KANNADA SANGHA PUNE

KAVERI

GROUP OF INSTITUTES

KAVERI COLLEGE OF ARTS SCIENCE & COMMERCE PUNE

Project Report

On

“Electric Vehicle Service And Maintenance Portal”

Submitted By: Parth Kudhale (79), Atharva Talekar(50)

KANNADA SANGHA PUNE'S

KAVERI COLLEGE OF ARTS, SCIENCE & COMMERCE

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CERTIFICATE

This is to certify that Mr. /Ms. _____,

SYBBA(CA) Sem - IV has successfully completed his/her Project Work/ Field Work /

Internship/On Job Training titled _____

as a part of **CA-405 Project** as prescribed by Savitribai Phule Pune University for academic year

2024-25

Seat No: _____ Date: _____

Project Guide Course Coordinator Principal

Examined by

Internal Examiner

Name_____

Signature_____

Date_____

External Examiner

Name _____

Signature_____

Date_____

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Introduction: As the world shifts towards sustainable and eco-friendly transportation, electric vehicles (EVs) have emerged as a viable alternative to traditional internal combustion engine vehicles. However, the adoption of EVs brings with it a new set of challenges and opportunities, particularly in the realm of servicing and maintenance. The Electric Vehicle Servicing and Maintenance Portal is designed to address these challenges by providing a comprehensive platform that connects EV owners with service providers, spare parts suppliers, and subscription management services. This portal aims to streamline the entire service process, ensuring that EV owners have easy access to reliable and efficient maintenance solutions.

Motivation: The motivation behind the development of the Electric Vehicle Servicing and Maintenance Portal stems from the growing need for specialized service centers in the city of Pune. Pune, being a rapidly developing urban center, has seen a significant increase in the number of electric vehicles on its roads. However, the city lacks an adequate number of service centers equipped to handle the unique requirements of EVs. This scarcity of service centers often leads to long waiting times, inconvenience, and subpar maintenance for EV owners. By creating a dedicated portal, we aim to bridge this gap and provide a seamless and efficient solution for EV servicing and maintenance needs.

Goals and Objectives of the System: The primary goal of the Electric Vehicle Servicing and Maintenance Portal is to create a user-friendly and efficient platform that caters to the diverse needs of EV owners. The objectives of the system include:

- Providing a centralized platform for booking and managing service appointments.
- Facilitating the procurement of genuine spare parts through an integrated spare parts store.
- Ensuring secure and efficient payment processing for services and parts.
- Offering subscription-based services for regular maintenance and exclusive offers.

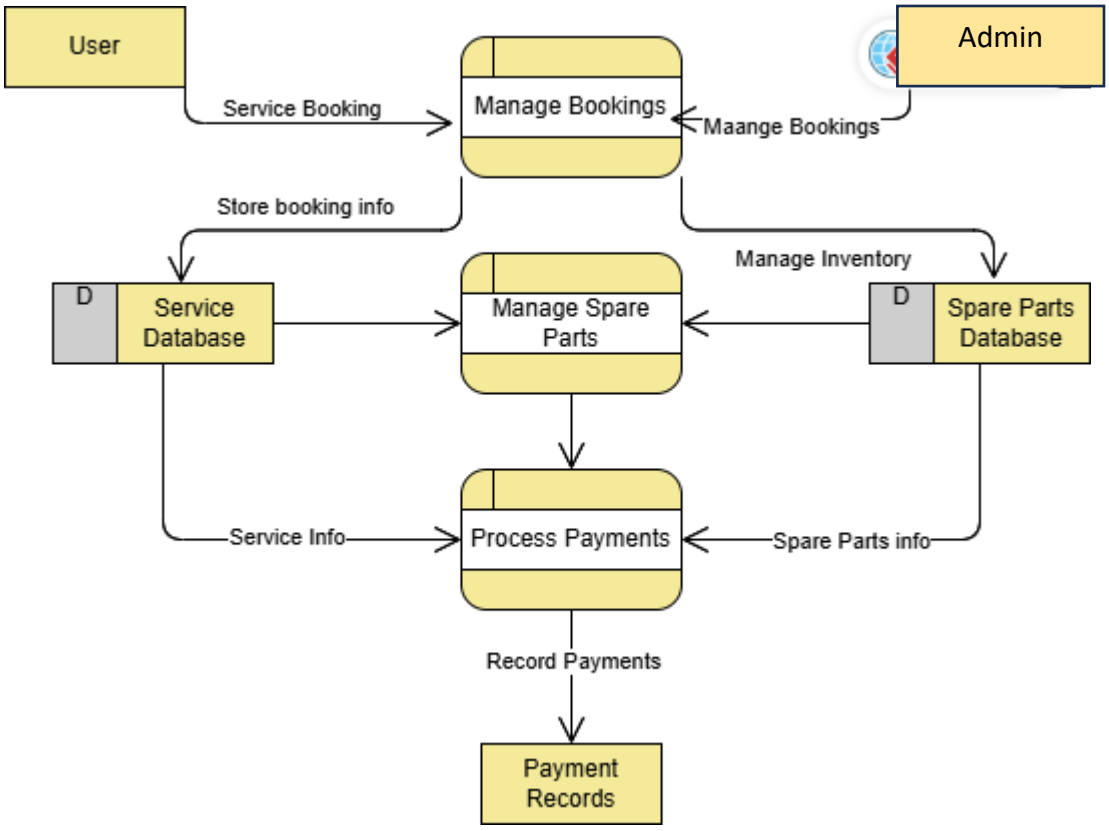
Literature Survey: The concept of an online portal for vehicle servicing and maintenance is not entirely new. Several studies have highlighted the benefits of digital platforms in enhancing service efficiency, customer satisfaction, and operational transparency. For instance, research on automotive service portals has shown that customers value the convenience of online booking, real-time updates, and transparent pricing. Moreover, the integration of AI and data analytics in these portals has the potential to predict maintenance needs, optimize inventory management, and personalize service offerings. Our literature survey indicates a growing trend towards digital transformation in the automotive service industry, with a specific emphasis on electric vehicles due to their distinct maintenance requirements.

Project Scope: The scope of the Electric Vehicle Servicing and Maintenance Portal encompasses several key components. These include user management, service booking, spare parts procurement, payment processing, subscription management, and administrative functions. The portal will cater to individual EV owners as well as fleet operators, offering tailored solutions for both segments. Additionally, the project scope extends to integrating advanced features such as predictive maintenance, AI-driven diagnostics, and real-time service tracking. The development and deployment of this portal will involve collaboration with service centers, parts suppliers, and payment gateway providers to ensure a seamless and comprehensive user experience.

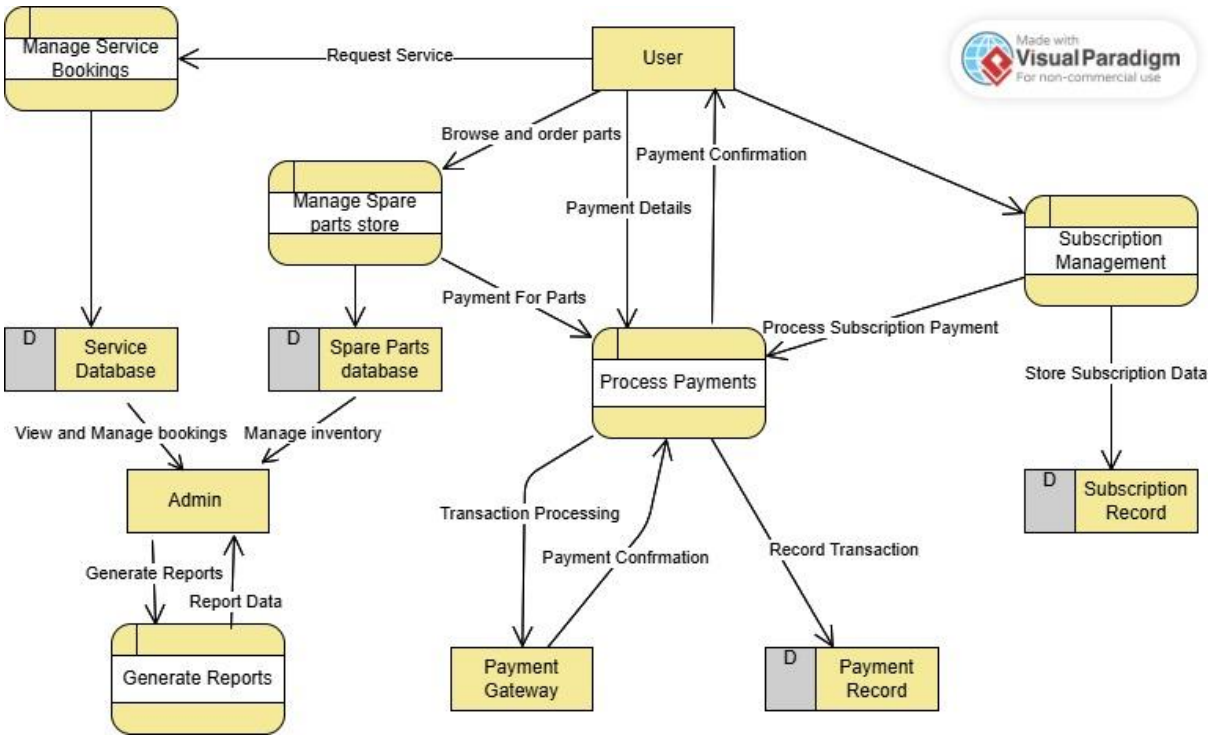
Limitations: While the Electric Vehicle Servicing and Maintenance Portal aims to provide a robust solution, it is not without its limitations. One of the primary challenges is the initial setup and integration with existing service centers and suppliers, which may require significant time and resources. Additionally, the portal's effectiveness is contingent on the reliability and availability of the service providers and parts suppliers. Any disruptions in these areas could impact the overall user experience. Furthermore, the portal must continuously adapt to the evolving landscape of electric vehicle technology and customer expectations, necessitating ongoing updates and enhancements.

➢ Entity Relationship Diagram:

➢Data Flow Diagram(DFD) Level 0:



➢Data Flow Diagram(DFD) Level 1:



➢TABLE

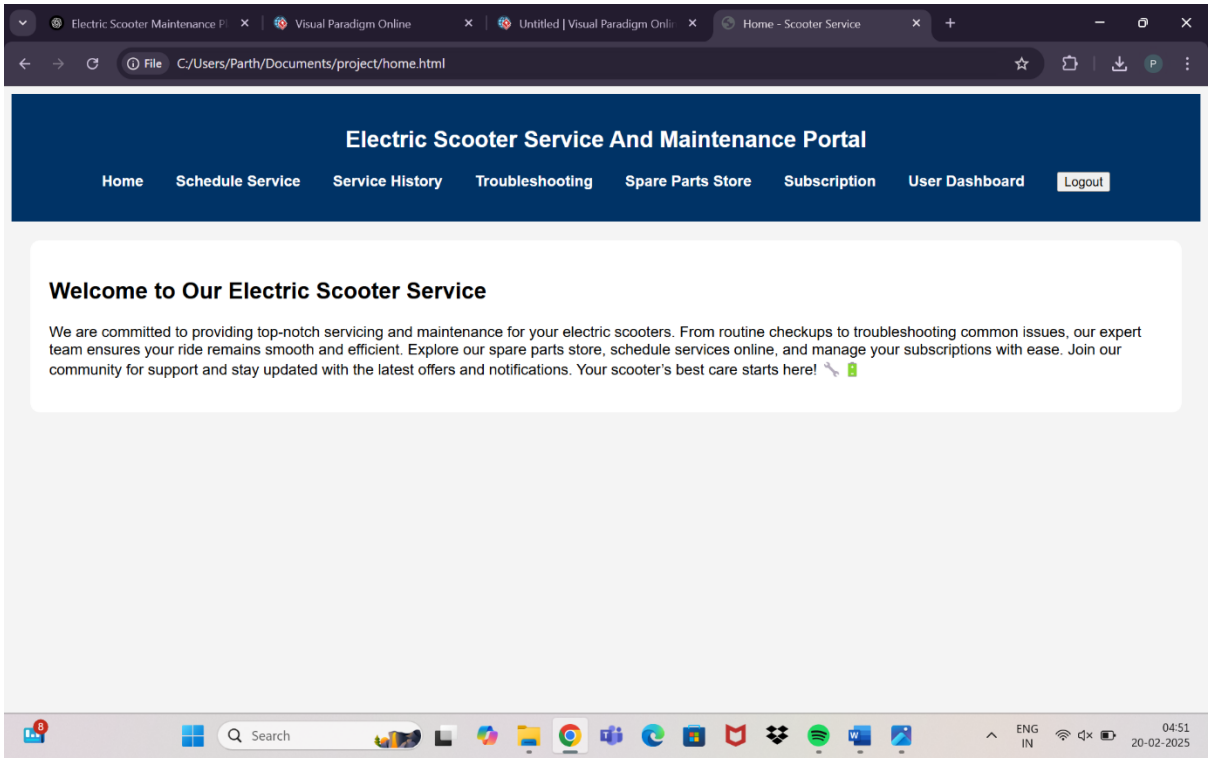
Entity Name	Attribute Name	Data Type	Description	Constraints
User	User_ID	Integer	Unique identifier for each user	Primary Key, Auto-increment
	Name	Varchar(100)	Full name of the user	Not Null
	Email	Varchar(100)	User's email address	Unique, Not Null
	Phone_Number	Varchar(15)	User's contact number	Not Null
	Address	Varchar(255)	User's residential address	Optional
	Password	Varchar(255)	User's account password	Not Null
Service Booking	Booking_ID	Integer	Unique identifier for each service booking	Primary Key, Auto-increment
	User_ID	Integer	Refers to the user making the booking	Foreign Key (User)
	Scooter_Model	Varchar(50)	Model of the electric scooter	Not Null
	Service_Date	Date	Scheduled date for service	Not Null
	Service_Status	Varchar(20)	Current status of the booking (Pending, Completed)	Default: 'Pending'
Service Records	Record_ID	Integer	Unique identifier for each service record	Primary Key, Auto-increment
	Booking_ID	Integer	Refers to the related service booking	Foreign Key (Service Booking)
	Service_Details	Text	Details of the service provided	Not Null
	Service_Cost	Decimal(10,2)	Total cost for the service	Not Null

Spare Parts Inventory	Part_ID	Integer	Unique identifier for each spare part	Primary Key, Auto-increment
	Part_Name	Varchar(100)	Name of the spare part	Not Null
	Part_Description	Text	Description of the spare part	Optional
	Price	Decimal(10,2)	Price of the spare part	Not Null
	Stock_Quantity	Integer	Number of available items in stock	Default: 0
Subscription Plans	Plan_ID	Integer	Unique identifier for each subscription plan	Primary Key, Auto-increment
	Plan_Name	Varchar(100)	Name of the subscription plan	Not Null
	Plan_Details	Text	Description and benefits of the plan	Not Null
	Plan_Price	Decimal(10,2)	Price of the subscription plan	Not Null
	Duration_Months	Integer	Duration of the subscription in months	Not Null
Notifications	Notification_ID	Integer	Unique identifier for each notification	Primary Key, Auto-increment
	User_ID	Integer	Refers to the user receiving the notification	Foreign Key (User)
	Notification_Text	Text	Content of the notification	Not Null
	Date_Sent	DateTime	Date and time when the notification was sent	Default: CURRENT_TIMESTAMP
Admin	Admin_ID	Integer	Unique identifier for each admin	Primary Key, Auto-increment

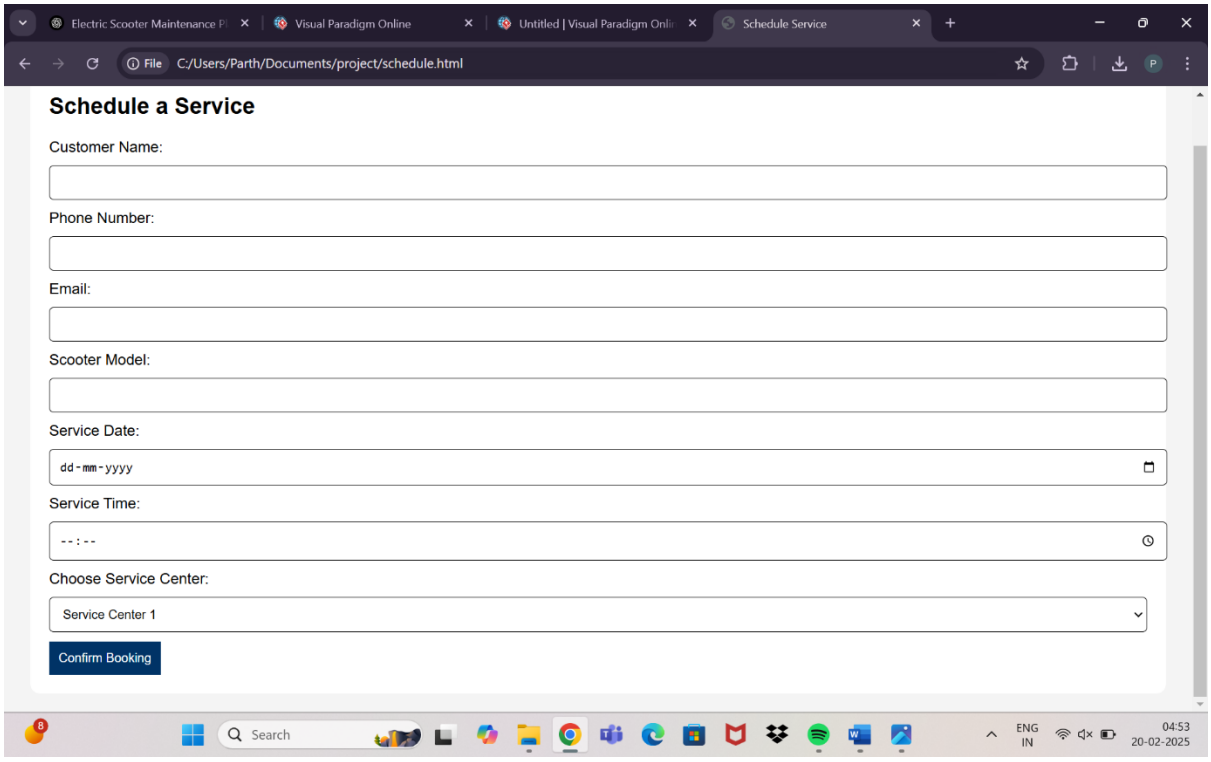
	Admin_Name	Varchar(100)	Name of the admin	Not Null
	Email	Varchar(100)	Admin’s email address	Unique, Not Null
	Role	Varchar(50)	Role of the admin (e.g., Super Admin, Manager)	Not Null

➢I/O SCREENS:

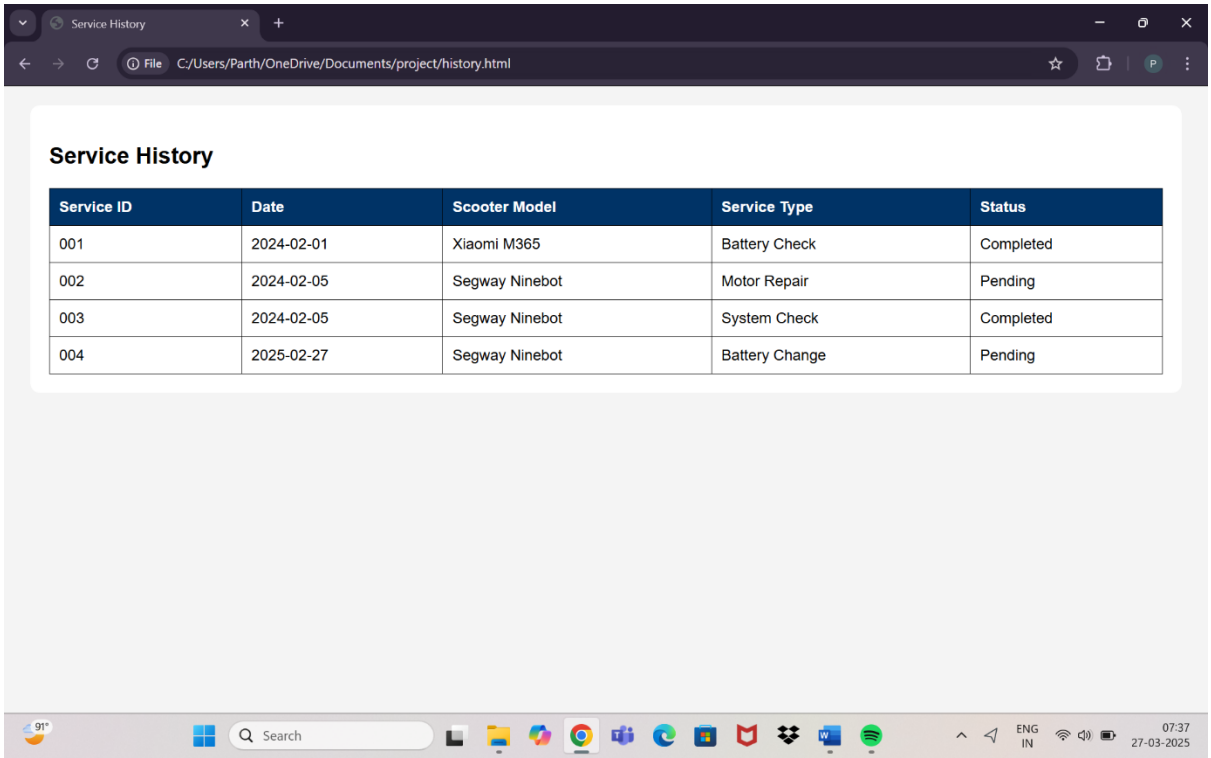
- Home Page:



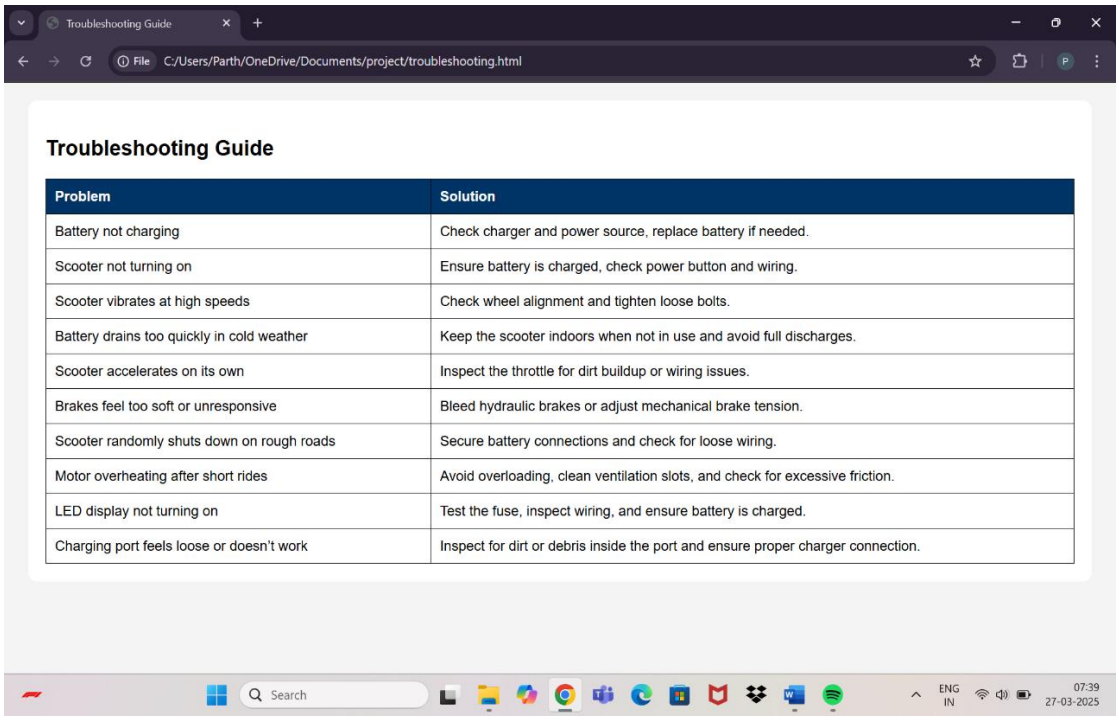
- Scheduling Page :



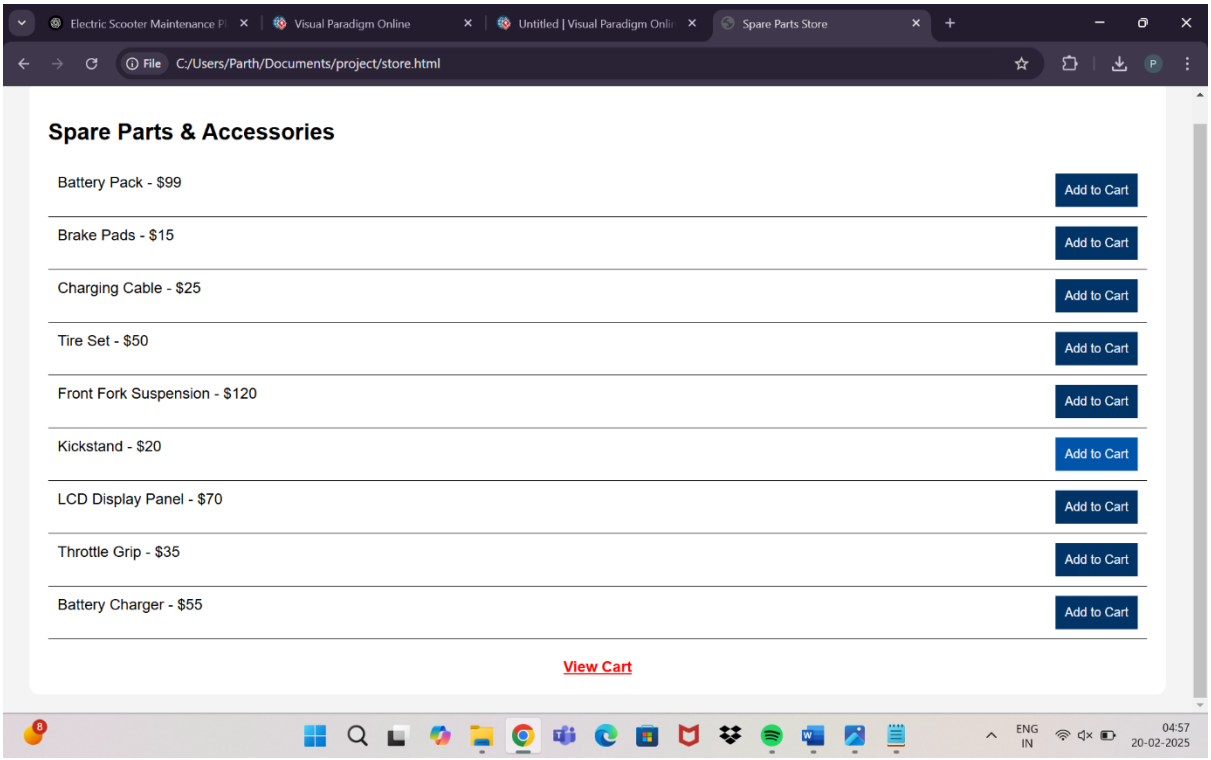
- Service History Tracking Page:



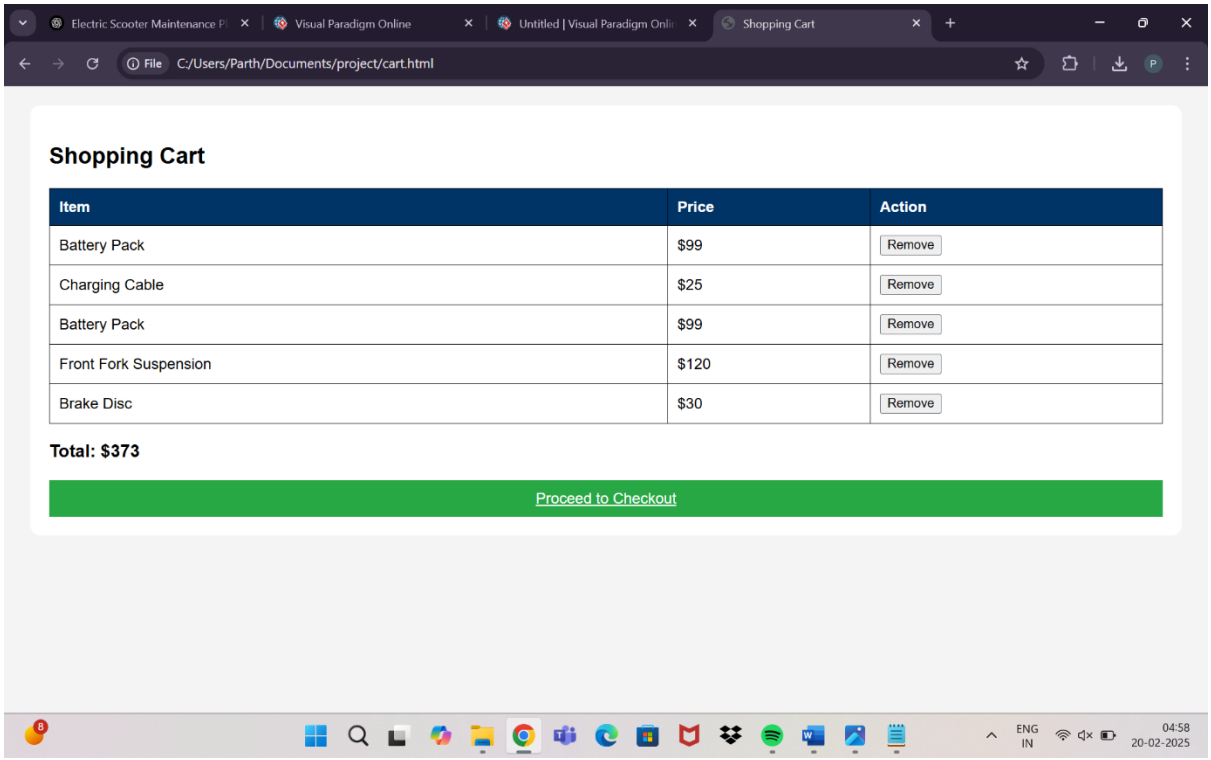
- Troubleshooting Guide Page:



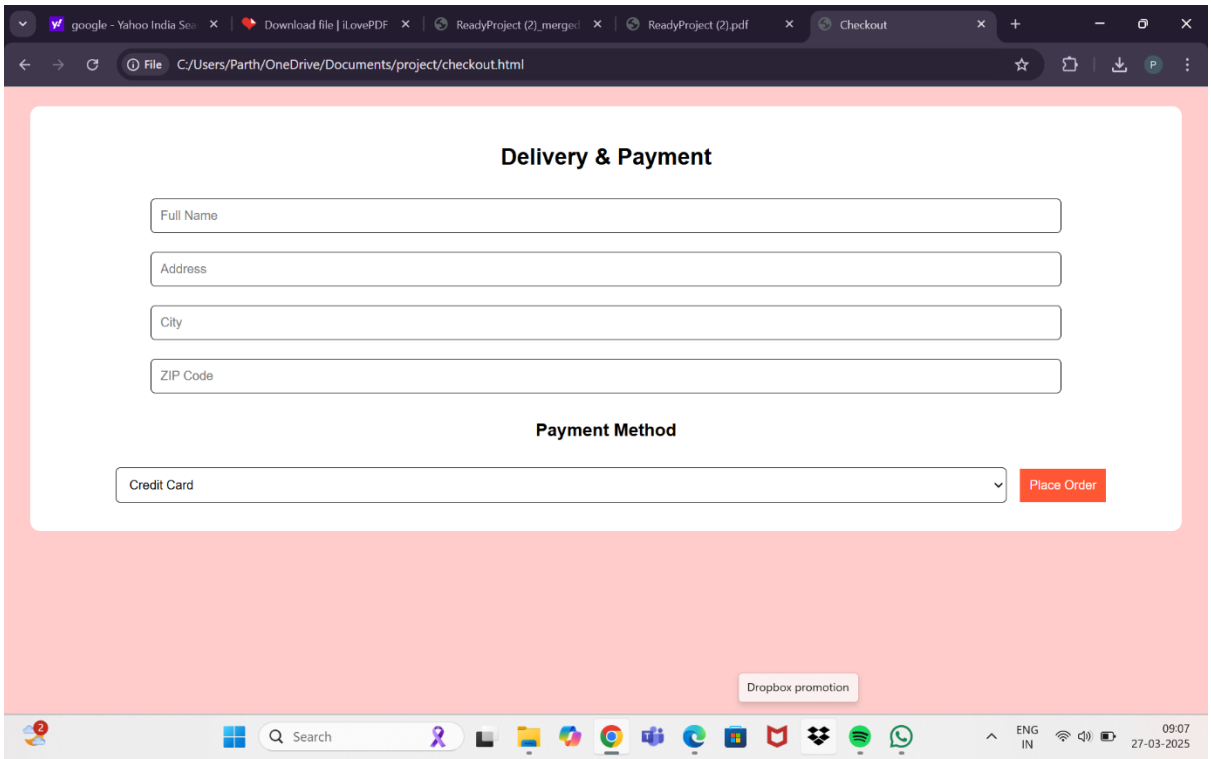
- Spare Parts Store Page:



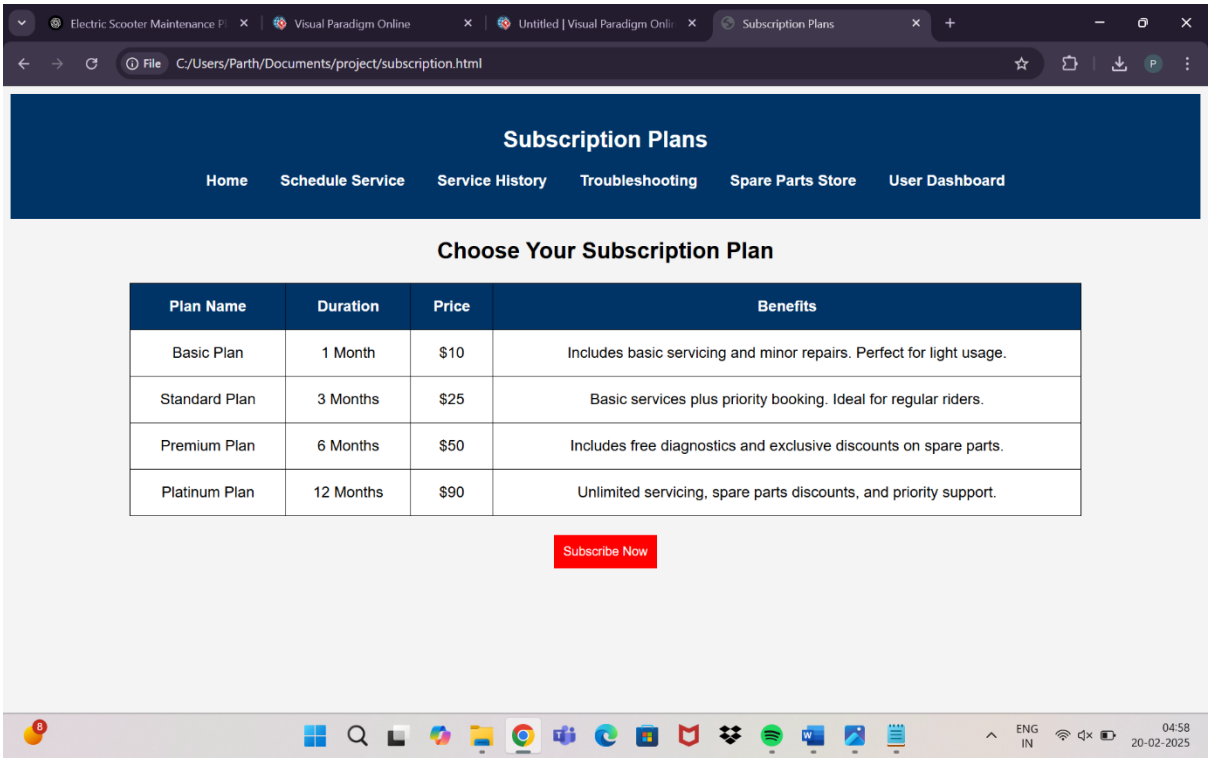
- Viewing Cart Page:



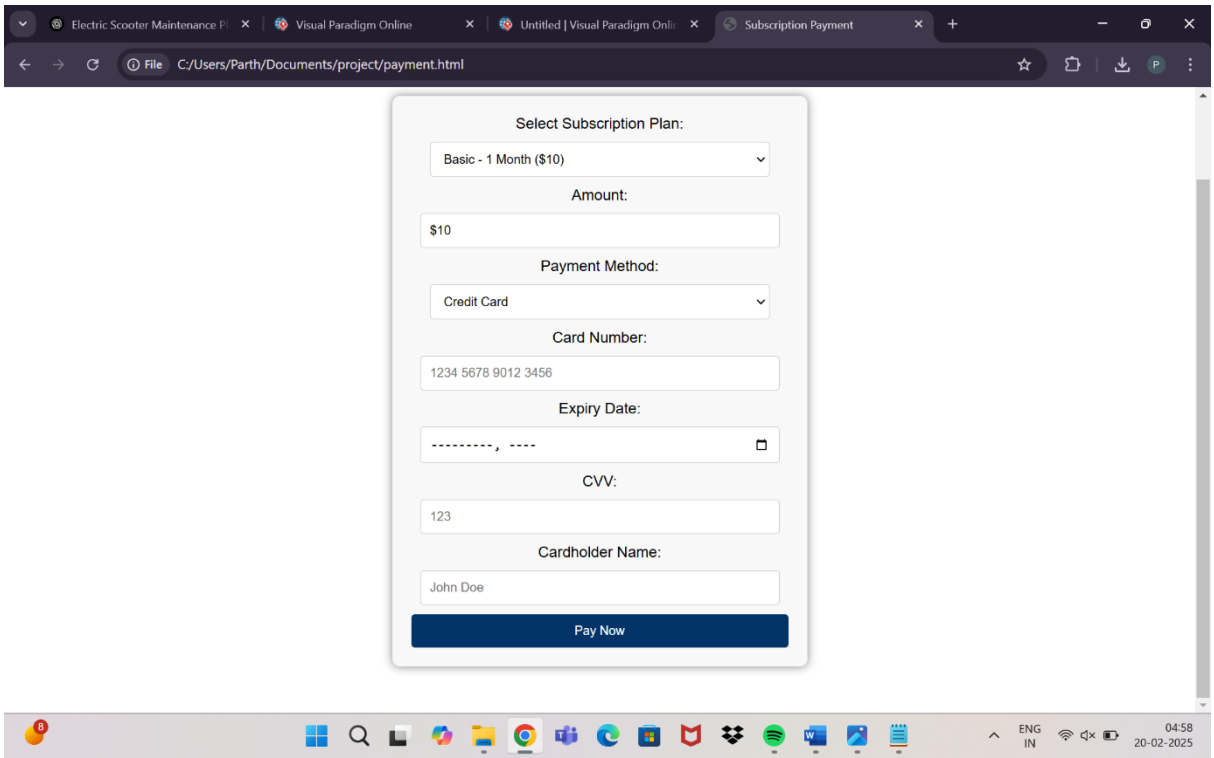
- Checkout Page:



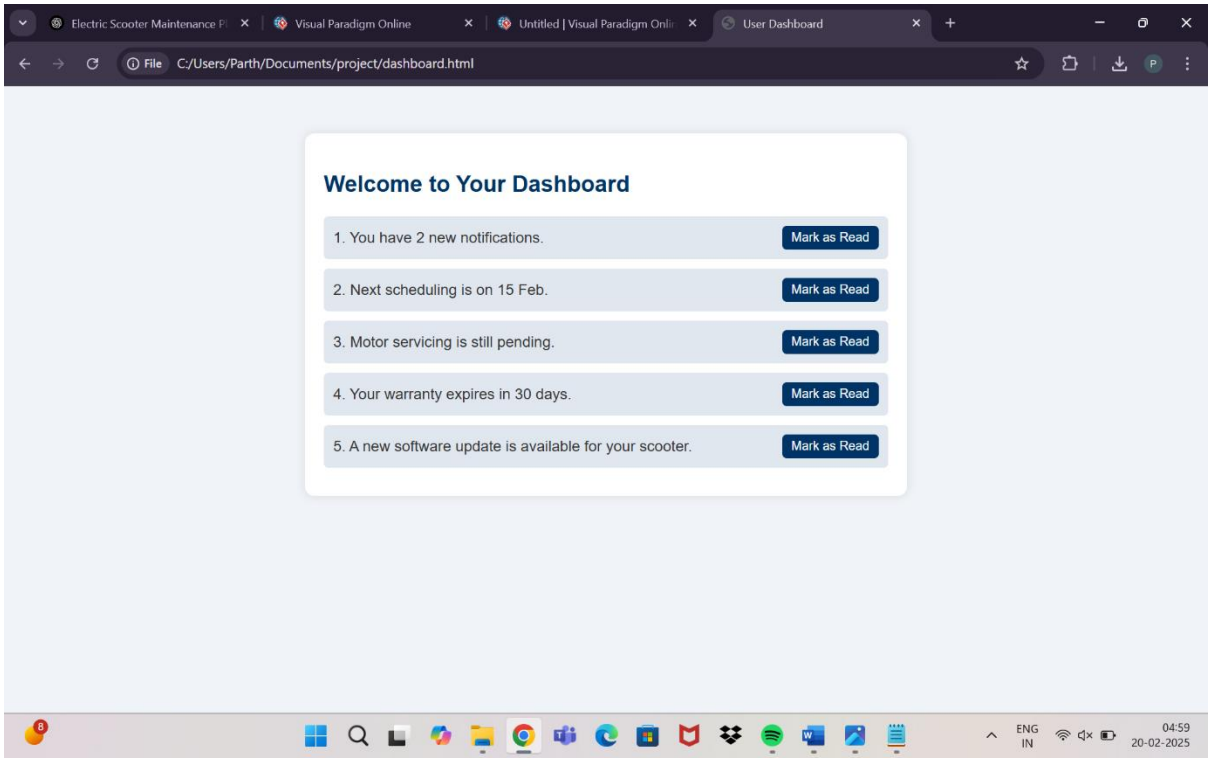
- Subscription Plans Page:



- Payment Portal For Subscription Page:



- User Dashboard Page:



Future Scope of Electric Scooter Service and Maintenance Platform:-

The future scope of an Electric Scooter Service and Maintenance Platform is promising, driven by the increasing adoption of electric mobility worldwide. As electric scooters become a popular mode of transportation due to their eco-friendliness, affordability, and convenience, the demand for reliable servicing and maintenance platforms will grow significantly. One major avenue for future development is the integration of **IoT (Internet Things)** technology, allowing real-time diagnostics, predictive maintenance alerts, and seamless scheduling based on usage patterns. Incorporating **AI-powered troubleshooting** and **chatbots** can enhance user experience by offering instant support and personalized recommendations. The platform could expand its offerings by collaborating with manufacturers for **original spare parts** and launching **on-demand maintenance subscriptions**, providing comprehensive care plans for scooters. Additionally, with the rise of **sustainability initiatives**, offering **battery recycling services** and promoting **eco-friendly spare parts** can align the platform with global environmental goals. **Blockchain integration** for secure payment gateways and transparent service records could also be explored, ensuring data privacy and trustworthiness. In the future, expanding to **B2B services** by partnering with electric scooter rental companies for fleet management and maintenance could open new revenue streams. service centers and **mobile servicing units** could enhance accessibility and convenience, positioning the platform as a on

Conclusion:-

In conclusion, the Electric Scooter Service and Maintenance Platform holds immense potential in the evolving landscape of sustainable urban mobility. By embracing advanced technologies, ensuring user-centric services, and aligning with environmental sustainability, the platform can become a critical enabler for the widespread adoption of electric scooters. With continuous innovation and customer-focused enhancements, this platform is poised to shape the future of electric scooter ownership and contribute significantly to smarter, greener transportation solutions.

Bibliography:-

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2)Inc42

3)Data Science Society

4)urbantransportgroup.org
