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Smart Vehicle Service and Maintance Tracking System

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Abstract: ***The Smart Vehicle Service and Maintenance Tracking System aims to improve the efficiency and reliability of vehicle service management. Traditional manual methods take a lot of time and are prone to errors, which limits effective data handling. The proposed system offers a centralized digital platform to manage vehicle service records, including service history, spare parts usage, and technician details. It reduces manual work, improves data accuracy, and streamlines service operations. Automated notifications keep customers informed about service schedules. The system enhances overall service quality, transparency, and operational efficiency.***

Keywords: Vehicle Service Management, Maintenance Tracking System, Digital Platform, Service Automation, Data Management, Customer Notification

I. INTRODUCTION

The number of vehicles is growing, creating a need for better vehicle service management. Traditional methods rely on manual records, which are time-consuming and often contain errors. The Smart Vehicle Service and Maintenance Tracking System offers a digital platform to store and manage vehicle details such as service history, spare parts, and technician information. It increases accuracy and decreases manual work. The system also sends notifications to customers about service updates, vehicle pickup with bill details, and reminders before the next service date. This improves service quality and customer satisfaction.

II. SYSTEM ANALYSIS

A. *Existing System*

Most service centers maintain vehicle service records using registers or Excel sheets. These methods are not efficient for handling large amounts of data. There is no centralized system to keep the complete service history for each vehicle, making it hard to track past records. Details of spare parts replaced and technicians are often not recorded correctly. Updating service records after each service is slow and error-prone. Additionally, there are no automatic reminders for upcoming service, which can result in missed maintenance schedules

B. *Proposed System*

The proposed Smart Vehicle Service and Maintenance Tracking System offers a centralized digital platform that efficiently manages all vehicle service activities. It keeps complete vehicle details, service history, spare parts information, and technician records in one system. The system automatically updates service data after each service, reducing manual work and mistakes. It also sends notifications to customers about service status, vehicle pickup with bill details, and reminders for upcoming services. This system improves data accuracy, saves time, and enhances overall service management and customer satisfaction.

III. DEVELOPMENT ENVIRONMENT

A. *Hardware Requirements*

- Processor : Intel i5
- RAM : 8 GB
- Hard Disk : 256 GB

B. *Software Requirements*

- Operating System : Windows / Linux
- Frontend : HTML, CSS, JavaScript / React.js

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- Backend : Node.js
- Database : MongoDB
- Tools : VS Code, Web Browser

IV. MODULE DESCRIPTION

A. The User Management

The User Management module allows customers to register and log in to the system. It securely stores user details for easy access. Customers can submit service requests through this module, helping to manage user information efficiently

B. Vehicle Management

The Vehicle Management Module stores vehicle details such as number, brand, and model. It maintains records for each vehicle in the system. The stored information is easy to retrieve when needed, ensuring proper tracking of all vehicles.

C. Service Management

The Service Management Module records all service-related details, including service dates, spare parts used, and technician information. Service history is updated after each service to maintain accurate and complete records.

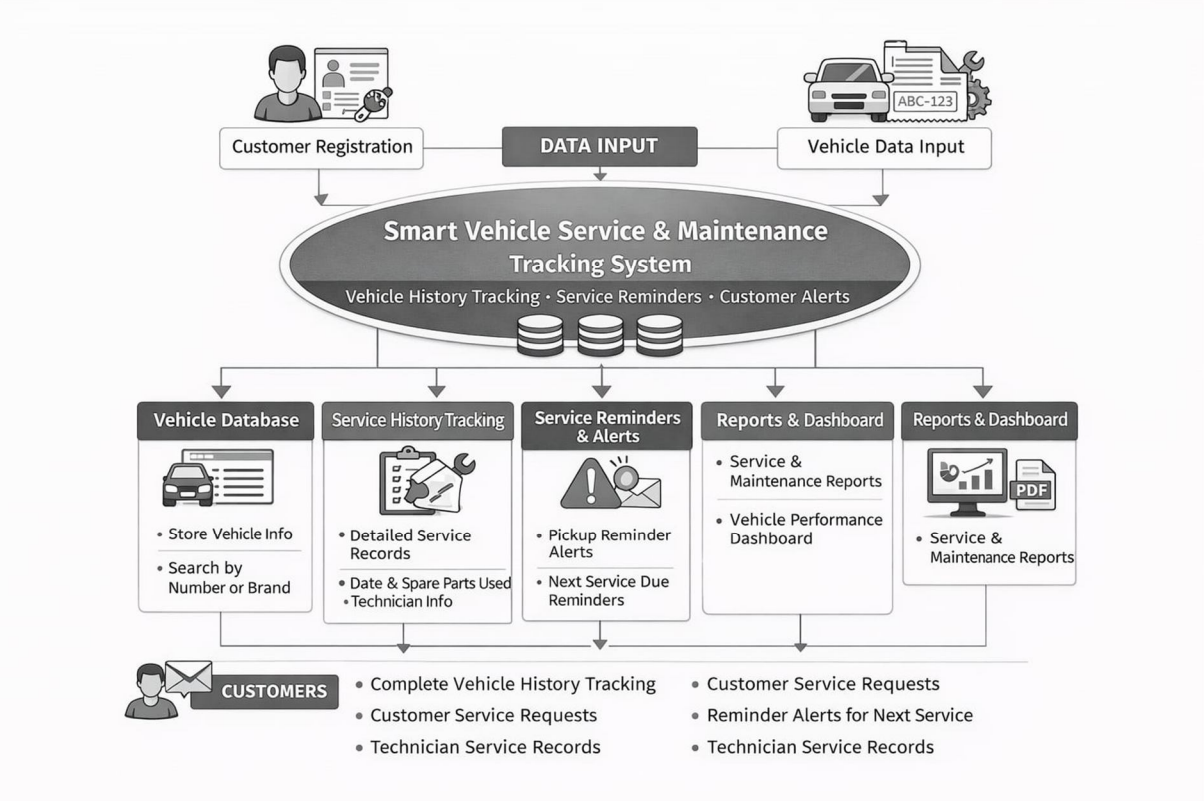
D. Notification

The Notification Module sends alerts and updates to customers. It informs them about vehicle pickup with bill details and sends reminders before the next service date. This improves communication and customer satisfaction.

E. Admin

The Admin Module manages the overall system. It handles vehicle, service, and technician details. The admin can easily update and monitor all records, ensuring the system runs smoothly and effectively

V. SYSTEM ARCHITECTURE



VI. CONCLUSION

The Smart Vehicle Service and Maintenance Tracking System provides an effective and reliable solution for managing vehicle service records digitally. It reduces manual work, increases service transparency, and enhances customer experience through automated alerts and reminders. The system is scalable and can be expanded with more features in the future.

VII. FUTURE ENHANCEMENT

The Smart Vehicle Service and Maintenance Tracking System can be improved with mobile application support, online payment integration, and GPS-based service center tracking for greater accessibility and convenience.

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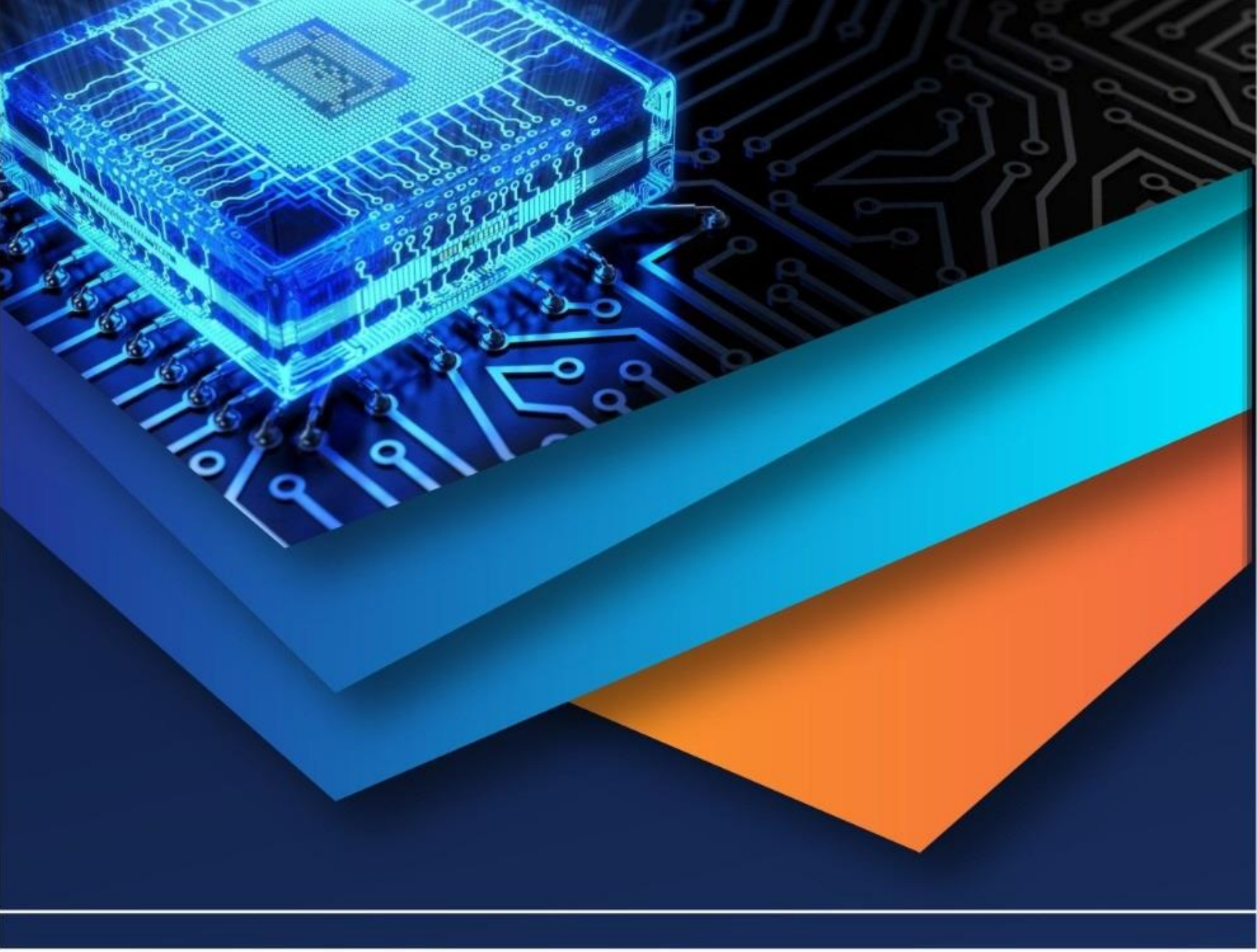

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