iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** V **Month of publication:** May 2023

DOI: https://doi.org/10.22214/ijraset.2023.52141

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue V May 2023- Available at www.ijraset.com

Automobile Service Center Management System

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Abstract: ***The Garage Management System allows the user to keep track of all garage operations. It is a web-based tool that allows the user to manage the garage's stock, check for repair estimates, and schedule deliveries, among other things. It keeps track of the vehicle's service history as well as the time spent in the mechanic's shop. It also keeps track of the car components inventory. It will keep track of all cars that have been maintained and will be able to send service reminders to clients depending on the service dates. Admin access to the Garage Management System is restricted. The administrator will be able to keep track of various users such as supervisors, receptionists, and principals, among others. It's a smart online Web App that can help garage owners keep track of events that occurs in garage. Customers are served by garage management system based on their servicing requirements. The major goal of this initiative is to eliminate manual labour.***

Keywords: SIPNA COET, GARAGE MANAGEMENT, PHP, MYSQL, HTML, WEB APP

I. INTRODUCTION

In the current technological era, information is so vital for the day-to-day decision of businesses and alike. Mobile, cloud, stock exchanges, commodity exchanges, financial institutions are all connected through networks that are the integral part of message communication in the world now and in the future. The World Wide Web (WWW) is a techno-social system to interact with humans based on technological networks. The use of the web is growing at a phenomenal rate across the globe. The reason for the Web's success is largely due to its simplicity for use and information retrieval. Its nature of simplicity and usability makes the web to be preferably used in any sector for management and transaction of information. For the full functioning of the web, it requires cooperation between information providers and users. As a basis for designing complex information systems the Web-technology has matured a lot over the last few years.

The technology is still fairly simple with a number of unsolved problems, but the advantages and potentials are so significant that most of today's design of information systems to some extent is based upon web-technology. This Automobile Service Centre Management System project enables the user to keep track of all the activities of a service centre. It is a web-based application which helps the user to manage the stocks available in the garage, check for repair estimates, delivery etc. It maintains vehicle service history and mechanic shop time. It also manages the inventory of the vehicle parts. It shall maintain the database of all the vehicles that are serviced and shall be able to send service notification to customers based on the service dates. The Automobile Service Centre Management System has secured access to admin. The admin shall be able to keep track of different users like supervisor, receptionist, principal etc. It is a smart web UI which could assist the garage owners to keep track of all the events in the garage.

II. OBJECTIVE

The objective of this project is to develop an Automobile Service Centre Management System that provides an efficient and effective way to manage the different aspects of a service centre.

The system aims to automate the processes of managing customer information, vehicle information, inventory, and employee management, which will enable service centres to enhance their productivity, reduce errors, and improve customer satisfaction. The system is designed to be user-friendly and easy to use, allowing service centre staff to focus on providing high-quality services to customers. The system is also scalable, allowing service centres to manage their operations effectively as they grow. The system is built using a web-based platform, making it accessible from anywhere and at any time, making it easier for service centre staff to manage their operations remotely.

Objectives:

1) To investigate system study and analysis of the prevailing systems so on determine the wants needed for the ASCMS.

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2) To design an Automobile service centre Management system using open tools like GPS to watch the situation of the service centre who provide the requested services and user who want to require service, and therefore the admin who control and monitor all activity happening between user and repair provider (i.e., garage).and display information.
3) To implement the ASCMS.
4) To check and validate the system.

III. IMPLEMENTATION

A web-based vehicle management system is a software application designed to help individuals or businesses manage their vehicles online. The system typically provides a central dashboard that allows users to track vehicle information, maintenance schedules, fuel consumption, driver information, and other data related to their fleet of vehicles.

This system is used by two user and admin. They can easily use this system because it is user friendly. This system is web-based which is written in PHP and SQL. The main purpose of this system is to make the vehicle management system easy. Firstly, all the users must log in to the system before entering the system. Admin can access to all the system, staff and user cannot have access to some of the page. The administrator will add the drivers and vehicles. The User Can Register themselves and given them the username and password. Once they get the username and password, they can change the password. Moreover, they can book vehicles for their use.

A. *Module*

The modules involved are:

1) *Admin*

Admin will have a separate login to maintain the account. The admin will be maintaining the whole system of vehicle management system and view all the process which is done by this web system.

2) *Add Driver*

Admin will be adding the Driver details whose are worked in particular company. Those details will be shown like Driver name, Driver phone number, Driver Gmail, Driver address, Driver gender.

3) *Add Vehicle*

Admin will be adding the Vehicle details which are used by the company drivers. Those details will be shown like Vehicle Reg No, Vehicle Model No, Reg Date, Vehicle Colour, Vehicle Photo.

4) *View Bookings*

Admin Can view the bookings and can confirm or reject a particular booking and assign a driver and vehicle for the customer.

5) *Add Cost Details*

Admin Can Make the Payment Confirmation and generate the bills by adding the cost details like Fuel Cost, Oil Cost, Equipment Cost and total cost of a bill.

6) *View Complaints*

Admin can view the complaints sent by the customers and can also reply to them through complaints page.

7) *User*

The admin shall give access for specific modules for the other users. The users shall login and manage with the activities of the system.

8) *Register & Login*

User should register his account in this application to use this application services. Those details will show like user name, user phone number, user email. He will be creating username and password to login his account. The user can be authenticating in this login session.

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ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue V May 2023- Available at www.ijraset.com

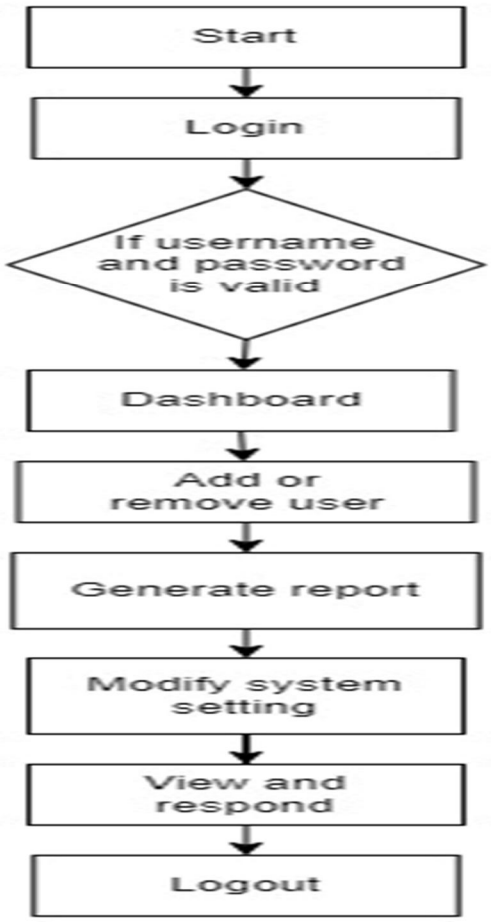
9) View Drivers

User can be viewing the driver details which are added by the admin of the company. User can Book the Vehicles according to the drivers available.

10) Filing a Complaint

User Can File a complaint against any discomfort happened to them and the company can able to view the complaints and take a proper resolution. This can Enables the Company Value.

IV. DATA FLOW DIAGRAM



Flow Chart Description-

1) *User login:* The user logs in to the online garage management system using their credentials.
2) Dashboard: After logging in, the user is directed to their dashboard where they can see a list of all their vehicles and their status (in the garage, under repair, ready for pickup, etc.).
3) *Add a Vehicle:* The user can add a new vehicle to the system by filling out a form with the vehicle's make, model, year, and VIN.
4) *Schedule Repair:* The user can schedule a repair for one of their vehicles by selecting the vehicle from the dashboard, choosing the type of repair needed, and selecting a date and time
5) *Assign Mechanic:* The system assigns a mechanic to the scheduled repair based on availability and expertise.

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6) *Update Repair Status:* The mechanic updates the repair status in the system as they work on the vehicle (e.g., "diagnosing the issue", "ordering parts", "in progress", "waiting for pickup", etc.).
7) *Notify user:* The system sends notifications to the user when the repair status changes, and when the vehicle is ready for pickup
8) *Payment:* The user can pay for the repair online using a credit card or other payment method.
9) *Analytics:* The system collects data on repairs, feedback, and other metrics, which can be analysed to improve the efficiency and quality of the garage's operations.
10) *Admin panel:* The garage owner or manager can access and admin panel to manage users, mechanics, and other aspects of the system.
11) *Reports:* The admin can generate reports on repairs, revenue, and other key performance indicators to track the garage's performance over time.

Overall, the online garage management system streamlines the process of scheduling and managing vehicle repairs, improving customer satisfaction and operational efficiency.

V. RESULTS

The Home page of the platform is shown is figure 1.

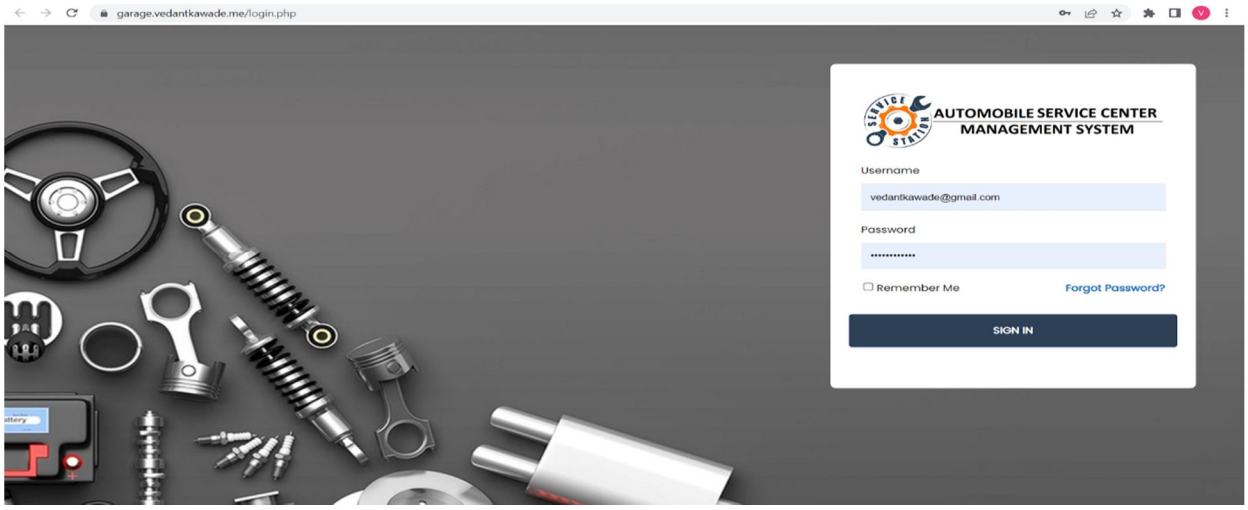

Figure 1 - Home page

The Dashboard page of the platform is shown in figure 2.

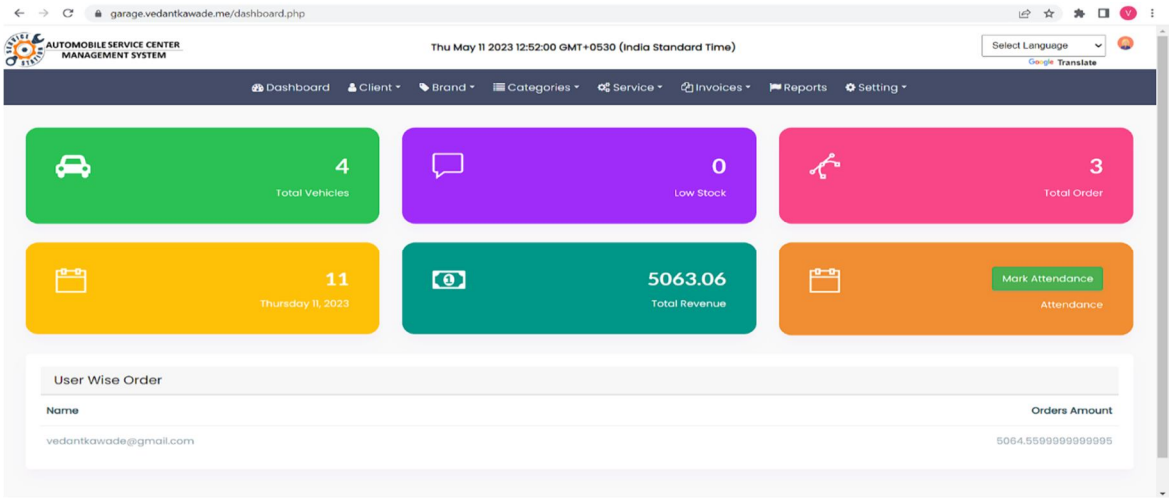

Figure 2 – Dashboard page

The Client page of the platform is shown in figure 3.

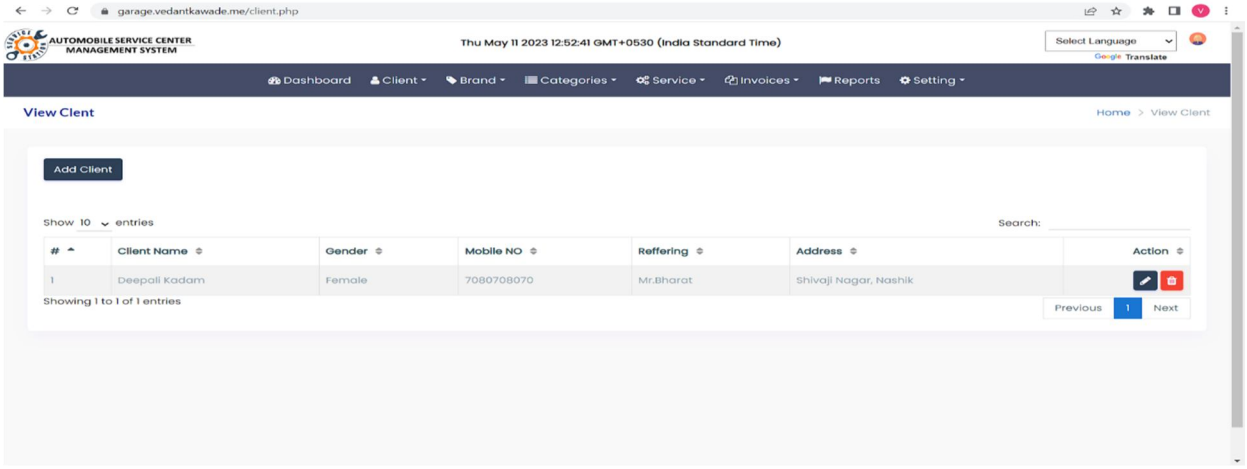

Figure 3 – Client Page

The Brand page of the platform is shown in figure 4.

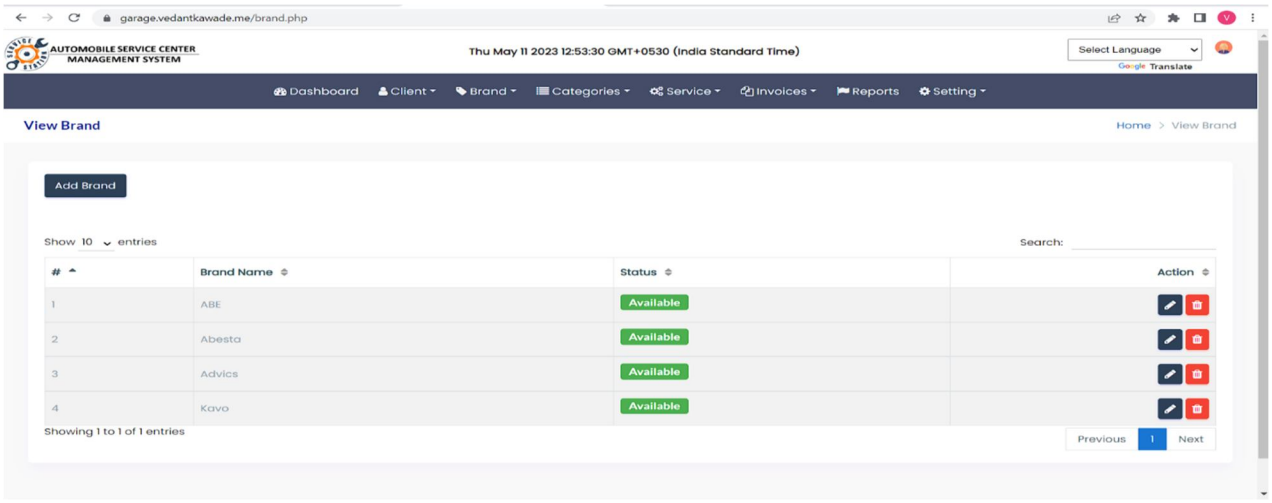

Figure 4 – Brand Page

The Categories page of the platform is shown in figure 5.

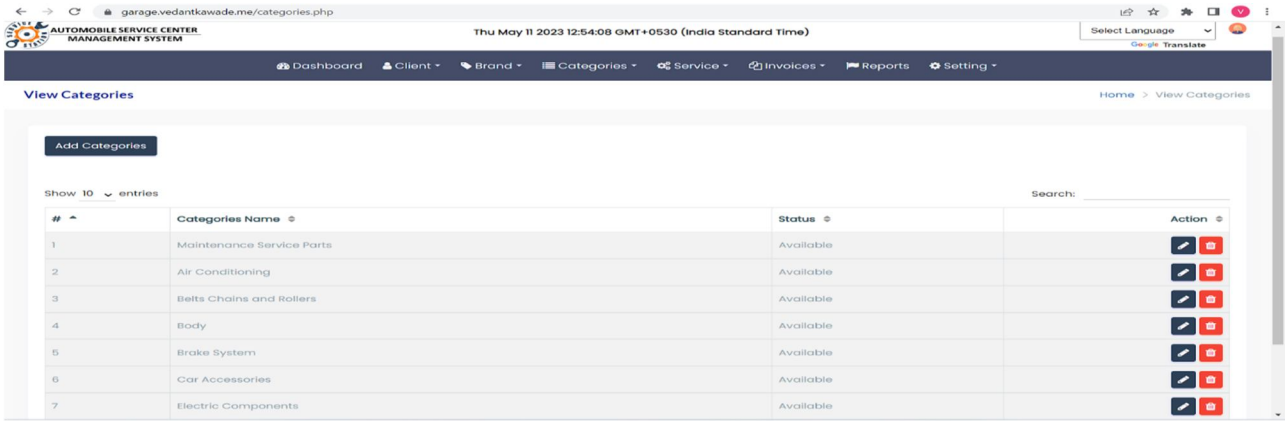

Figure 5 – Categories Page

The Service page of the platform is shown in figure 6.

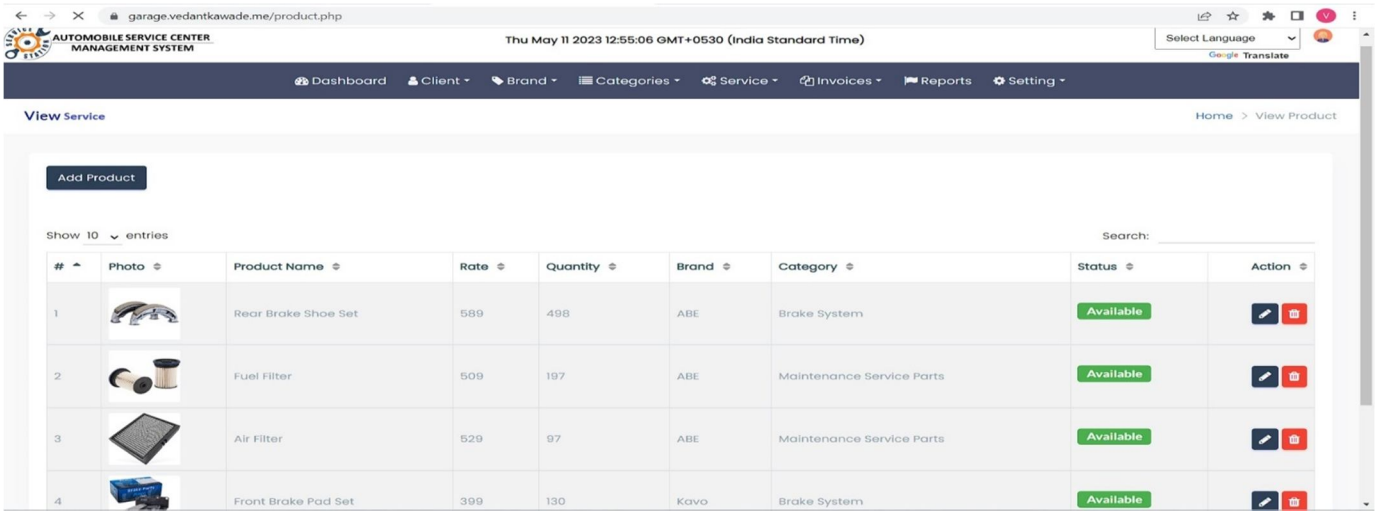

Figure 6 – Service Page

The Invoice page of the platform is shown in figure 7.

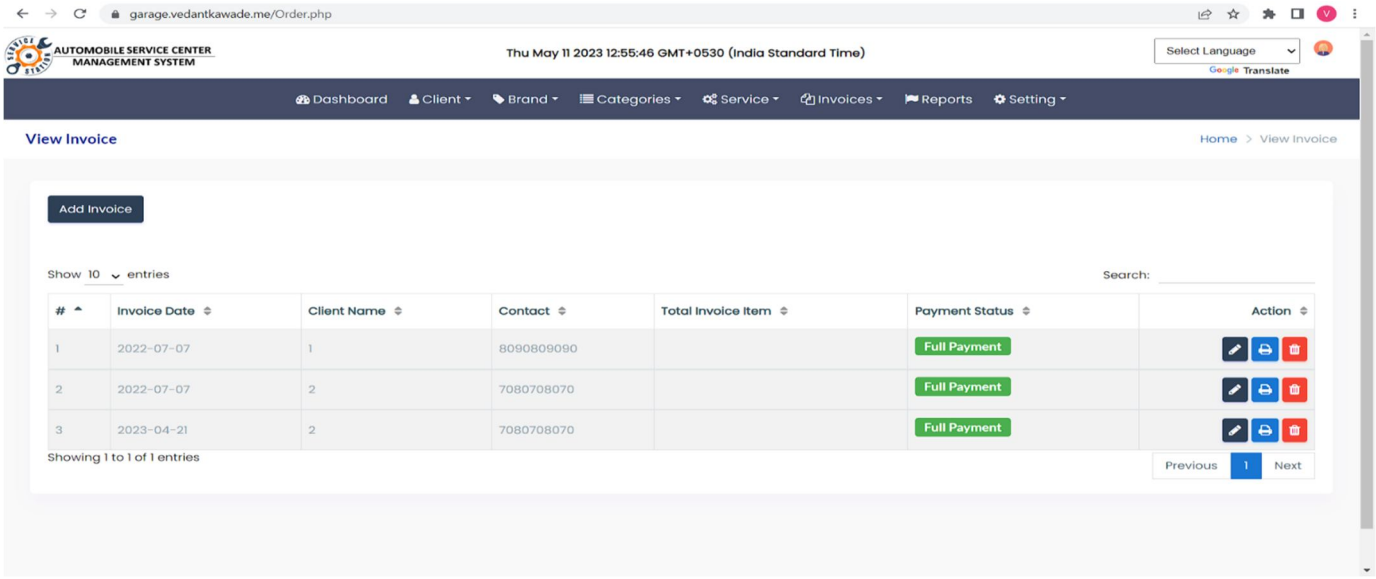

Figure 7 – Invoice Page

The Data Wise Report Management page of the platform is shown in figure 8.

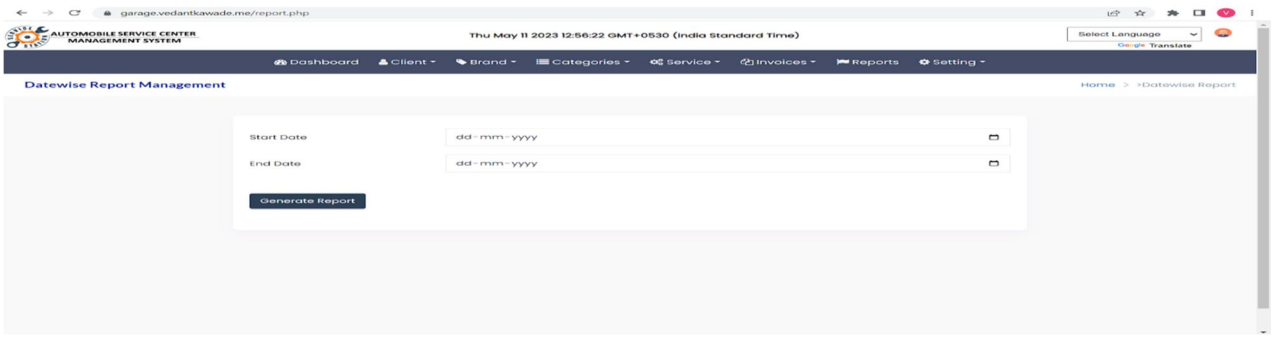

Figure 8 – Date wise Report Management Page

VI. FUTURE SCOPE

Here are some potential future enhancements for a Vehicle Management System:

1) *Integration with IoT Devices:* The system can be enhanced by integrating it with IoT devices such as GPS, telematics, and sensors. This integration can provide real-time tracking of the vehicles, monitor vehicle performance, and detect any faults or issues with the vehicles.
2) *Artificial Intelligence (AI) and Machine Learning (ML) Integration:* The system can be enhanced by integrating AI and ML technologies. This can be used to provide predictive analytics, optimize vehicle routes, and automatically schedule maintenance based on vehicle usage patterns.
3) *Mobile App Integration:* The system can be enhanced by developing a mobile app that allows users to make rental requests, check vehicle availability, and receive notifications. The app can also be used to track rental history and provide feedback.
4) *Blockchain Integration:* The system can be enhanced by integrating blockchain technology to improve security and transparency. This can be used to track vehicle history, maintenance records, and transactions.
5) *Autonomous Vehicles:* The system can be enhanced to support the integration of autonomous vehicles. This can include the ability to remotely monitor and control autonomous vehicles, as well as automated scheduling of maintenance and charging.
6) *Car-sharing:* The system can be enhanced to support car-sharing services, allowing multiple users to share a single vehicle. This can include features such as dynamic pricing, trip optimization, and automated payment and billing.

VII. CONCLUSION

From the existing manual-based garage information management system it is identified that different problems concerning data and the functional business processes have been occurred. Based on the information obtained from the different respondents, participants and document review, it is identified that in the existing manual system different problems exists. i.e.

1) Duplication of records, incompleteness of record on the different formats, imprecise data records and poor quality of data.
2) The business processes of the manual system is time consuming and tiresome, data registration, poor data management, and difficult data retrieval and slow processing claims of members requests.
3) Inconsistent data definitions, transaction of data between actors make difficulty in making timely decisions.

This “Automobile Service Centre Management System” benefits the automobile industry as it makes Garage Bookings more convenient for users, provides a better interface, and saves time by booking an appointment in advance. To address all of the shortcomings of the current garage servicing system, this system is necessary, in which the complexities of the management process for automobile services are minimized for the convenience of automobile owners. This technology allows owners of automobiles to receive regular updates on their vehicles' services. This website makes automobile maintenance simple.

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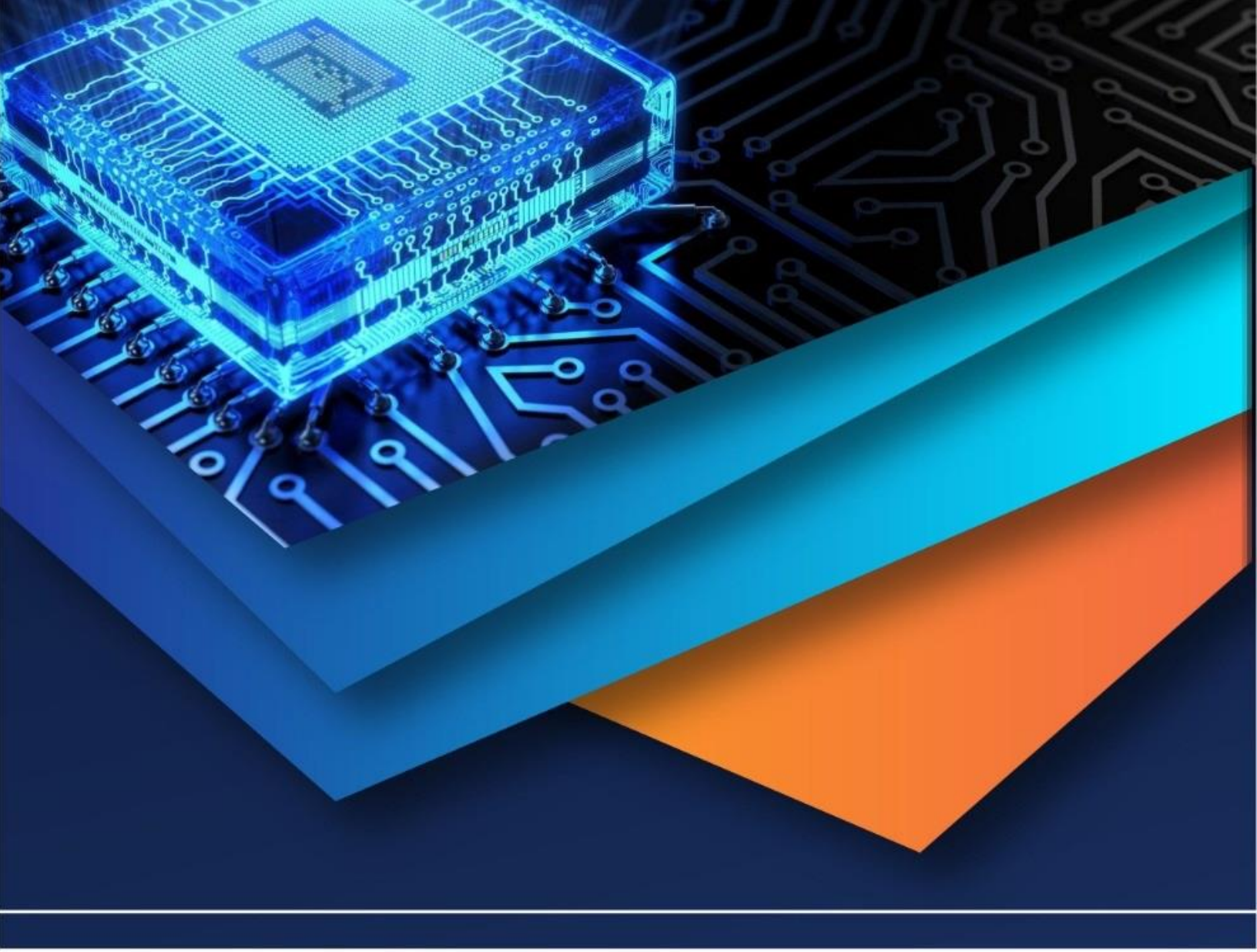

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