ECOMMERCE WEBSITE USING BLOCKCHAIN TECHNOLOGY

1Akshay, 2Shruthi K, 3Vanitha D, 4Sumanth G, 5Prof Sahana G Kundar 6Prof Sathish Kumar K
1Student, 2Student, 3Student, 4Student, 5Assistant professor, 6Associate professor
Department of Electronics and communication Engineering, Srinivas Institute of Technology Valachil, Mangalore, India

Abstract: An E-commerce website built on Blockchain technology can provide a more secure and transparent platform for online transactions. The use of Blockchain can eliminate the need for third-party intermediaries, making transactions faster and more efficient. Smart contracts can be used to automate the process of verifying and completing transactions, ensuring accuracy and reducing the risk of fraud. Additionally, Blockchain technology can provide a decentralized system for tracking product ownership and authenticity, improving supply chain management and reducing the risk of counterfeiting. Overall, an E-commerce website built on Blockchain technology has the potential to provide a more secure and reliable platform for online transactions.

Index Terms – Blockchain, AR, ECommerce.

1. INTRODUCTION.

E-commerce is a rapidly growing sector in the digital world, enabling businesses to sell their products and services online. However, traditional E-commerce systems are often faced with challenges such as lack of transparency, trust, and security, which can lead to issues such as fraud, counterfeiting, and data breaches. Blockchain technology, on the other hand, has emerged as a potential solution to address these challenges in e-commerce systems. Blockchain is a decentralized digital ledger that records transactions in a secure, transparent, and immutable manner. It allows for a trustless environment, where intermediaries are eliminated, and transactions are directly between the buyer and seller. The use of Blockchain in E-commerce can help establish trust between the parties involved by providing transparency and security. Blockchain technology can be used to create a Blockchain-based E-commerce website, where transactions are conducted using cryptocurrencies such as Bitcoin or Ethereum.

In such a system, buyers can make payments using their cryptocurrency wallets, and the transactions are recorded on the Blockchain. This makes the
transactions secure and transparent, eliminating the need for intermediaries such as payment gateways. Additionally, Blockchain technology can be used to track the supply chain of products sold on ecommerce websites. By using a Blockchain-based system, businesses can track the movement of goods from the point of origin to the final destination, ensuring authenticity and preventing counterfeiting. This provides greater transparency to the buyers, and businesses can use this information to improve their supply chain processes. Overall, the use of Blockchain technology in E-commerce can help establish trust, security, and transparency in online transactions, ultimately providing a better shopping experience for consumers.

II. LITERATURE SURVEY

E-commerce websites have become an integral part of the modern retail industry. However, with the growth of online transactions, there has been an increase in cyber-attacks and fraudulent activities. This has led to a growing interest in using Blockchain technology to enhance the security and transparency of E-commerce transactions. In paper [1] “A Blockchain-based e-commerce system with privacy and transparency” (2021) by C. Liu and X. Liu, this paper proposes a Blockchain-based e-commerce system that uses smart contracts to enhance privacy and transparency. In paper [2] “Blockchain technology for enhancing e-commerce security: a systematic literature review” (2020) by M. Al-Jarrah et al. This review paper analyses the existing literature on Blockchain technology and its potential applications in e-commerce. In paper [3] "A Blockchain-based e-commerce system for
III. IMPLEMENTATION

This block represents the integration of external services into your project. It includes Stripe and Coinbase, which are payment gateways used for processing payments in your application. These services handle the payment transactions securely. This block represents the user interface of your application. It includes the frontend components that users interact with, such as web pages, forms, and user interfaces built using HTML, CSS, and JavaScript. The user interface is responsible for displaying information, collecting user inputs, and providing a seamless experience for users. This block represents the backend server of your application.

It includes the server-side components responsible for handling business logic, data processing, and communication with external services. In this case, the backend is built using Express.js, which is a popular web application framework for Node.js. The backend server interacts with the frontend and external services to process requests and handle server-side operations. This block represents the deployment platform used for hosting your application. Render is a cloud platform that allows you to deploy and manage your application easily. It provides scalability, reliability, and performance for your application deployment. This block represents the version control system used for managing your source code. GitHub is a widely used platform for hosting and collaborating on software projects. It allows you to store, track changes, and manage different versions of your codebase. It offers features such as code repository, branching, merging, and issue tracking. These blocks represent third-party services used for integration and automation. Zapier is a platform that allows you to automate workflows and connect different applications together. It enables you to create automated actions triggered by events in other applications. Gashupisa another third-party service that provides integration capabilities, allowing you to connect various APIs and services to streamline your application's functionality. Overall, this block diagram illustrates the key components and integrations in your project, including the user interface, backend server, payment gateways, deployment platform, version control system, and third-party services for integration and automation.
Fig: BLOCKDIAGRAMOFTHEPROJECT
The user interface flow you described follows a typical E-commerce purchasing process. It starts with the user searching for a product and then selecting the desired item. If the user decides not to make an immediate purchase, they can add the item to the cart for later. However, if they choose to buy the product, the system checks if they are logged in. If the user is already logged in, they are redirected to the checkout page where they enter the required details and select a payment method. Upon successful payment, the user is redirected to a success page, the cart is cleared, and an email is sent to confirm the purchase, and the process ends. On the other hand, if the user is not logged in, they are prompted to create an account. If they decide to proceed, the account creation process is completed successfully. If the user already has an account, they are redirected to the login page. After successful login, they follow the same steps as a logged-in user: entering checkout details, making a payment, receiving a confirmation, and completing the process.

In summary, the process involves searching, selecting, and purchasing products, with options for adding items to the cart and creating user accounts if necessary. It ensures a seamless and secure shopping experience, incorporating login functionality, checkout processes, and transactional emails for communication.
iv. CONCLUSION AND FUTURE WORK

In conclusion, our project successfully addressed the problem of providing a user-friendly platform for buyers and sellers. The application allows users to create and manage their own profiles, post and view images, and buy and sell products using Coinbase and Stripe as payment gateways. We implemented security measures such as encryption and authentication using Bcrypt, as well as email notifications using Node mailer. For image storage, we leveraged IPFS (Interplanetary File System), a decentralized and distributed storage system. IPFS ensures secure and reliable storage of images, improving data availability and resilience. This approach eliminates the need for centralized storage services and provides a more efficient way to store and retrieve images. In terms of deployment, we utilized Render as our hosting platform, which offers scalability, reliability, and easy management of our application. GitHub served as our overcontrol system, enabling collaborative development and seamless deployment of updates to the Platform. Integrating cryptocurrency as a payment option in an e-commerce website offers several benefits, including increased security, faster transactions, reduced transaction fees, and access to a global customer base. By accepting cryptocurrencies through Coinbase and Stripe, we provide a secure and transparent payment process that enhances customer trust and loyalty. To further enhance the customer experience, personalized recommendations, offers, and content can be provided based on customer data and behavior. Artificial intelligence techniques can be employed to improve search results, optimize pricing strategies, and predict customer behavior. This enables businesses to tailor their offerings and provide a more personalized and engaging shopping experience. In the future, the optimization of the cryptocurrency payment mechanism can be explored to make it even more frictionless and user-friendly. This may involve refining the conversion process and supporting a wider range of cryptocurrencies. Educating customers about the benefits and risks of using cryptocurrency as a form of payment will be essential, along with addressing any regulatory challenges. Furthermore, businesses can consider adopting cryptocurrency for purposes beyond payments, such as supply chain management and loyalty schemes, to fully leverage the advantages of blockchain technology. By embracing these opportunities, companies can drive innovation and efficiency in their operations, creating a competitive edge in the ecommerce market.

REFERENCES