EV E-Commerce

Submitted in partial fulfillment of the requirements of the degree of

BACHELOR OF COMPUTER ENGINEERING

by

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(2022-2023)

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CERTIFICATE

This is to certify that the Mini Project 2B entitled "**EV E-Commerce**" is a bonafide work of **"Siddharth Singh (20102176), Vandan Savla (20102137), Harmit Saini (20102125), Sarvesh Shirwalkar (20102109)"** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **Bachelor of Engineering** in **Computer Engineering.**

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Project Report Approval for Mini Project-2B

This project report entitled "**EV E-Commerce**" by **Siddharth Singh, Vandan Savla, Harmit Saini, Sarvesh Shirwalkar** is approved for the partial fulfillment of the degree of *Bachelor of Engineering* in *Computer Engineering*, *2022-23*.

Examiner Name   Signature

1._____   _____

2._____   _____

Date:

Place:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

The electric vehicle (EV) market is experiencing tremendous growth, with the need for EV components becoming increasingly necessary. However, finding the right products can be a challenge due to the lack of a niche-specific platform for local vendors. This problem is compounded by the difficulty of marketing these products to a large audience in scattered markets like Amazon and Flipkart. In this context, the importance of creating a niche-specific platform for local vendors cannot be overstated. Such a platform would serve as a hub for EV component suppliers, allowing them to showcase their products to a targeted audience. Additionally, it would provide a one-stop-shop for buyers looking for niche-specific EV components, simplifying the purchasing process and potentially reducing costs. The lack of a targeted platform also makes it difficult for local vendors to market their products effectively. As such, a niche-specific platform would provide vendors with a more effective means of reaching a broader audience, increasing their visibility and ultimately boosting sales. Furthermore, it would facilitate the growth of the EV market by encouraging the development of new, innovative products that would otherwise be overlooked due to their niche nature. In conclusion, the creation of a niche-specific platform for local vendors would be a critical step in the growth of the EV market. By providing a targeted platform for suppliers and simplifying the purchasing process for buyers, such a platform would help to accelerate the adoption of EVs, encourage innovation, and ultimately contribute to a more sustainable future.

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LIST OF FIGURES

Chapter 1

Introduction

The electric vehicle (EV) market has been growing rapidly in recent years, with an increasing number of consumers opting for environmentally friendly transportation options. However, the surge in demand for EVs has also led to a corresponding increase in the need for EV components. As a result, local vendors have emerged to supply niche-specific EV components, ranging from batteries to charging stations.

Despite the opportunities presented by the growing EV market, local vendors face challenges in finding a platform to sell their products. The current e-commerce landscape, dominated by giants like Amazon and Flipkart, makes it difficult for local vendors to compete and reach a large customer base. This is because these platforms cater to a diverse range of products, making it difficult for customers to find niche-specific products like EV components. Consequently, local vendors struggle to make their products visible to a broader audience, leading to lower sales volumes and reduced profits.

The lack of a dedicated platform for EV components further complicates the problem. This makes it difficult for customers to find niche-specific EV components, resulting in a reduced demand for local vendors' products. Consequently, local vendors are unable to realize the full potential of the growing EV market.

This report aims to explore the challenges facing local vendors in the EV component market and identify solutions to address these challenges. In particular, the report will focus on the need for a dedicated marketplace for EV components and the use of digital marketing channels to reach a wider audience.

The report will begin by examining the current state of the EV market and the growing demand for EV components. It will then explore the challenges facing local vendors, including the lack of a

niche-specific platform and difficulties in marketing their products on e-commerce platforms. The report will also examine the potential benefits of a dedicated marketplace for EV components, including increased visibility for local vendors and improved customer experience.

To address these challenges, the report will propose solutions such as creating a dedicated marketplace for EV components, leveraging social media and other digital marketing channels, and collaborating with established players in the EV industry. These solutions aim to provide local vendors with the necessary tools and resources to compete and thrive in the growing EV market.

Overall, this report seeks to highlight the importance of addressing the challenges facing local vendors in the EV component market. By providing solutions to these challenges, local vendors can tap into the full potential of the growing EV market and contribute to a more sustainable transportation industry.

Chapter 2

Literature Survey

1. Bhat, Shahid Amin, Keshav Kansana, and J. M. Khan. "A review paper on ecommerce." Asian Journal of Technology & Management Research [ISSN: 2249–0892] 6, no. 1 (2016)

   This study looks at factors that effect on consumers' intentions to buy online, especially from Facebook. We enlighten the impact and analyze how factors influence consumers to purchase products from Facebook. Specifically, we observe consumer behaviors using different viewpoints. Some viewpoints are related to psychology, and some are relevant to the experiences of consumers. We emphasize the analysis of those intentions that work behind the consumption of any product from a Facebook page or group. An analytical study in which the contributions of all assumptions are investigated and reported. We gather the perceptions of 505 people regarding buying products from Facebook pages or groups. In terms of relative contributions, we find two models and evaluation matrices that indicate the accuracy of those models to predict the consumers' purchases from Facebook pages or groups.

2. Jiawei Han, Micheline Kamber, Jian Pei "Morgan Kauffman - Data mining: Concepts and Technique." [ISBN 978-0-12-381479-1] (2012)

   The computerization of our society has substantially enhanced our capabilities for both generating and collecting data from diverse sources. A tremendous amount of data has flooded almost every aspect of our lives. This explosive growth in stored or transient data has generated an urgent need for new techniques and automated tools that can intelligently assist us in transforming the vast amounts of data into useful information and knowledge. This has led to the generation of a promising and flourishing frontier in computer science called data mining, and its various applications. Data mining, also popularly referred to as knowledge discovery from data (KDD), is the automated or convenient extraction of patterns representing knowledge implicitly stored or captured in large databases, data warehouses, the Web, other massive information repositories, or data streams.

3. Efthymios Constantinides, Influencing the online consumer's behavior: The Web experience (1 April 2004)

> Addresses one of the fundamental issues of e‑marketing: how to attract and win over the consumer in the highly competitive Internet marketplace. Analyses the factors affecting the online consumer's behavior and examines how e‑marketers can influence the outcome of the virtual interaction and buying process by focusing their marketing efforts on elements shaping the customer's virtual experience, the Web experience. Identifying the Web experience components and understanding their role as inputs in the online customer's decision‑making process are the first step in developing and delivering an attractive online presence likely to have the maximum impact on Internet users. Click‑and‑mortar firms delivering superior Web experience influence their physical clients' perceptions and attitudes, driving additional traffic to traditional sales outlets. Provides a contribution to the theoretical debate around the factors influencing the online consumer's behavior and outlines some noticeable similarities and differences between the traditional and virtual consumers.

4. Shahid Amin Bhat, Keshav Kansana, and JM Khan. A review paper on ecommerce. In Asian Journal of Technology and Management Research

> E-commerce (Electronic commerce) is a paradigm shift influencing both marketers and the customers. Rather e-commerce is more than just another way to boost the existing business practices. It is leading a complete change in traditional way of doing business. This significant change in business model is witnessing a tremendous growth around the globe and India is not an exception. A massive internet penetration has added to growth of E-commerce and more particularly start-ups have been increasingly using this option as a differentiating business model. The current research has been undertaken to describe the scenario of E-Commerce, analyze the trends of E-Commerce. The study further examines the key variables imperative for the success of E-commerce business models.

Research Paper	ANALYSIS
1. Bhat, Shahid Amin, Keshav Kansana, and J. M. Khan. "A review paper on ecommerce." Asian Journal of Technology & Management Research	This paper looks at factors that effect on consumers' intentions to buy online, especially from Facebook. It explains both the buyers and sellers sides working.
2. Jiawei Han, Micheline Kamber, Jian Pei "Morgan Kauffman - Data mining: Concepts and Technique."	This paper talks about the different ways to implement Data Mining, Web Mining and Frequent Pattern Analysis based on the requirements.
3. Efthymios Constantinides, Influencing the online consumer's behavior: The Web experience	This paper addresses one of the fundamental issues of e-marketing: how to attract and win over the consumer in the highly competitive Internet marketplace
4. Shahid Amin Bhat, Keshav Kansana, and JM Khan. A review paper on ecommerce. In Asian Journal of Technology and Management Research	This paper describes the basic architecture of Ecommerce applications and its building blocks.

Chapter 3

Problem Statement, Objective & Scope

Problem Statement: -

The need for EV components rises along with the EV market's daily expansion. Because there are no niche-specific platforms available for local suppliers, finding that product becomes challenging. Additionally, it is challenging to advertise their items to sizable audiences in dispersed markets like flipkart and amazon.Electric vehicle (EV) adoption is accelerating, which is driving up demand for EV parts like batteries, motors, and other components. However, getting these parts from conventional brick-and-mortar retailers can be challenging and time-consuming, and the parts' scarcity may also prevent more people from adopting EVs.

Objective: -

- Helping the vendors to sell their EV products to the targeted customers.
- Options to buy a variety of EV products at one place.
- Only genuine products are sold by proper verification of merchants by the admin of the site.
- Frequent pattern analysis, Web usage mining

Scope: -

- Single portal to buy and sell quality EV products.
- Product verification to ensure the quality of products.
- Customer feedback and frequent pattern analysis

Chapter 4

Proposed System Architecture

- **Description about Proposed System:**

The proposed system for the EV E-commerce project is a platform that enables users to buy and sell electric vehicle (EV) components online. The platform will provide a user-friendly interface for buyers to browse and purchase products, while also offering sellers a platform to showcase and sell their products.The proposed system for the EV E-commerce project is a platform that enables users to buy and sell electric vehicle (EV) components online. The platform will provide a user-friendly interface for buyers to browse and purchase products, while also offering sellers a platform to showcase and sell their products.

The system will have a front-end that consists of web pages and a user interface that allows customers to search for and browse through the products. The back-end of the system will include a database for storing product information, user data, and transaction history.

The platform will also include a review service that allows users to leave reviews and ratings for products they have purchased, and an analytics service that provides insights into the performance of the platform, such as the number of transactions, customer demographics, and product popularity.

To ensure the platform is secure, the system will feature various security measures, such as secure user authentication, encrypted communication, and protection against common web vulnerabilities.
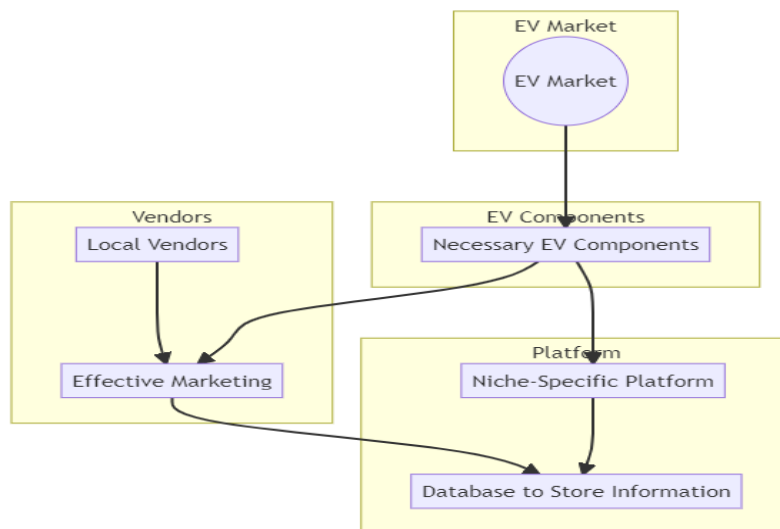
Overall, the proposed EV E-commerce system will provide a comprehensive platform for users to buy and sell EV components online, while offering advanced search and filtering functionality, secure transactions, and insightful analytics.

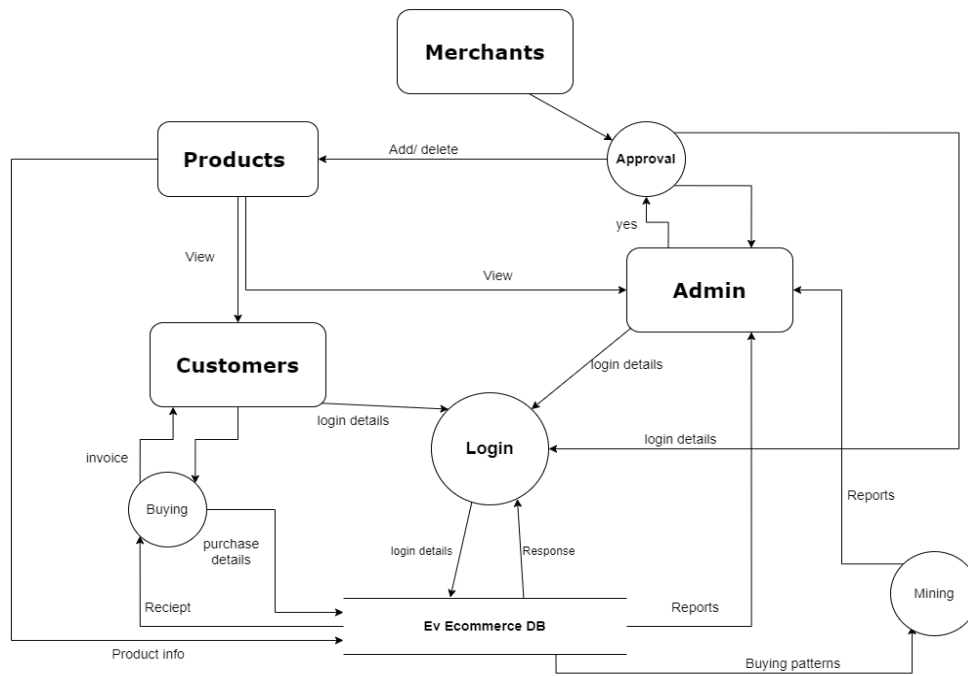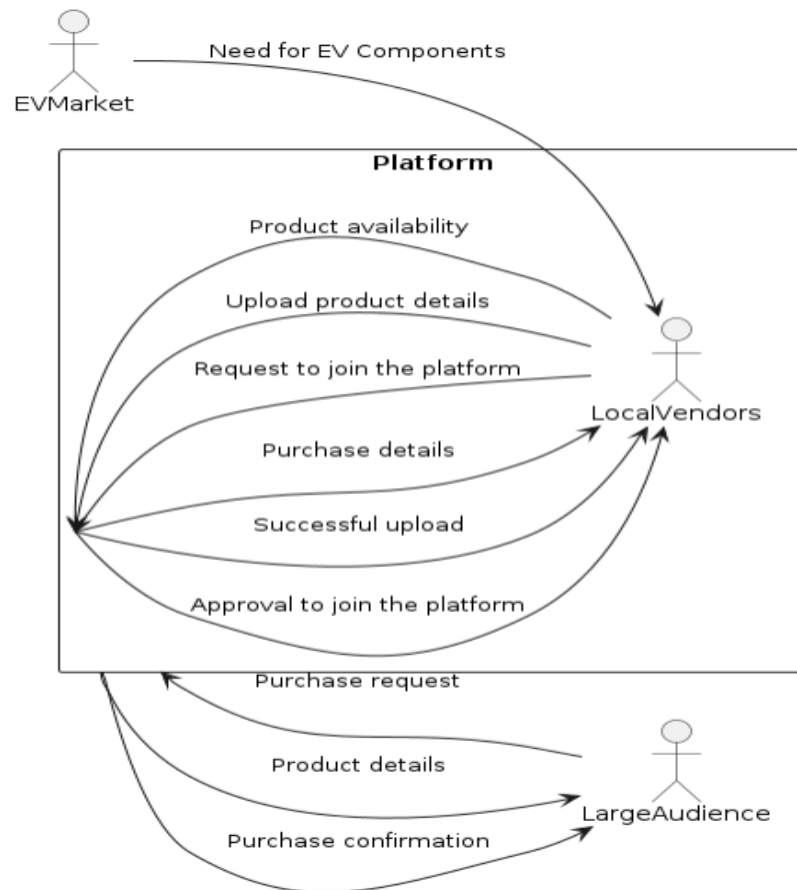- **Data Flow Diagram (Level 0, Level 1 & Level 2)**
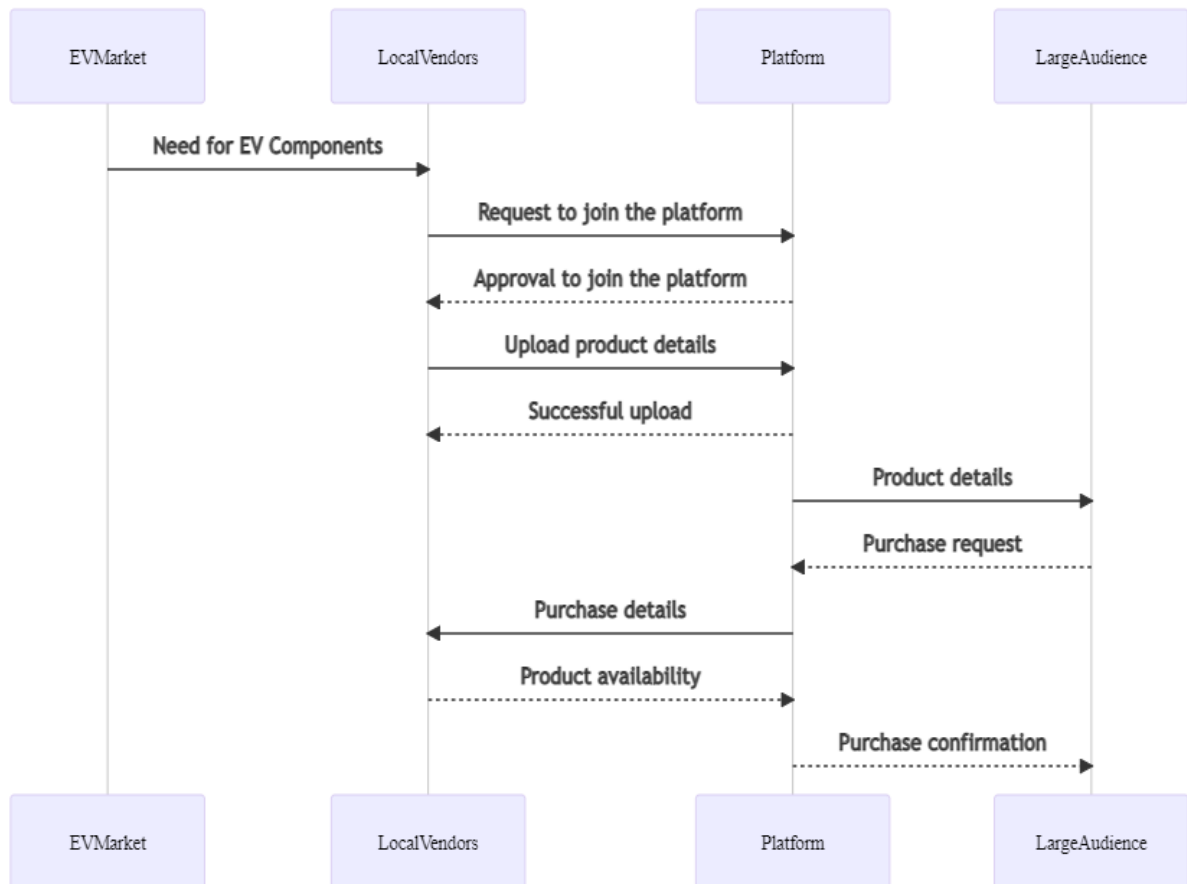
  DFD Level 0 -
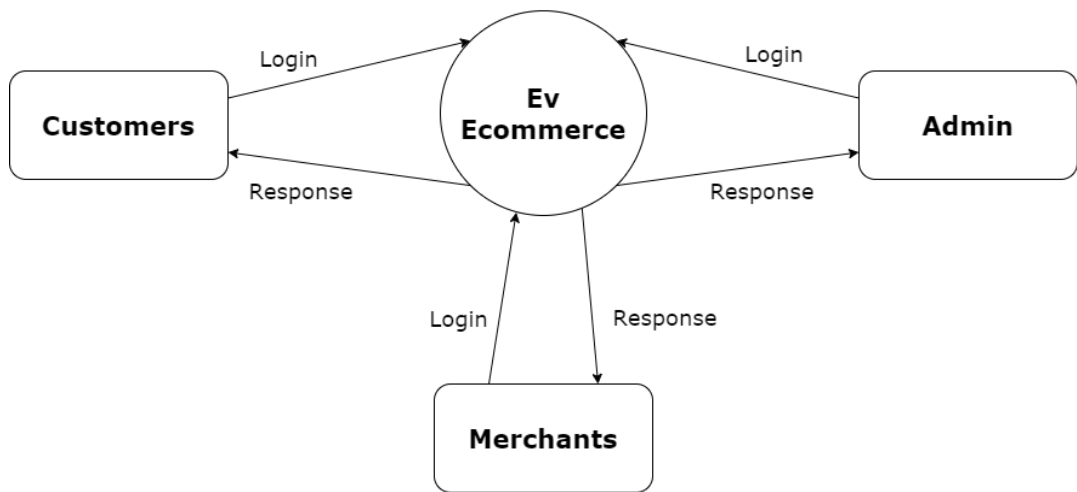
  DFD Level 1 -
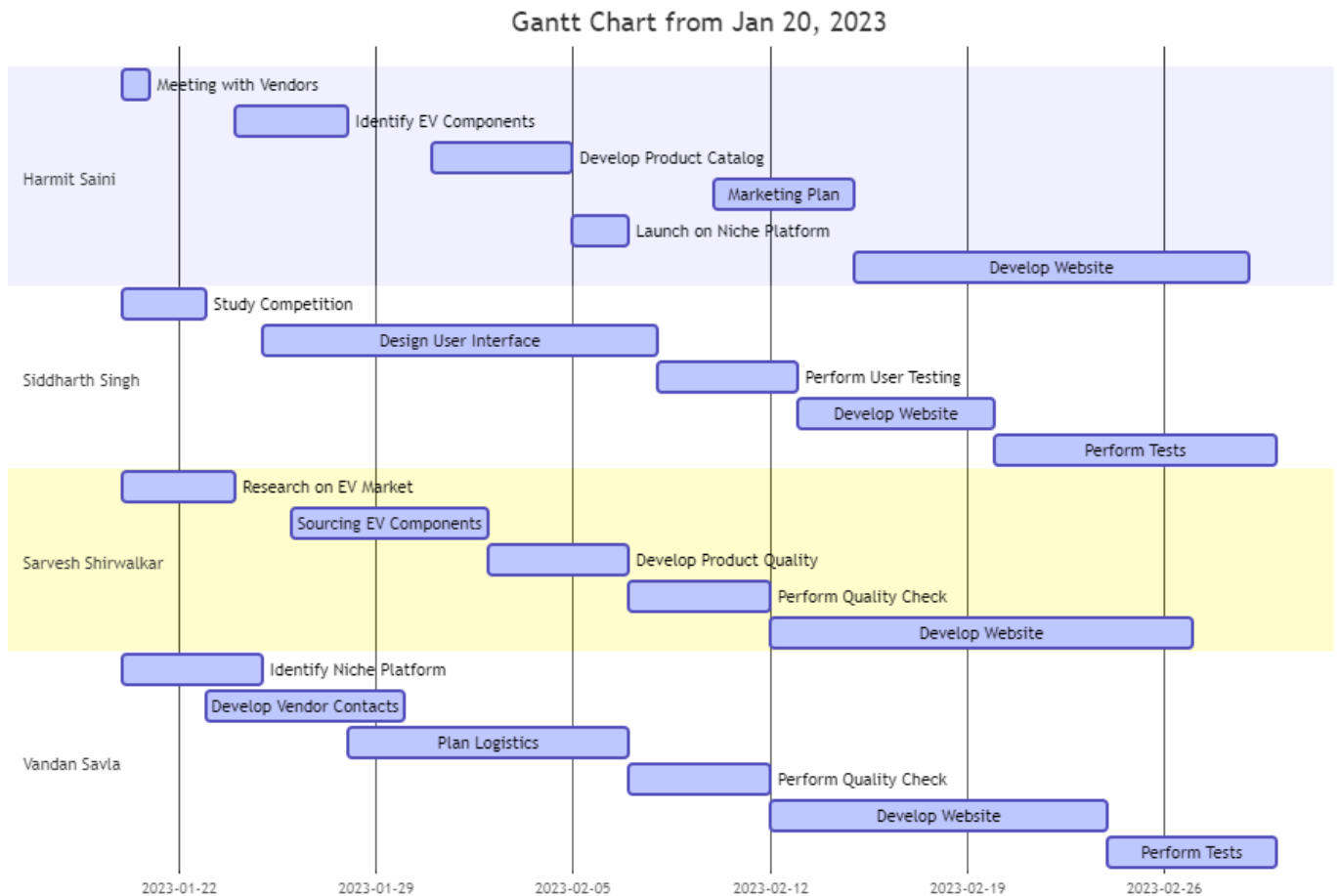
DFD Level 2 -

- **Use Case Diagram**

- **Sequence Diagram**

Chapter 5

Project Planning

Gantt Chart

Gantt Chart from Jan 20, 2023

Harmit Saini
- Meeting with Vendors
- Identify EV Components
- Develop Product Catalog
- Marketing Plan
- Launch on Niche Platform
- Develop Website

Siddharth Singh
- Study Competition
- Design User Interface
- Perform User Testing
- Develop Website
- Perform Tests

Sarvesh Shirwalkar
- Research on EV Market
- Sourcing EV Components
- Develop Product Quality
- Perform Quality Check
- Develop Website

Vandan Savla
- Identify Niche Platform
- Develop Vendor Contacts
- Plan Logistics
- Perform Quality Check
- Develop Website
- Perform Tests

2023-01-22　2023-01-29　2023-02-05　2023-02-12　2023-02-19　2023-02-26

Chapter 6

Experimental Setup

· Software Requirements: -

    1) Node 18+
    2) React
    3) npm 8+
    4) mongodb Atlas

· Hardware Requirements: -

    1) CPU: Dual Core
    2) GPU: Integrated Graphics
    3) RAM: 4GB
    4) STORAGE: 10GB
    5) OS: Ubuntu

Chapter 7

Implementation Details

- Responsive UI

Keeping the customers attention in mind we designed a simple to use but a responsive and interacting UI using React and Javascript.

- Form validations

Considering to host this E-commerce website there could be many   threats involved. We have implemented form validations to ensure safety against attacks like SQL injection, unauthorized access, etc.

- Login System including Oauth

The login system is very important as there could be various types of users like admin, buyer, seller, organization. We ensured that the user hierarchy is maintained and the user data is safe.

- Buyer side account management

Buyers side account has features like previous orders, password management, address management, cart system, wishlist and support.
Data Mining and Pattern Analysis algorithms are used to analyze buyers interactions and provide a personalized page for a particular buyer.

- Vendor-side management system

Vendors have various utilities like, forgot password,account detail management, product management etc.

- Admin's panel

Admin will be able to add verified sellers or organizations as vendors. Admin will also be able to verify products.

- Database using mongoose

Database used is hosted on mongoDB's cloud distribution, Atlas. This enables a centralized database and causes easier, synchronised development and production.
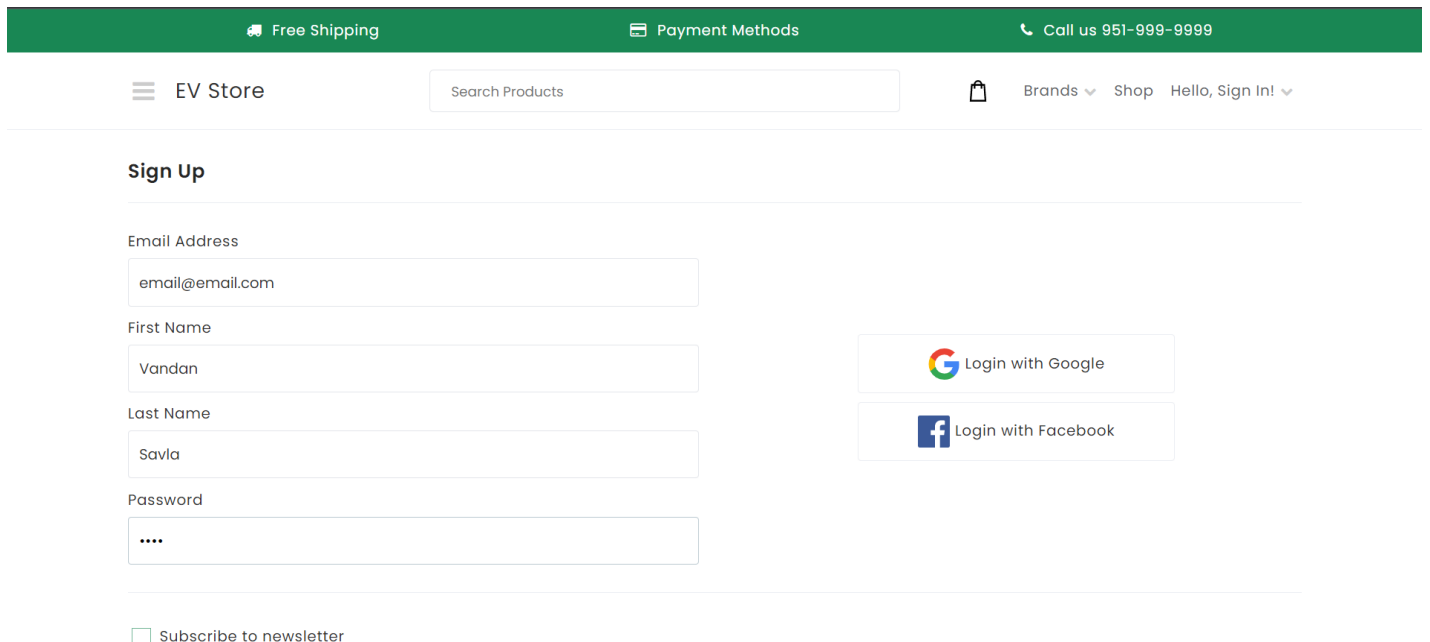
Chapter 8

Result

1.Home Page:
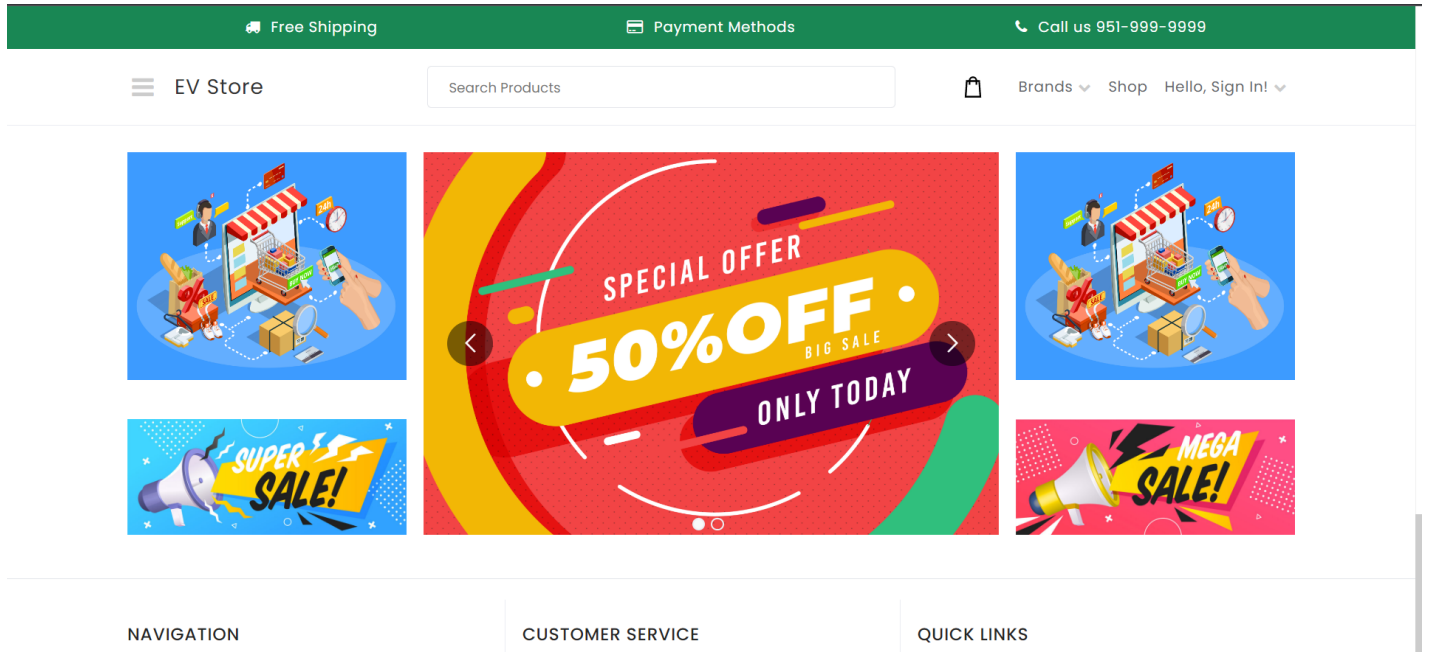
2.Register Page:

3.Login Page

☰ EV Store   Search Products   Brands ⌄ Shop Hello, Sign In! ⌄

Login

Email Address

Please Enter Your Email

G Login with Google

Password

Please Enter Your Password

f Login with Facebook

Login   Create An Account   Forgot Password?

NAVIGATION

Browse Products
Shop By Brands
Shop By Categories

CUSTOMER SERVICE

About Us
Contact Us
Sell With Us

QUICK LINKS

Privacy Policy
Return Policy
Terms Of Service

4.Products Page

☰ EV Store   Search Products   Brands ⌄ Shop Hello, Sign In! ⌄

Price

$1 $5000

Showing: 1-2 products of 2 products   Sort by   Newest First ⌄

Rating

Any 1★ 2★ 3★ 4★ 5★

EV Engine

By APSIT

Ev engine hai lelo mast hai

$1000   4.0 ★

EV motor

By EV

good motor

$50   3.3 ★

5.Admin Dashboard

6.Admin Products Page

7.Admin Brands Page:

Free Shipping	Payment Methods	Call us 951-999-9999

EV Store   Search Products   Brands ∨   Shop   admin ∨

Account

- Account Details
- Account Security
- Address
- Products
- Categories
- Brand
- Merchants
- Orders
- WishList
- Support

Brands   Add

EV
EV

APSIT
ldcbqwlvqwbnlbw wlvnwl/vnqvql;vn
By Vandan Savla

8.Merchant Approval Page:

Free Shipping	Payment Methods	Call us 951-999-9999

EV Store   Search Products   Brands ∨   Shop   admin ∨

Account

- Account Details
- Account Security
- Address
- Products
- Categories
- Brand
- Merchants
- Orders
- WishList
- Support

Merchants   Add

Type Email, Phone Number, Brand Or Status   Search

2 merchants

Business
ldcbqwlvqwbnlbw wlvnwl/vnqvql;vn

Brand
APSIT

Name
Vandan Savla

Email
vdsavla1@gmail.com

Phone Number
9988998899

9.Merchant's Dashboard:

10.Merchant's Product Page:

11.Individual Product Page with Review Section:
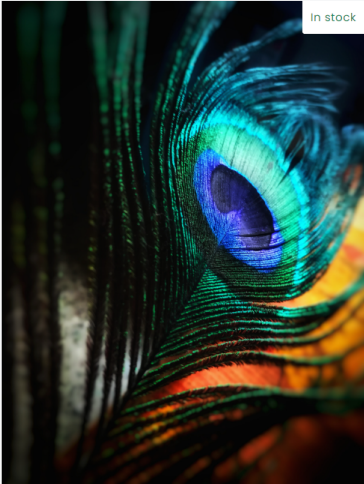
Chapter 9

Conclusion

In conclusion, the electric vehicle market is rapidly expanding, and as a result, the demand for electric vehicle components is increasing as well. However, local vendors face a major challenge in finding a platform to sell their niche-specific EV components. Moreover, marketing these products to a scattered audience is also a daunting task, especially when trying to reach a large customer base on popular e-commerce platforms like Amazon and Flipkart.

To address these challenges, it is crucial to create a dedicated marketplace for EV components, specifically catering to local vendors. This marketplace should have features that enable easy product discovery and customer acquisition, such as search filters, ratings and reviews, and personalized product recommendations. Additionally, it should have a robust payment system that ensures secure transactions and a seamless customer experience.

Furthermore, local vendors can leverage social media and other digital marketing channels to reach a wider audience. Building a strong online presence through engaging content, targeted advertising, and influencer collaborations can help increase brand awareness and attract potential customers.

In addition, collaborating with established players in the EV industry, such as electric vehicle manufacturers, can help local vendors gain exposure and credibility. These partnerships can provide access to a wider distribution network, technical expertise, and industry knowledge.

Overall, the growth of the EV market provides significant opportunities for local vendors to create innovative products and expand their businesses. However, addressing the challenges of finding a niche-specific platform and marketing to a scattered audience is crucial. By leveraging digital marketing channels, collaborating with established players in the industry, and creating a dedicated marketplace for EV components, local vendors can overcome these challenges and tap into the rapidly growing EV market.

Chapter 10

References

[1] Bhat, Shahid Amin, Keshav Kansana, and J. M. Khan. "A review paper on ecommerce." Asian Journal of Technology & Management Research [ISSN: 2249–0892] 6, no. 1 (2016)

[2]Jiawei Han, Micheline Kamber, Jian Pei "Morgan Kauffman - Data mining: Concepts and Technique." [ISBN 978-0-12-381479-1] (2012)

[3]Constantinides, E., 2004. Influencing the online consumer's behavior: the Web experience. *Internet research*, *14*(2), pp.111-126.

[4]Bhat, S.A., Kansana, K. and Khan, J.M., 2016. A review paper on e-commerce. *Asian   Journal of Technology & Management Resesarch [ISSN: 2249–0892]*, *6*(1).