stop sign, and forbidden turning. The system is designed to warn drivers about potential traffic violations by emitting acoustical messages through vehicle loudspeakers.

Wickramasinghe, S.T.

With this hectic lifestyle, drivers have to spend more time and money to pay traffic fines. And with this paper-based system, Sri Lanka police are getting complicated to analyze traffic violation data. This web-based system is connected with higher police officers in Sri Lanka police department, traffic police officers, RMV officers and citizens in Sri Lanka. This system helps to connect these parties together and make traffic fine payment more easy and accurate. In addition to that, with the help of the system police officers can add/update police fine details and generate reports. The system gathers traffic violation data and keeps a track of each of the records.

Kapileswar Nellore et al

Nowadays, the number of vehicles has increased exponentially, but the bedrock capacities of roads and transportation systems have not developed in an equivalent way to efficiently cope with the number of vehicles traveling on them. Due to this, road jamming and traffic correlated pollution have increased with the associated adverse societal and financial effect on different markets worldwide. A static control system may block emergency vehicles due to traffic jams. Wireless Sensor networks (WSNs) have gained increasing attention in traffic detection and avoiding road congestion. WSNs are very trendy due to their faster transfer of information, easy installation, less maintenance, compactness and for being less expensive compared to other network options.

Xiaoling Wang et al

Traffic violation detection systems are effective tools to help traffic administration to monitor the traffic condition. It can detect traffic violations, such as running red lights, speeding, and vehicle retrogress in real time. In this paper, we propose an improved background-updating algorithm by using wavelet transform on dynamic background, and then track moving vehicles by feature-based tracking method. A complete traffic violation detection system is realized in C++ with OpenCV.

A.R.M. Nizzad et al

An efficient and effective motor traffic management is crucial for any Intelligent Transportation System (ITS) to reduce traffic violations. Scientific evidence suggests that exceeding the speed limit is the most important factor that impacts the severity, fatality and other risks associated with motor vehicle collisions. However, due to the lack of proper technology used in the transport sector, there are possibilities for traffic law violators get unnoticed.

Therefore, this study provides a solution based on Internet of Things with Image Processing technology to process the vehicle registration number to uniquely identify the vehicles that are violating traffic laws.

METHODOLOGY

By following this methodology, the Traffic Dapper mobile application can be developed, allowing administrators to manage users and nearby police stations through a web application, traffic police to book complaints or fines using the mobile application, and users to view fines or complaints through the mobile app.

1. **Requirement Analysis**: The development process begins with a thorough analysis of the requirements for the Traffic Dapper mobile application. The key functionalities include adding nearby police stations, user management through a web application, complaint and fine booking by traffic police, and user access to view fines and complaints.

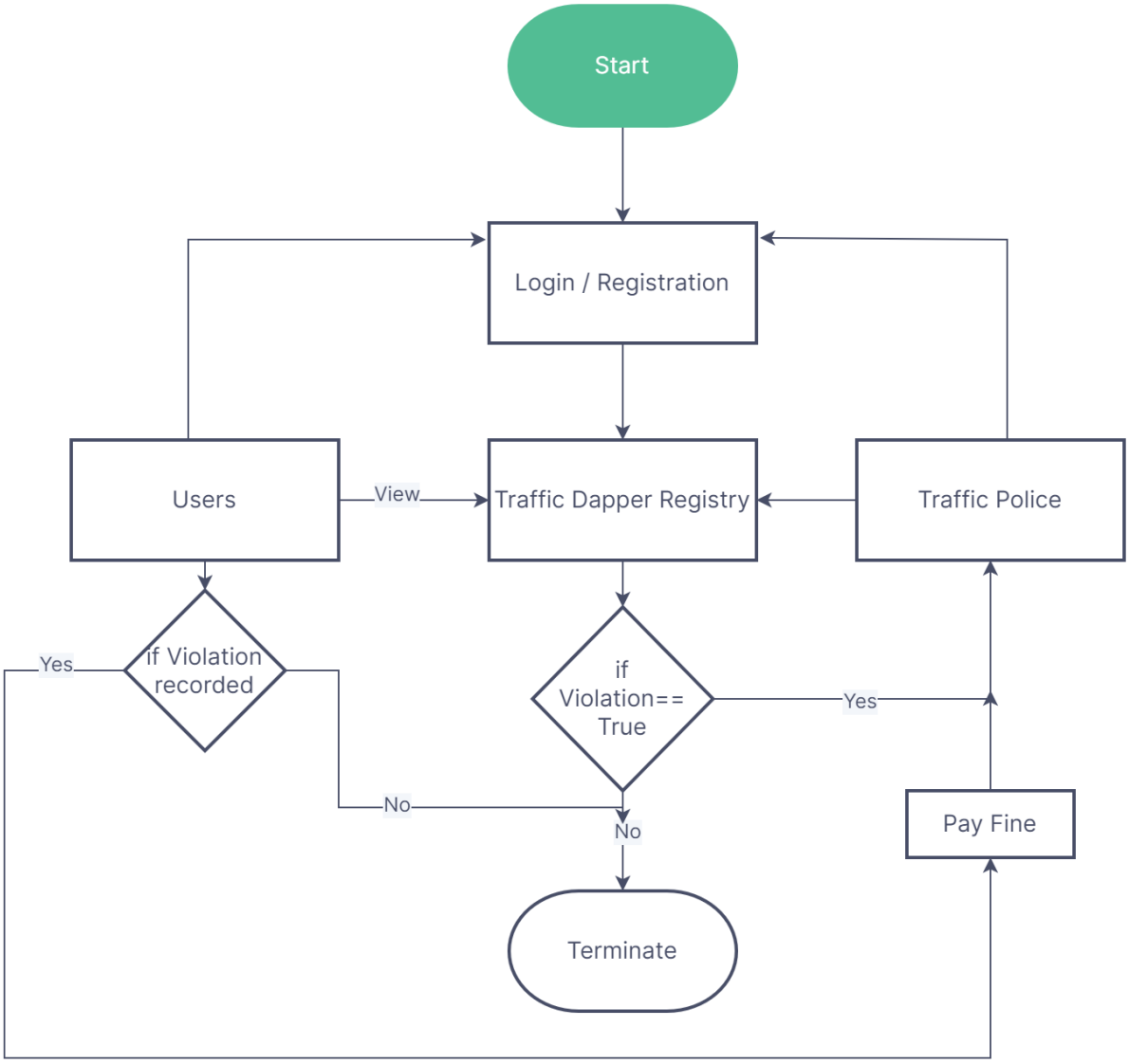
2. **System Design**: Based on the requirements, the system architecture and database schema are designed. The design encompasses the mobile application interfaces for users and traffic police, as well as the web-based administration portal.

3. **Development of Web Application**: The web-based administration portal is developed using suitable web technologies such as HTML, CSS, and Asp.Net.

4. **Development of Mobile Applications**: The user and traffic police mobile application is developed on the platform using Android.

5. **Testing and Quality Assurance**: Rigorous testing is performed to ensure the functionality, performance, and security of the Traffic Dapper mobile application.

Flow Structure of Traffic Dapper Application



Results and Discussion

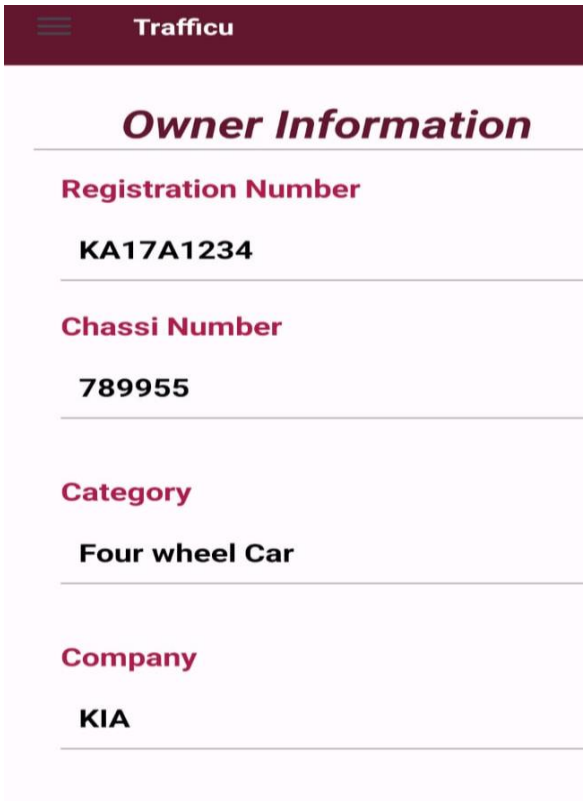


Figure 1: Owner Information

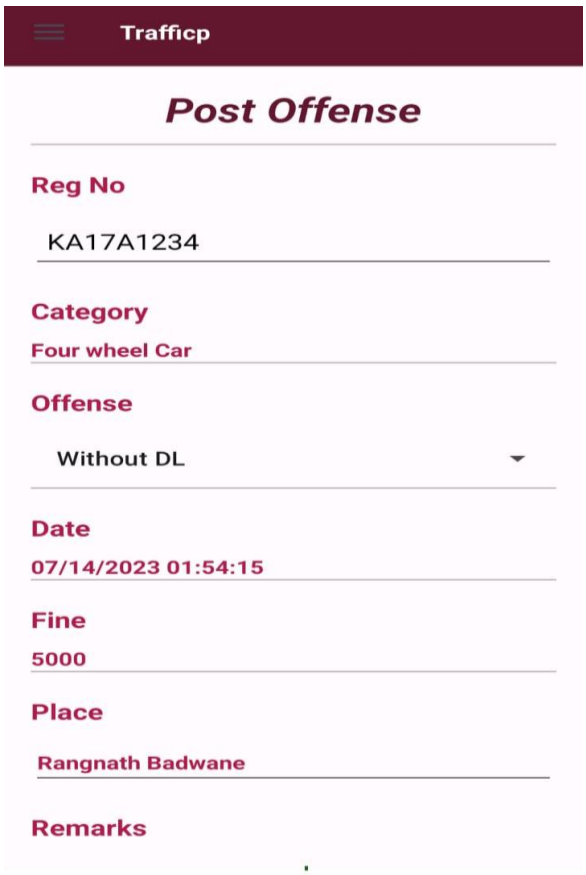


Figure 2: Post Offence

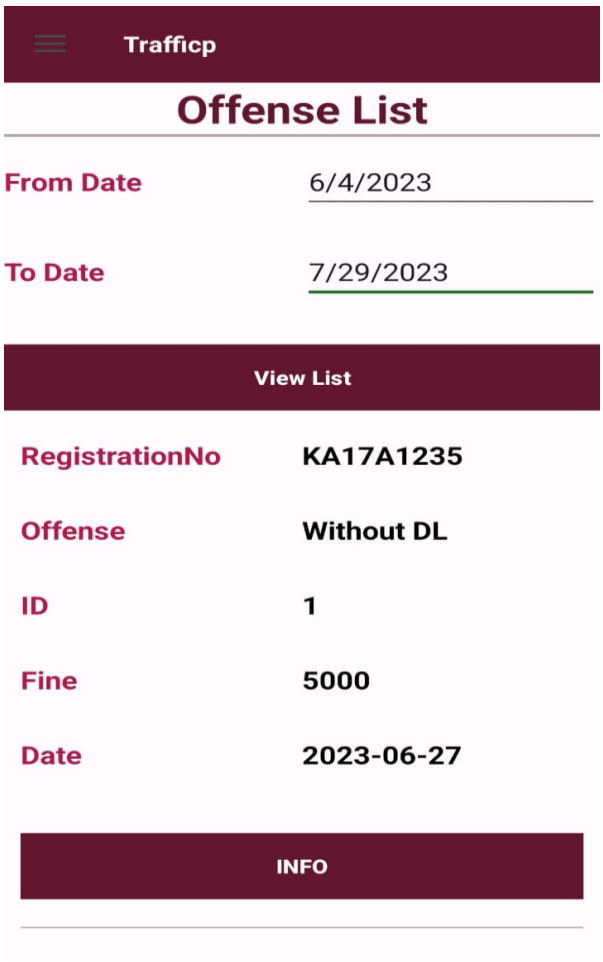


Figure 3: Offence List

Figure 1: The owner information is shown and added by the administrator on a web panel. Once the administrator adds all the specifics of the owner information pertaining to the car, the police and users of the app will be able to see it.

Figure 2: Shows the posting of an offence. After the admin adds the police to the app, the police can obtain the login information. Once logged in, they can choose from a variety of options to upload the offense's specifics. In Figure 2, the police uploaded the offense's specifics as well as the vehicle category and the offense's specifics.

Figure 3: Once the police have uploaded the information of the offence, it can display the list of offences here. Both the police and users can browse the list using the app.

CONCLUSION:

The Traffic Dapper mobile application presents a comprehensive solution for enhancing traffic management, user engagement, and accountability. With its integrated features, the application effectively addresses the challenges associated with traffic congestion and road violations. The key functionalities, including the ability for the admin to add nearby police stations and manage users through the web application, enable seamless communication and collaboration among users, traffic police, and administrators. The mobile application empowers traffic police officers by allowing them to efficiently book complaints or issue fines against vehicles directly from their mobile devices. By capturing relevant details and supporting evidence, traffic police can streamline the process, eliminating paperwork and creating immediate digital records. This digitalization improves the efficiency of law enforcement and enhances accuracy in maintaining records.

The Traffic Dapper mobile application serves as a powerful tool for traffic management and user empowerment, bringing efficiency, transparency, and convenience to all stakeholders involved in the process.

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