

E-Commerce Bike Selling Website

Atharva Shankar Mazire¹, Asmita Anil Mirchandani¹, Aniket Nilkanth Pise¹,
Chandrashekhar G. Patil^{2,*}

Abstract

“RideXpert”, a selling website, is an online platform designed to facilitate the buying and selling of bicycles. Its purpose is to connect sellers and buyers conveniently and efficiently, eliminating geographical limitations and allowing for a broader market reach. These websites typically feature a diverse range of bicycles, catering to various preferences and needs, including road bikes, mountain bikes, hybrids, and more. To facilitate the purchasers many useful features have been introduced on this platform such as photographs of the bikes, detailed descriptions of the products along with the technical specifications, etc. Additionally, bike selling websites may offer additional services such as maintenance tips, expert advice, and user reviews to enhance the overall customer experience. By providing a centralized marketplace for bike enthusiasts, these websites contribute to the growth and accessibility of the cycling community, fostering a vibrant online ecosystem for buying, selling, and sharing knowledge about bicycles.

Keywords: E-commerce, JavaScript, react, Firebase, fostering

INTRODUCTION

RideXpert is an innovative e-commerce website dedicated to selling two-wheelers and their related accessories. This website offers a wide range of bikes from various known brands. Therefore, customers can easily explore a wide range of bikes by using this user-friendly website. The development process involves creating an intuitive interface with detailed product descriptions and specifications, facilitating easy comparison and selection for potential buyers. Security measures are implemented to ensure safe online transactions, and a robust logistics system is integrated to guarantee the timely delivery of orders. By prioritizing customer satisfaction and convenience, RideXpert seeks to become a leading destination for bike enthusiasts, providing seamless and rewarding online shopping experiences for all their two-wheel needs.

E-commerce Growth

E-commerce has seen significant growth in recent years, and this trend has extended to the bicycle industry. The futuristic scenario in the online marketing of these bikes is represented by RideXpert.

*Author for Correspondence

Chandrashekhar G. Patil

E-mail: chandrashekhar.patil_skncoe@sinhgad.edu

¹Student, Department of Electronics and Telecommunication Engineering, Smt. Kashibai Navale College of Engineering, Vadgaon, Pune, Maharashtra, India

²Associate Professor, Department of Electronics and Telecommunication Engineering, Smt. Kashibai Navale College of Engineering, Vadgaon, Pune, Maharashtra, India

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Consumer Behavior

Understanding how consumers are increasingly turning to online platforms to purchase bikes is crucial for *RideXpert*. This includes the reasons behind this shift, such as convenience, a wider range of choices, and the impact of the COVID-19 pandemic e-commerce.

Digital Marketing and Sales Strategies

As e-commerce plays a pivotal role in bike sales, *RideXpert* needs to discuss the digital marketing and sales strategies adopted by bike retailers. This

might include optimizing websites for user experience, harnessing social media for promotion, and enhancing customer engagement through online channels. RideXpert should explore how innovations, such as augmented reality for virtual bike trials, AI-driven product recommendations, and secure payment methods are transforming the industry.

Supply Chain and Logistics

The shift to e-commerce has impacted the supply chain and logistics of bike retailers. RideXpert delves into how companies adapt to meet the demands of online shoppers, including warehousing, shipping, and return processes.

Sustainability

E-commerce has implications for sustainability in the bicycle industry. RideXpert can discuss how e-commerce can reduce the carbon footprint by minimizing the need for physical stores and how bike companies emphasize eco-friendly practices in their e-commerce operations.

In an era marked by rapid digital transformation, the cycling industry is experiencing a paradigm shift in how bikes are bought and sold. As online shopping has become increasingly prevalent, RideXpert has emerged as a pioneering force, navigating the future of e-commerce bike sales with innovation and expertise.

With a keen focus on user experience, RideXpert offers a seamless and intuitive interface that empowers customers to explore, compare, and purchase bikes with confidence and ease. Therefore, a dynamic e-commerce global platform is proposed here using RideXpert to fulfill customer requirements.

LITERATURE SURVEY

In their research paper titled “*a review and development of e-commerce website*”, Amandeep et al. [1] delve into the latest trends and technologies that attract customers and provide useful information to management in the field of e-commerce. This study provides a comprehensive understanding of e-commerce system design, as well as the basics of information flow in operating an e-commerce platform.

In their research paper, “*the role of e-commerce on customer engagement*” Sirvi et al. [2] provide a comprehensive review of how e-commerce attracts customers to its sites. Especially after the worldwide pandemic due to Corona, the use of e-commerce has become the usual practice. This study focuses on how e-commerce sites work to engage customers and provides a better understanding of how to check the quality of brands on E-commerce websites.

An article titled “*building and developing e-commerce website*” by Abd Alameer et al. [3] suggests building a reliable website for selling computer products (both hardware and software) using the latest technology. The algorithm for the implementation of this website is as follows.

1. Creation of a user-friendly store that is available round the clock and online.
2. Implementation of a closed-loop system that improves performance based on feedback received from customers.

In the research paper “*React JS: a modern web development framework*” by Prateek et al. [4], the authors have explained in depth the utilization of an open-source library, React JS. It is a useful open-source library that helps build a UI specifically for a single-page application.

In their research paper titled “*an innovative model to choose e-commerce suppliers*” Zhang et al. [5] proposed a new method for group decision-making that incorporates both qualitative and quantitative analysis. This method utilizes quality function deployment (QFD), and an improved technique called TOPSIS (a technique for order preference by similarity to the ideal solution) to achieve better results in supplier selection.

The article titled “*research on B2B2C e-commerce website design based on user experience*” by Cai, Dai, Zhu, et al. [6] discusses the B2B2C sales model in e-commerce. This model is an improved 7 version of the existing B2B and B2C models. With B2B2C, e-commerce businesses can create their own logistics supply chain systems and provide seamless services.

The paper titled “*design and implementation of e-commerce web application*” by Stephie et al. [7] focuses on the design of a web portal for pet trading and welfare. With the emergence of new web technologies, a “usability subculture” has been created, making user-centered design increasingly important in a competitive market. This application provides an easy approach for users to access veterinary science, clubs, buy/sell pets, and related accessories.

“*E-commerce site and its development*” is a paper written by Gaikwad et al. [8] that demonstrates futuristic e-commerce and its potential in depth. This has huge potential in the fields of travel and tourism, hardware products, electronic appliances, etc. The paper also highlights some crucial factors that are expected to significantly contribute to e-commerce in India.

The article titled “*buyer behaviour: a study in two-wheeler market*” by Raj et al. [9] analyzed the factors that determine the market share of two-wheeler manufacturers. According to this study, the power and style of the two-wheeler are the primary factors that influence buyer behavior. In the future, two-wheelers with additional features for pollution control and environment-friendly models will be more in demand. Additionally, customer satisfaction is influenced by comfort in handling and vehicle power. This study suggests that there is a market for powerful vehicles of any type, provided they have comfortable handling and style. According to the article “*e-commerce and its impacts on global trend and market*” by Shahriari et al. [10], e-commerce has become an essential part of our society. The World Wide Web plays a significant role in our daily lives, and small businesses need to have e-commerce websites to compete with larger companies. Small vendors will become more powerful as they can easily afford to use the Internet through e-commerce websites for their business.

METHODOLOGY

RideXpert is likely a platform or service aimed at revolutionizing e-commerce in the bike sales sector. By leveraging data analytics and innovative technology, RideXpert can offer personalized recommendations, stream the purchasing process, and enhance the overall customer experience within the bike industry. Its focus on navigating the future of e-commerce suggests an emphasis on adapting to evolving consumer trends and technological advancements to stay ahead in the competitive market. It sounds like RideXpert not only focuses on the future of e-commerce in the bike sales sector but also on understanding and leveraging historical data to inform its strategies. By analyzing past trends and consumer behaviors, RideXpert can better navigate the evolving landscape and tailor its services to meet the needs and preferences of its customers. RideXpert is likely to be a platform or service aimed at revolutionizing e-commerce in the bike sales sector. By leveraging data analytics and innovative technology, RideXpert can offer personalized recommendations, streamline the purchasing process, and enhance the overall customer experience within the bike industry. Its focus on navigating the future of e-commerce suggests an emphasis on adapting to evolving consumer trends and technological advancements to stay ahead in the competitive market. It sounds like RideXpert not only focuses on the future of e-commerce in the bike sales sector but also on understanding and leveraging historical data to inform its strategies. By analyzing past trends and consumer behaviors, RideXpert can better navigate the evolving landscape and tailor its services to meet the needs and preferences of its customers, as shown in Figure 1. The algorithm of the system workflow will be as shown below:

1. The user enters the URL into their web browser.
2. The browser sends a request to the server to retrieve the website. After processing the request, the server returns the relevant webpage to the browser. Consumers add products to their shopping cart if they choose to purchase. After choosing a payment option, entering delivery details, and validating the order, they continued the checkout procedure.

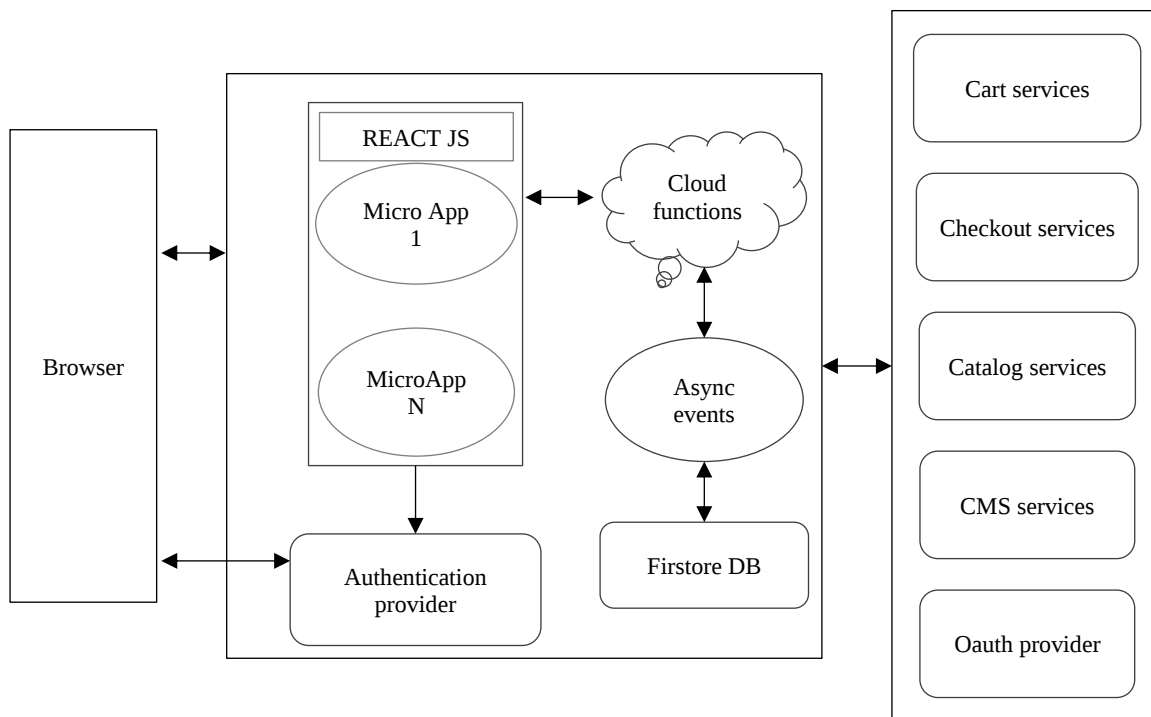


Figure 1. Block diagram of overall system workflow.

3. User behavior is tracked using analytical tools. The website generates reports on user activities, traffic patterns, and sales. Company administrators access an administration portal or dashboard to manage the product catalog, inventory, orders, and user accounts.

The web server communicates with the database to retrieve and update information such as adding items to the cart that are stored in the database.

Configuring a Product Catalog with Firebase

E-commerce businesses require a “product catalog” to hold a variety of data with various features such as product availability, pricing, shipping information, and promotional offers. Applications for product catalogs combine data from several sources into files and display them in a personalized manner. Product catalog information can be retrieved from well-known data sources, such as active database deployments and Firebase. The Firebase was used to create a product catalog management system for this project. It is critical to anticipate a bike’s resale value precisely in today’s dynamic and cutthroat second-hand bike market. Artificial Intelligence (AI) has become a disruptive force that propels innovation and enables accurate pricing predictions.

The vanguard of this transformation is the Bikes Revalue app from Blinx AI, which uses sophisticated AI algorithms—specifically, the GB Tree booster regressor algorithm—to forecast the price at which bikes will be sold. By examining a number of input features, such as the bike’s age, its full name, the city in which it was posted, and other pertinent details. Using the software, individual sellers may maximize their profits by determining the anticipated resale value of their bikes, allowing them to establish competitive asking prices. Prospective purchasers acquire self-assurance by determining reasonable costs, securing better terms, and avoiding overspending. Online marketplaces and bike dealerships can offer precise pricing advice, which boosts client happiness and builds trust.

This methodology seeks to redefine the way bikes and accessories are sold in the digital age, aiming to provide a one-stop destination for cyclists of all levels and backgrounds, embracing innovation, customer centricity, and sustainability to create a satisfying and forward-looking e-commerce experience.

RESULTS AND ANALYSIS

A state-of-the-art website that enables bike enthusiasts to buy and sell their favorite bikes online is proposed. The site has an intuitive layout, which makes it simple for consumers to find the bike they are looking for. Users can refine their search results using our sophisticated search tool to focus on parameters such as brand, model, and price, as shown in Figures 2–6.

Our platform offers detailed information on each bike's product listing, including its features, conditions, and history. Thus, buyers can make informed decisions before purchasing. We also developed an Admin Dashboard, which allows sellers to easily add, update, and delete their products. Moreover, sellers can create their profiles where they can showcase their bikes and establish their reputation within the community. We created a price prediction model that utilizes advanced machine-learning algorithms to estimate the fair market value of bikes.

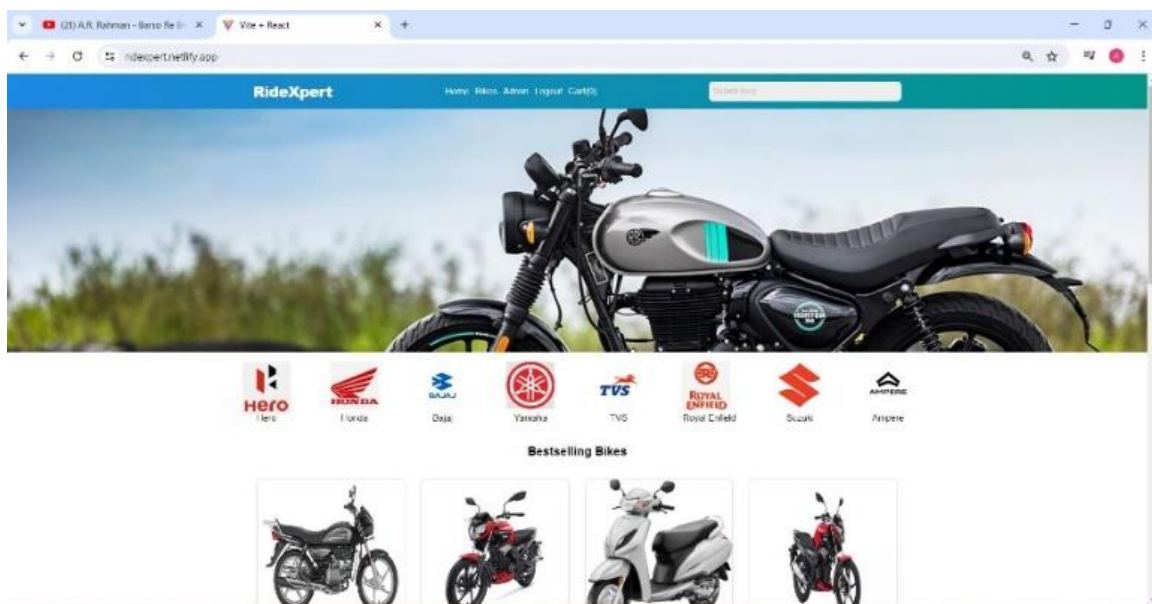


Figure 2. Home page.

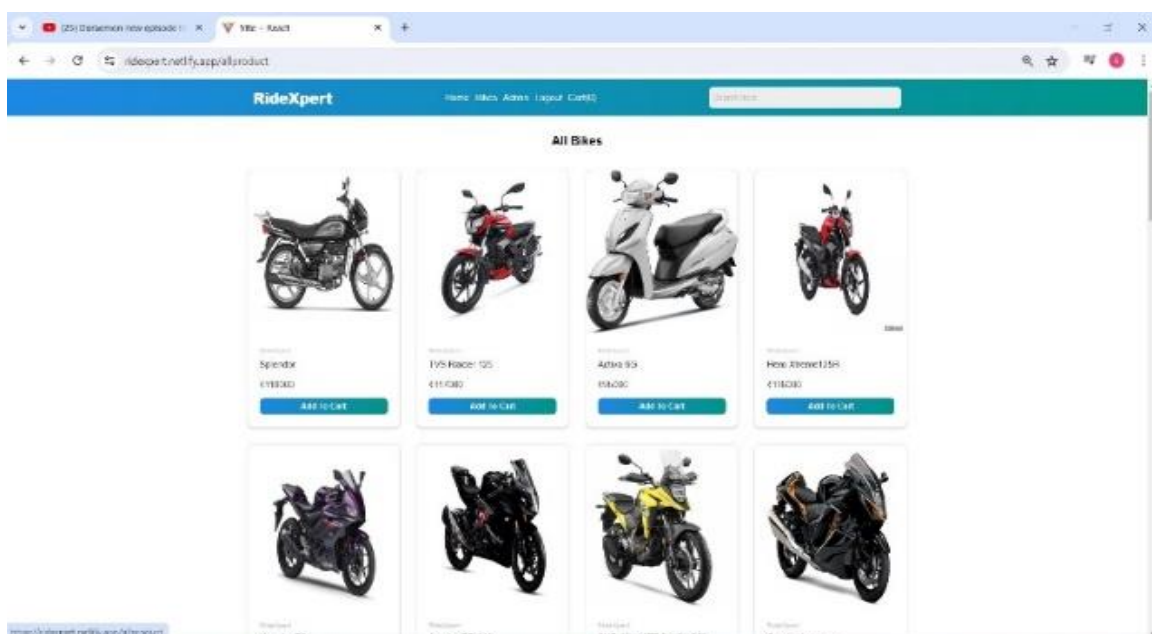


Figure 3. All bike pages.

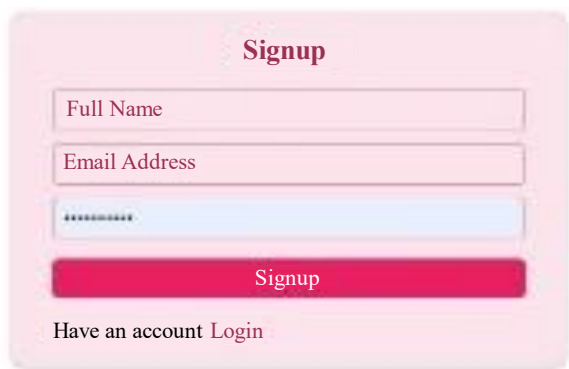


Figure 4. Sign in page.

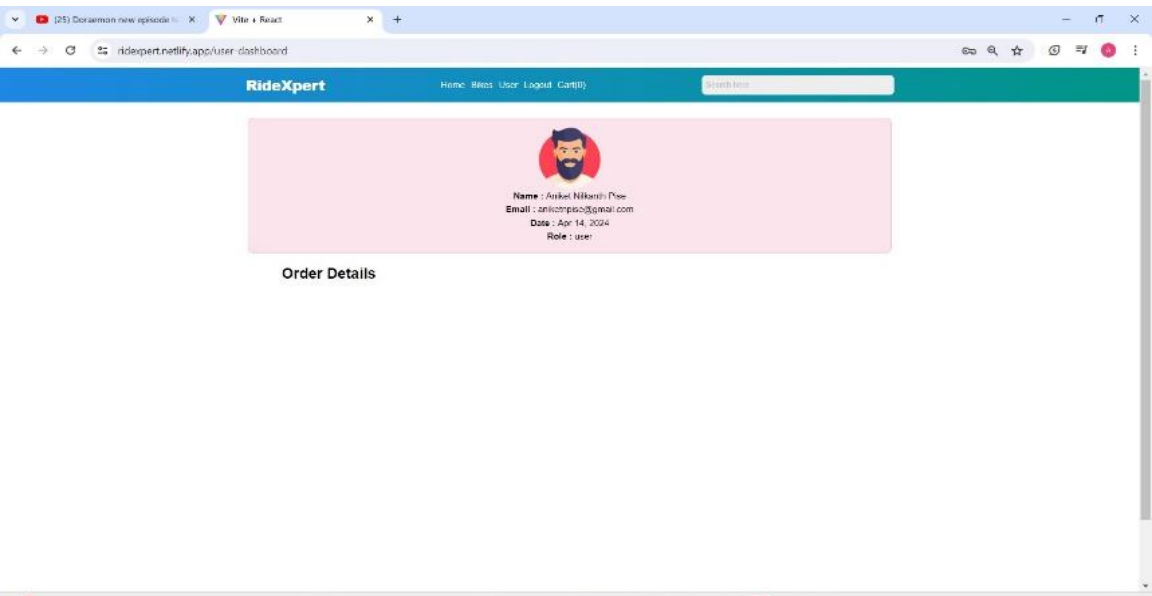


Figure 5. User page.

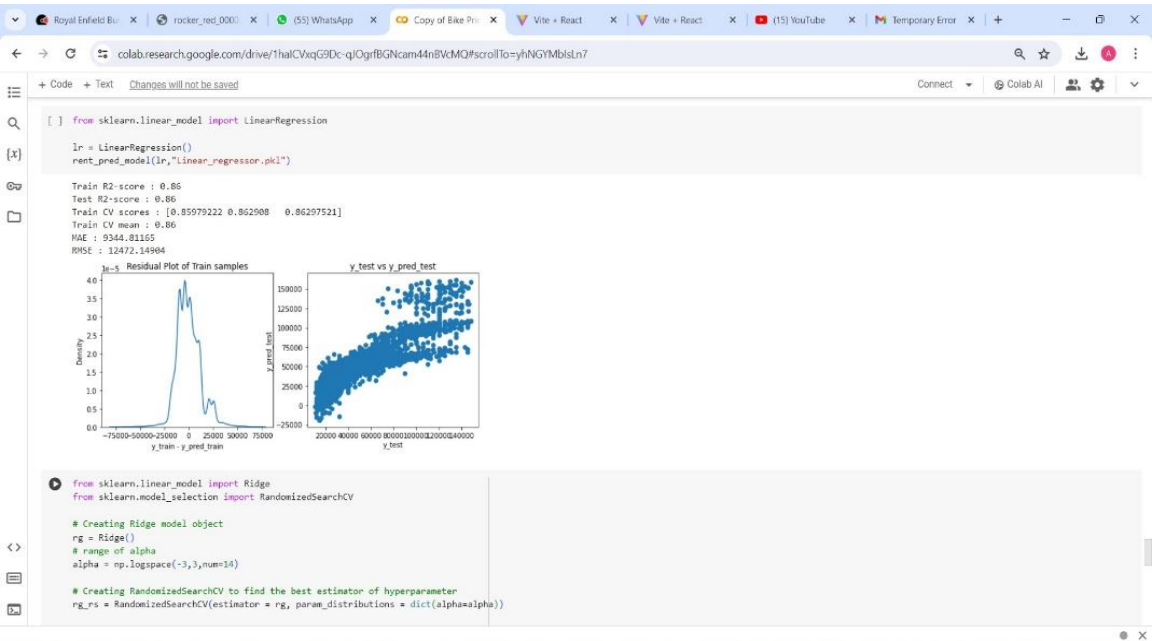


Figure 6. Price prediction model.

CONCLUSION

Selling bikes through e-commerce is effective in reaching a wider audience. Platforms such as Shopify have more than two million stores. E-commerce is popular because of its low investment and flexibility, which makes it a profitable business model for entrepreneurs. By following these principles and staying dedicated to evolving with the e-commerce landscape, the future of e-commerce bike sales websites can be promising and rewarding. As consumers' needs and preferences continue to shift, those who navigate this path with a customer-centric, sustainable, and innovative approach are likely to thrive in this ever-changing digital marketplace.

REFERENCES

1. Amandeep AV, Chaudhary S, Thakur V. A review & development of e-commerce website. *Int Res J Eng Technol*. 2022;9:2423–7.
2. Sirvi R, Ramu GR, Revelli V, Santosh Kumar GV, Pattnaik CS. The role of e-commerce on customer engagement in 2021. *Int J Sci Dev Res*. 2021;6:319–24.
3. AbdAlameer EM. Building and developing e-commerce website. *Int J Sci Res*. 2014;3:1419–25.
4. Rawat P, Mahajan AN. ReactJS: A modern web development framework. *Int J Innov Sci Res Technol*. 2020;5:698–702.
5. Liu A, Zhang Y, Lu H, Tsai SB, Hsu CF, Lee CH. An innovative model to choose e-commerce suppliers. *IEEE Access*. 2019;7:53956–76. doi:10.1109/ACCESS.2019.2908393.
6. Cai L, He X, Dai Y, Zhu K. Research on B2B2C e-commerce website design based on user experience. *J Phys Conf Ser*. 2018;1087(6):062043.
7. Stephie VV, Lakshmi M. Design and implementation of e-commerce web application. *ARPN J Eng Appl Sci*. 2017;12:4769–72.
8. Gaikwad L, Parate A, Sahare B, Kshirsagar A, Dhak B. E-commerce site and its development. *Int Res J Eng Technol*. 2017;4:1649–53.
9. Raj VJ, Soundarapandian MP, Gopi ME. Buyer behavior: A study in two-wheeler market. *Shanlax Int J Manag*. 2013;1:72–6.
10. Shahriari S, Mohammadreza S, Gheiji S. E-commerce and its impacts on global trends and market. *Int J Res GRANTHAALAYAH*. 2015;3:49–55. doi:10.29121/granthaalayah.v3.i4.2015.3022.