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E-Commerce Website Using MERN Stack

Naitik Sharma[1], Ashok Kumar[2], Anurag Sharma[3], Akarsh Verma[4], Neelesh Ranjan Srivastava[5]
[1, 2, 3, 4, 5]*Department of Electronics and Communication Engineering, KIET Group of Institutions, Ghaziabad, India*

Abstract: Over the last few years, e-commerce has become an indispensable part of our life. It is growing day by day. Most people now prefer online shopping rather than going into the market. As internet access increases rapidly worldwide, the number of online buyers will keep climbing. Digital shopping is much more convenient, as buyers don't have to leave the comfort of their homes. They can buy whatever they want. no matter what time of the day it is. In this time of digitalization, the need for digital shopping is going to climb. The trend shows that businesses will completely switch over to online stores in the next 20 years.

I. INTRODUCTION

Customers get many benefits via online shopping this helps e-commerce companies to build long-lasting and profitable relationships with their customers. For making a strong relationship with these users it is very important to focus on the customer as a whole and make sense of a flood of real-time information that goes well beyond demographics or shopping behavior. There are two entities that will have the access to the system. One is the admin and another one will be the registered user. Admin can add product details, view all the order details and can also view the sales of the products. Users need to register with basic registration details to generate a valid username and password.

II. E-COMMERCE

Electronic Commerce is exactly analogous to a marketplace on the Internet. Electronic Commerce (also referred to as EC, e-commerce eCommerce or ecommerce) consists primarily of the distributing, buying, selling, marketing and servicing of products or services over electronic systems such as the Internet and other computer networks.

E-commerce follows the same basic principles that traditional commerce follows-that is, buyers and sellers exchange and transport goods from one place to another. But rather than conducting business In the traditional way-in stores and other "brick and mortar" buildings or through mail-order catalogues and telephone operators In e-commerce buyers and sellers transact business over the networked computer

III. THE ELEMENTS OF E-COMMERCE

In the case of E-commerce, all the above-listed elements are available but they are having slight variations in the real-life situation.

1) *A Product or Service:* In the case of E-commerce, it is a virtual product shown on a website. One can demonstrate a multimedia presentation of the product & its entire feature on the web page itself, which may not be possible in the case of physical product of commerce activity.
2) *A Place to sell the Product:* In the e-commerce case, a website displays the products in all ways & acts as a place for E-Commerce.
3) *A way to get Customers to visit your Website:* In the case of E-Commerce search engines and linkages with other websites play an important role in helping the customers to reach web sites of the organizations.
4) *A way to Accept Orders:* The orders are accepted on the website Itself. On the web pages of the E-commerce companies shopping carts are being provided. One can click on the lean and fill in the shopping I card to order items to be purchased and it is accepted by the E-commerce Company as an order from the customer.
5) *A way to Accept Money:* In the case of traditional commerce, buyers and sellers are in direct contact with each other.

A. *Models of E-commerce*

Most transactions in E-commerce may broadly be classified Into three main categories

1) Business-to-consumer transactions
2) Business-to-business transactions
3) Consumer-to-consumer transactions

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B. Types of E-Commerce

1) *Product Transactions:* E-Commerce WebSite A page from the Amazon.com Web site illustrates the ease and Immediacy of electronic commerce. Shoppers are able to search a wide variety of products, make their selections, order online, and receive updates about the status of their shipment.
2) *Service Transactions:* Other e-commerce businesses offer services. Financial services represent a large segment of e-commerce. For a small fee, online investment brokerages trade stocks on behalf of their clients. Online stock brokerages typically charge customers lower fees than traditional stock brokerages. Other sites provide consumers with a way to research and obtain mortgages and other loans online.

IV. TECHNOLOGY USED:

A. MERN

MERN stands for MongoDB, Express, React, Node. With these technologies that make up the stack.

1) MongoDB - document database
2) Express(.js) - Node.js web framework
3) React(.js) - a client-side JavaScript framework
4) Node(.js) – NODE.js is a JavaScript-based web server

B. Advantages of MERN Stack

1) UI Rendering and Performance
2) Cost-Effective
3) Open Source
4) Easy to Switch Between Client and Server

C. Workflow Diagram of Ecommerce Website

D. Features

1) Authentication using JSON Web Tokens (JWT).
2) Admin can add, edit, view, and delete all the items in our store.
3) Customers can add items or remove items from the cart.
4) Display the total bill of the cart and update it as soon as the cart is updated by the user.
5) We only allow logged-in users to buy items.
6) Option to pay and checkout thus creating order and emptying the cart.
7) Review and Rate button for every product.

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V. CHALLENGES

1) Economical Challenges
2) Social Challenges
3) Legal challenges
4) Cyber and Data Security
5) Attracting the Perfect Customer
6) Competition
7) Choosing the right technology

VI. ADVANTAGES

A. *Advantages for Consumers*

1) Lower prices
2) Convenient and safe
3) Wide product variety
4) Saves time
5) More accurate decision making

B. *Advantages for Business*

1) Lower cost
2) Customer data
3) Wider customer base
4) Always open
5) Easier to scale up

VII. CONCLUSION

The paper is all about the development of a full-stack eCommerce website. Which types of technologies are used in this website. We have chosen a full stack for this website. Each developer may have their preferences for web stacks. We try our best to provide you with the one-and-one latest web technology. It will be very attractive for the customer to see the products by sitting at the office or at home. It will be very helpful for the small-scale industries without selling to wholesalers, large retailers can directly sell to the customer by saving money for both. We have considered many factors like project requirements, Costs of development, scalability, and Security.

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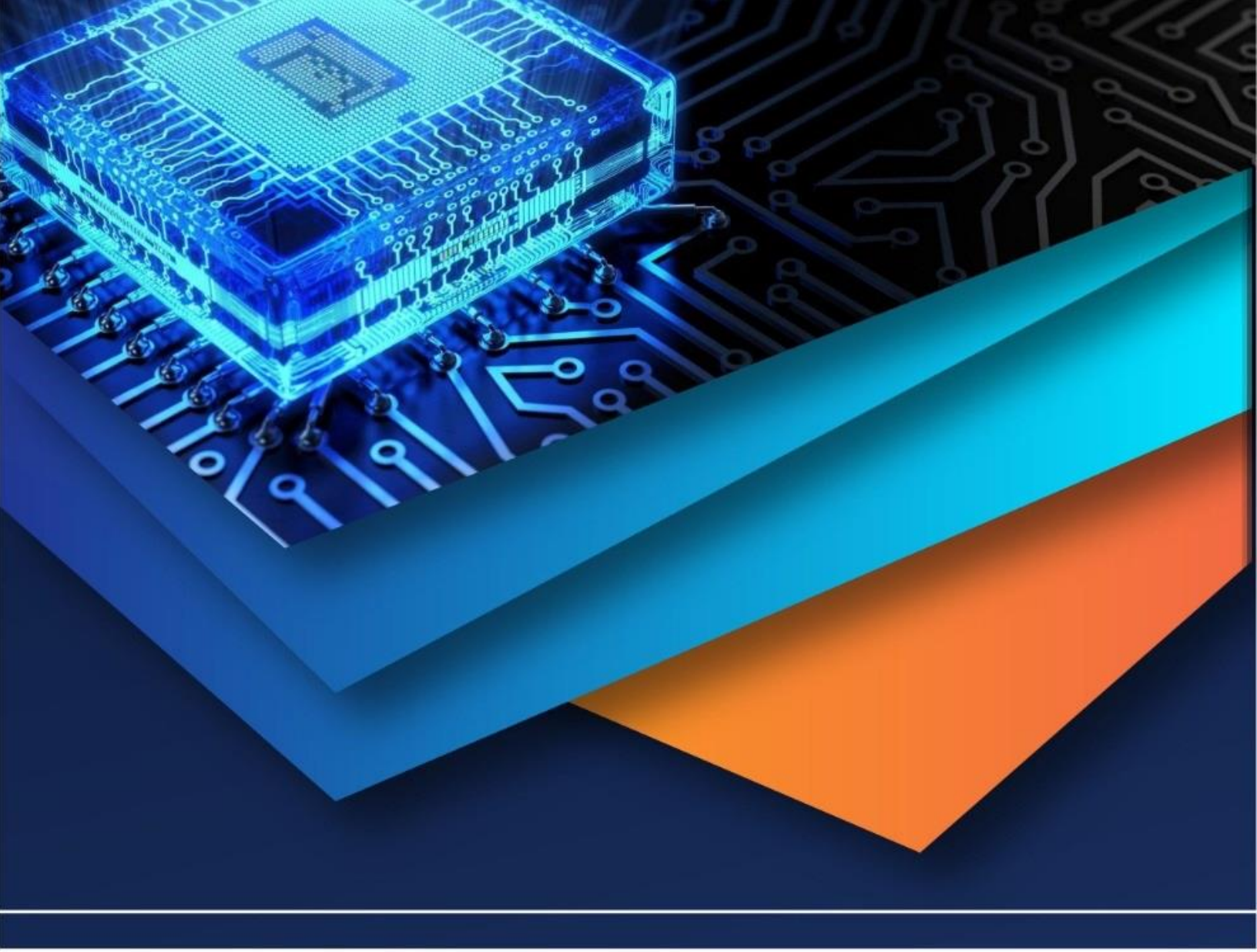

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