

**SCTR's Pune Institute of Computer Technology  
Dhankawadi, Pune**

**WADL MINI PROJECT ON  
ELECTROMART**

**SUBMITTED BY**

Neeraj Bukane 33114  
Sanyog Kalantri 33137  
Samyak Jain 33169  
Gauri Takalikar 33178

**Under the guidance of**  
Prof. Rachna Karnavat



**DEPARTMENT OF INFORMATION TECHNOLOGY  
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## 1 Abstract

Our website aims to provide an immersive online shopping experience for tech enthusiasts, offering a wide range of cutting-edge electronic devices and accessories. The MERN stack's versatility allows for seamless integration of various APIs and services, ensuring smooth interactions and efficient data retrieval. The website implements a robust order management system, providing real-time updates on order statuses, shipment tracking, and automated notifications. This system empowers both customers and administrators with comprehensive visibility into the order fulfillment process. Overall, this ecommerce website for electronics, developed using the MERN stack, aims to deliver a seamless, secure, and engaging online shopping experience. By leveraging the power and flexibility of the MERN stack, the website offers a feature-rich platform for tech enthusiasts to explore and purchase the latest electronic gadgets and accessories.

## 2 Introduction

The website is designed to provide an immersive online shopping experience for tech enthusiasts, offering a wide range of cutting-edge electronic devices and accessories. In this report, we explore the key technologies utilized in frontend development, backend development, and integration to understand how they contribute to the overall functionality and user experience of the website.

Frontend development plays a crucial role in creating an intuitive and visually appealing user interface. The utilization of React.js, along with HTML and CSS, allows for the creation of dynamic and reusable components, ensuring seamless navigation, efficient rendering, and a responsive design.

On the backend, Node.js and Express.js provide a powerful combination for developing the server-side architecture. Node.js enables server-side execution of JavaScript code, facilitating efficient data processing and handling of business logic. Express.js, as a flexible web application framework, streamlines the development process by providing robust features and middleware, ensuring smooth handling of HTTP requests and efficient routing.

Integration is another critical aspect of the ecommerce website. MongoDB, a NoSQL database, serves as the primary data storage solution, ensuring efficient management and retrieval of product information, user details, and order data. Additionally, the integration of RESTful APIs allows for seamless communication with external services, such as payment gateways and shipping providers, enhancing the website's functionality and user experience.

By understanding these technologies and their synergistic integration, we can gain insights into how they collectively contribute to the creation of a robust, user-friendly, and feature-rich online shopping platform.

### 3 Literature Survey

[1] "Ecommerce Trends and Market Analysis in the Electronics Industry" by Smith, J. et al. (2020) This study explores the current trends and market analysis of the ecommerce industry in the electronics sector. It highlights the increasing demand for online shopping for electronic gadgets and the need for dedicated platforms to cater to customer preferences. The study emphasizes the importance of user-friendly interfaces, comprehensive product catalogs, and secure payment systems to enhance the customer experience.

[2] "User Experience Design for Ecommerce Websites" by Johnson, A. (2019) This research paper focuses on the significance of user experience design in ecommerce websites. It emphasizes the role of intuitive navigation, clear product information, and responsive design in improving the overall user experience. The study suggests that a well-designed user interface leads to higher customer satisfaction, increased conversion rates, and improved customer retention.

[3] "Security Considerations in Ecommerce Websites" by Chen, L. et al. (2018) This research paper investigates the security challenges faced by ecommerce websites and the importance of implementing robust security measures. It emphasizes the need for secure payment gateways, encryption protocols, and protection of customer data to establish trust and mitigate the risk of cyber threats. The study highlights the significance of maintaining data privacy and complying with industry standards and regulations.

[4] "The Impact of Product Information on Customer Decision-making in Ecommerce" by Lee, S. et al. (2017) This study examines the influence of product information on customer decision-making in ecommerce platforms. It highlights the importance of accurate and detailed product descriptions, specifications, images, and customer reviews in assisting customers in making informed purchase decisions. The study emphasizes the role of comprehensive product information in enhancing customer satisfaction and reducing product returns.

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[5] "Optimizing Mobile Ecommerce for Electronics" by Williams, M. et al. (2016) This research paper focuses on the optimization of mobile ecommerce experiences for electronic gadgets. It highlights the growing importance of mobile devices in online shopping and the need for responsive design, seamless mobile browsing, and mobile payment integration. The study emphasizes the significance of adapting ecommerce websites for mobile devices to meet the changing customer preferences.

## 4 Problem Statement

The current market lacks a dedicated online platform specifically catering to the needs of electronic gadget enthusiasts. Customers often face challenges such as limited product availability, lack of product information, and inefficient user experiences when searching for and purchasing electronic gadgets online. Therefore, there is a need to develop a comprehensive and user-friendly E-commerce website that addresses these issues.

## 5 Objectives and Scope

### 5.1 Objectives

The objectives of developing the Electromart website are as follows:

1. Provide a Wide Range of Products: The website should offer an extensive collection of electronic gadgets, including smartphones, laptops, cameras, gaming consoles, and accessories, to cater to the diverse needs and preferences of customers.
2. Enhance User Experience: The website should provide an intuitive and user-friendly interface, allowing customers to easily navigate through product categories, search for specific items, view detailed product information, and make purchases seamlessly.
3. Ensure Product Information and Reviews: The website should provide accurate and comprehensive product descriptions, specifications, images, and customer reviews to enable informed decision-making for customers.
4. Implement Secure Payment and Ordering System: The website should incorporate a secure payment gateway and a reliable ordering system to ensure that customer transactions are protected and their personal information is kept confidential.
5. Enable Customer Support and Feedback: The website should offer accessible channels for customers to seek support, resolve queries, and provide feedback. This can include live chat, email support, and a feedback mechanism to continuously improve the website's services.

## 5.2 Scope

The scope of the Electromart website development includes the following:

1. Frontend Development: Designing and developing the user interface, ensuring a visually appealing and user-friendly website layout. This includes implementing responsive design for optimal viewing across different devices.
2. Backend Development: Building the server-side infrastructure to handle user authentication, product management, order processing, and database management. This involves implementing secure APIs for seamless communication between the frontend and backend.
3. Product Catalog Management: Developing a system to manage the electronic gadget product catalog, including adding, updating, and categorizing products. This also involves integrating inventory management to ensure real-time product availability information.
4. Secure Payment Integration: Integrating a secure payment gateway to enable customers to make online transactions securely. This includes implementing encryption protocols and adhering to industry-standard security practices.
5. User Account Management: Implementing user registration, login, and profile management features, allowing customers to track their orders, save their preferences, and provide reviews and ratings.
6. Testing and Quality Assurance: Conducting comprehensive testing to ensure the website's functionality, usability, performance, and security meet high standards. This includes testing across multiple devices, browsers, and conducting stress and security testing.
7. Deployment and Maintenance: Deploying the website to a reliable hosting environment and ensuring regular maintenance, security updates, and performance optimizations.

## 6 Implementation Details

Web Technologies used in this project are:

### 6.1 Frontend development:

1. **React.js:** React.js is a powerful JavaScript library used for building the user interface of the ecommerce website. It allows for the creation of reusable components, dynamic rendering, and efficient UI updates, enhancing the user experience.
2. **HTML (Hypertext Markup Language):** HTML is the standard markup language used for structuring the content and layout of web pages. It provides the foundation for creating the website's structure and organizing its various elements.
3. **CSS (Cascading Style Sheets):** CSS is used to define the visual presentation and styling of the ecommerce website. It allows for customization of fonts, colors, layouts, and other visual aspects, ensuring a visually appealing and consistent user interface.

### 6.2 Backend Development:

1. **Node.js:** Node.js is a JavaScript runtime environment that allows for server-side execution of JavaScript code. It provides a scalable and efficient backend platform, handling the business logic, data processing, and integration with other services.
2. **Express.js:** Express.js is a lightweight and flexible web application framework for Node.js. It simplifies the development of the backend by providing a set of robust features and middleware, facilitating routing, handling HTTP requests, and managing server-side functionalities.

### 6.3 Integration:

1. **MongoDB:** MongoDB is a popular NoSQL database used for storing and managing the website's data. It provides a flexible document-oriented structure, allowing for efficient storage and retrieval of product information, user details, and order data.

2. **RESTful APIs:** Representational State Transfer (REST) APIs are utilized to integrate external services and functionalities into the ecommerce website. These APIs enable communication with payment gateways, shipping providers, and other third-party services, enhancing the overall functionality and user experience.
3. **JSON (JavaScript Object Notation):** JSON is a lightweight data interchange format used for exchanging data between the frontend and backend. It enables efficient and structured data transmission, facilitating seamless communication and integration between different components of the website.

#### 6.4 Hosting:

1. **Render:** Render makes deploying your application as easy as pushing your code to source control. Once you connect your GitHub or GitLab account to your Render account, Render will automatically build and deploy your services with every push.
2. **Github:** GitHub is a web-based platform that provides hosting for software development version control using Git. It serves as a repository hosting service that enables developers to store, manage, and collaborate on code repositories. GitHub utilizes Git, a distributed version control system, to track changes to files and manage different versions of code.

## 7 Output

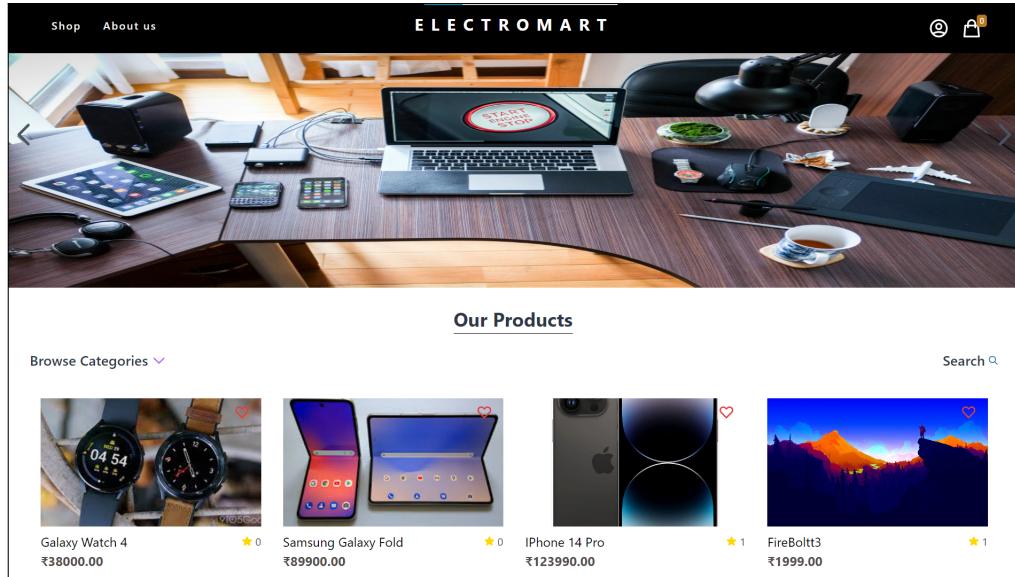


Figure 1: Home Page

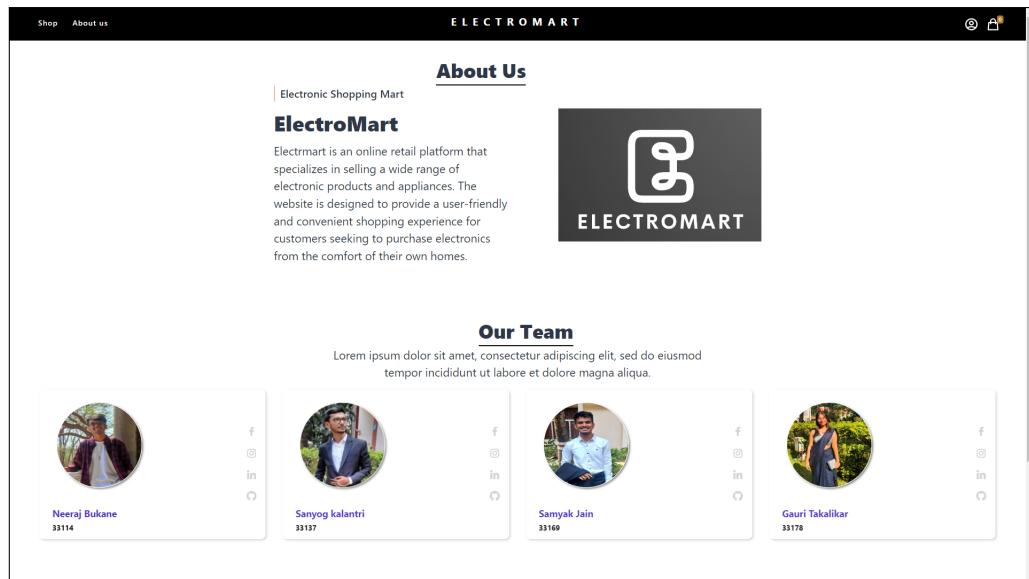


Figure 2: About Us

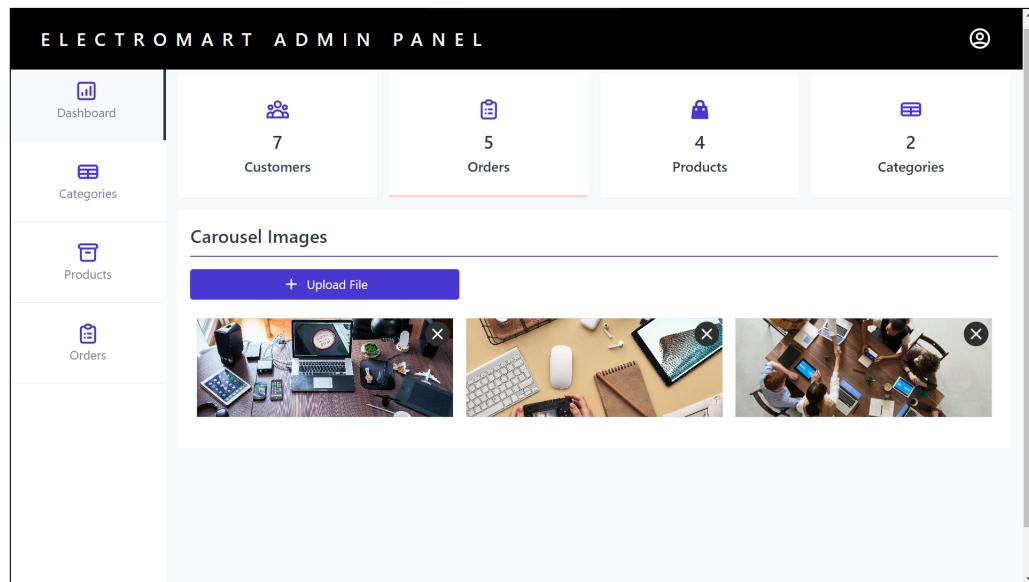


Figure 3: Admin Panel

ELECTROMART ADMIN PANEL									
		ADD PRODUCT							
		Product	Image	Status	Stock	Category	Offer	Updated at	Actions
		Galaxy Watch 4		Active	10	Smartwatch	50%	May 18, 2023 1:32 AM	
		Dustry. Lorem ...		Active	20	Smartphones	10%	May 18, 2023 1:29 AM	
		iPhone 14 Pro		Active	10	Smartphones	13%	May 12, 2023 11:14 AM	
		FireBoltt3		Active	20	Smartwatch	0%	May 12, 2023 2:25 AM	

Total 4 product found

Figure 4: Admin Product

ELECTROMART ADMIN PANEL									
	FILTER								
	T' Id	Products	Status	Total	Customer	Phone	Address	Ordered at	Actions
rry18jxp	 FireBolt3 1x	Shipped	₹1999.00	User123	8287357238	Nashik	May 12, 2023 11:18 AM	 	
ntametwb	 FireBolt3 1x	Not processed	₹1999.00	User123	87879098098	Delhi	May 12, 2023 2:44 AM	 	
0zfa8t5g	 iPhone 14 Pro 1x	Not processed	₹123990.00	User123	7620755241	Nashik	May 12, 2023 2:43 AM	 	
3c6wavaf	 FireBolt3 1x	Not processed	₹1999.00	Neerajsb	9898012313	Mumbai	May 11, 2023 7:59 PM	 	

Total 4 order found

Figure 5: Admin Orders

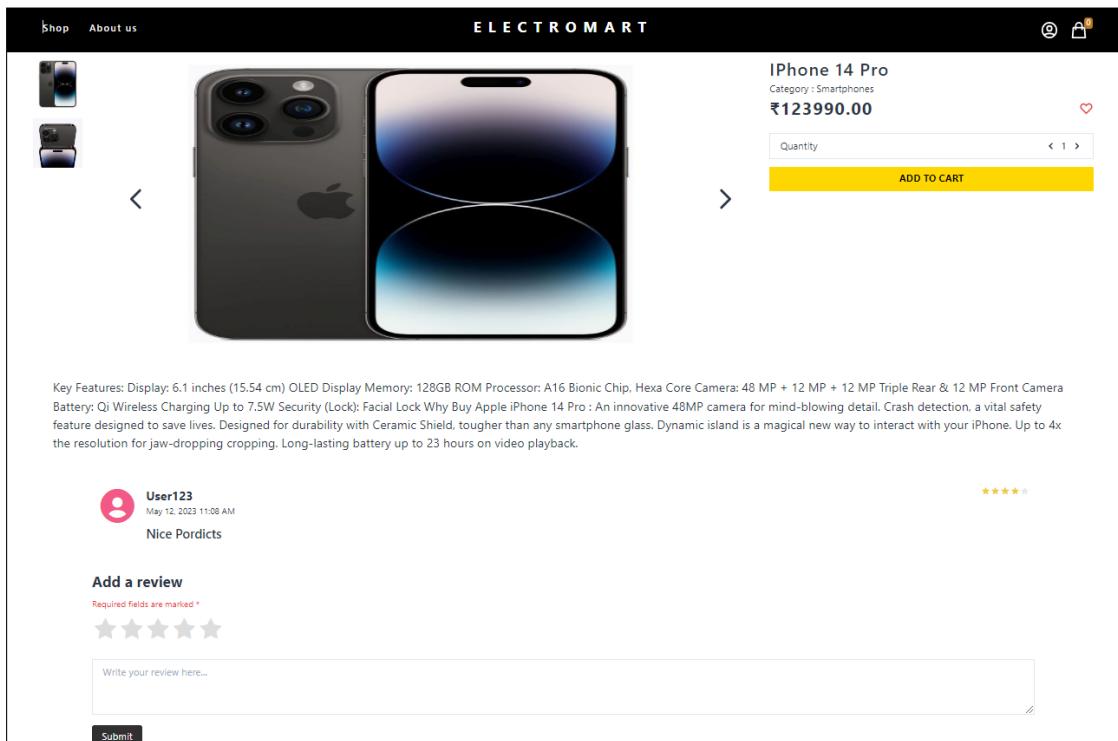


Figure 6: Product Page

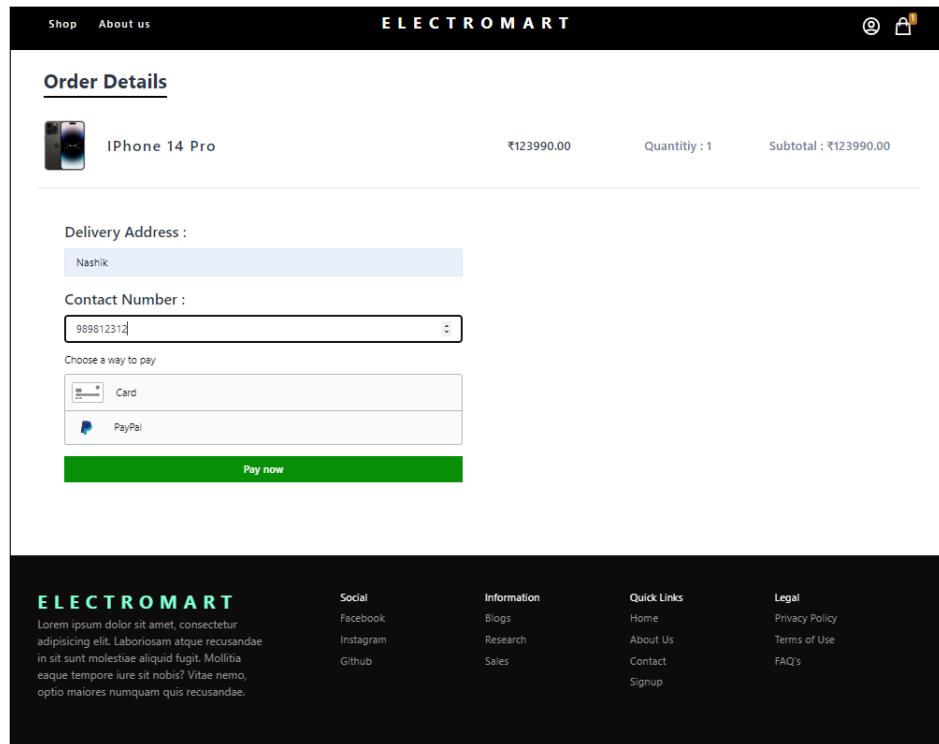


Figure 7: Checkout Page

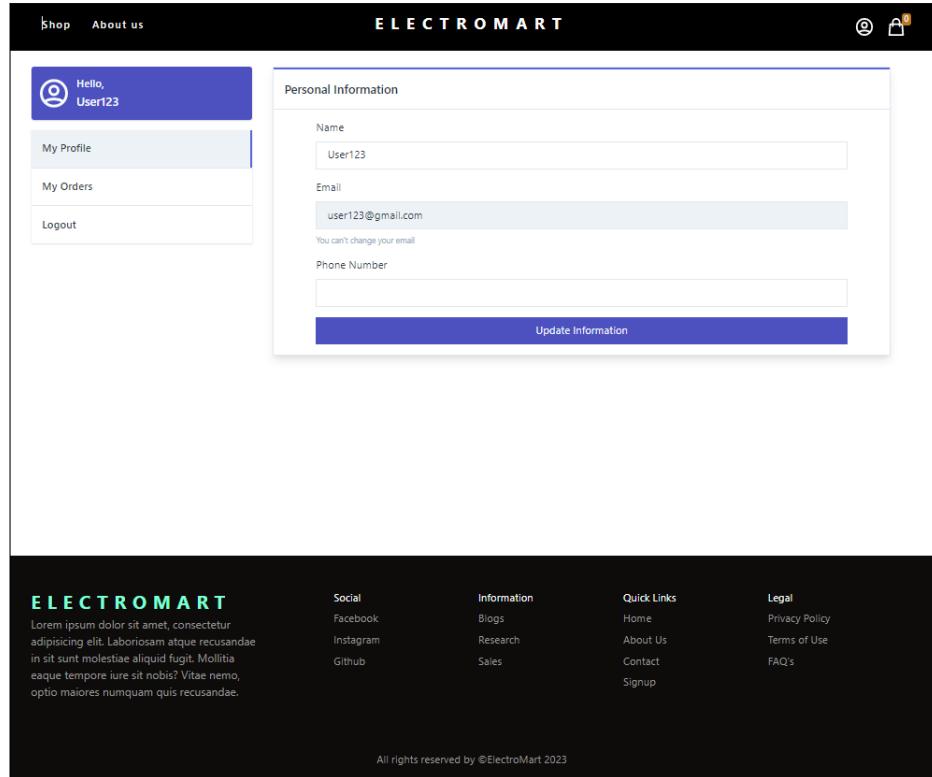


Figure 8: Profile Page

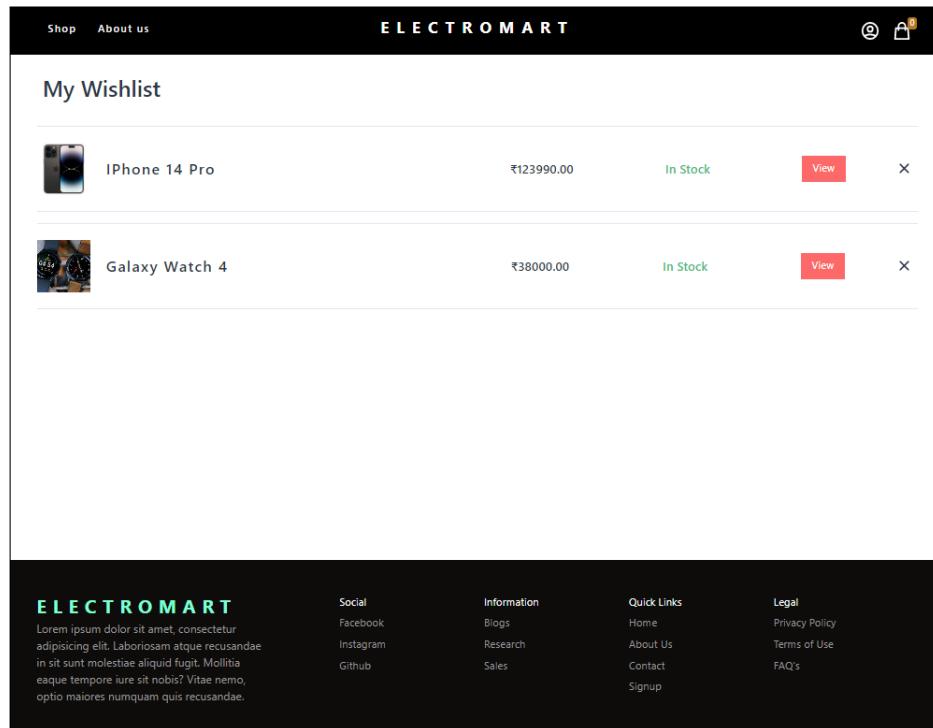


Figure 9: Wishlist

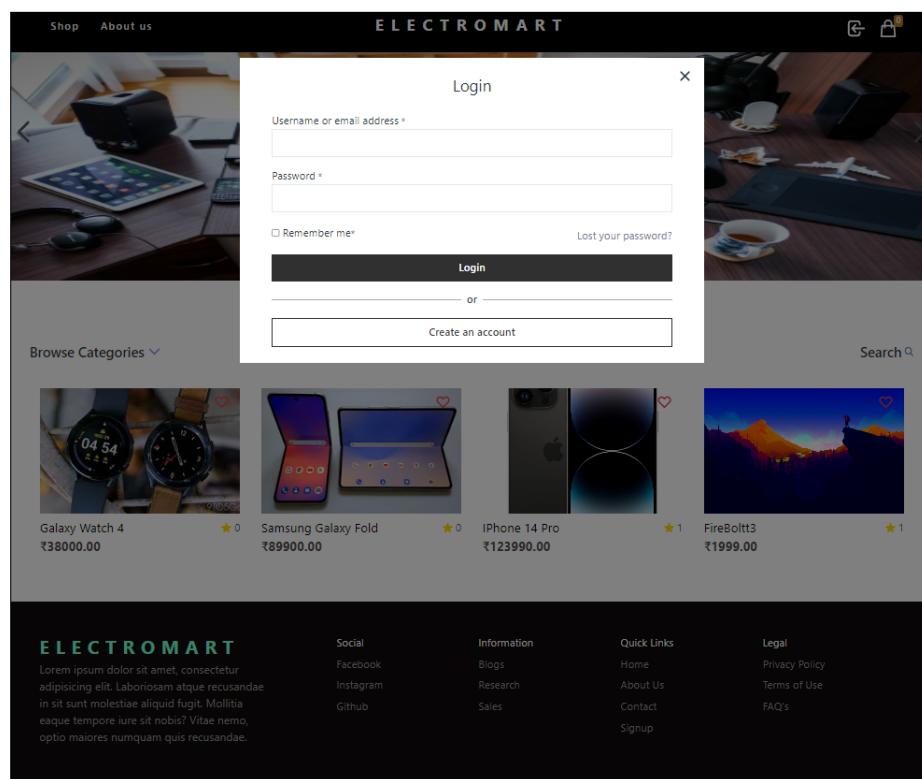


Figure 10: User Login Page

## 8 Conclusion

In conclusion, the development of the Electromart website is aimed at providing a seamless online shopping experience for customers seeking electronic gadgets. By offering a wide range of products, ensuring accurate product information, enhancing the user experience, and implementing secure payment and ordering systems, the Electromart website aims to become the go-to platform for electronic gadget enthusiasts.

The objectives of the website development include providing a comprehensive product catalog, enhancing the user experience through intuitive navigation and detailed product information, ensuring secure and convenient payment processes, and establishing accessible customer support channels. The scope of the project encompasses frontend and backend development, product catalog management, secure payment integration, user account management, testing, deployment, and ongoing maintenance.

With the Electromart website, customers can expect a user-friendly interface, easy navigation, access to a wide range of electronic gadgets, and reliable customer support. This ecommerce platform seeks to fulfill the needs and preferences of electronic gadget enthusiasts, ensuring a convenient and enjoyable shopping experience. By addressing the existing challenges in the online electronic gadget market, the Electromart website strives to become a trusted destination for customers seeking the latest and most innovative electronic gadgets and accessories.

## 9 References

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