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Blockchain Based E-Commerce Online Application

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In Existing E-commerce application all customers and product details will be stored and managed in single centralized server and if this server crashed due to too many requests and or if server is hacked then services will not be available to other customers and to overcome from this problem, we are migrating E-commerce application to Block chain which will maintain data at multiple nodes/servers and if one node down then customers can get data from other working nodes. Another advantage of Block chain has in built support for data encryption and immutable (data cannot be alter by unauthorized users) and it will consider each data as block/transaction and associate each block storage with unique hash code and before storing new records. Block chain will verify hash code of previous blocks and if all nodes' blocks verification successful then data is consider as secured.

Keywords: Block chain, E-commerce application, Migrating E-commerce, Hash Code.

I. INTRODUCTION

E-commerce is one of the leading industries around the world. Ecommerce platforms require tremendous power and storage to manage large amounts of data .Even though the industry has superior functioning at present, there are ways to enhance it further, which is possible through block chain technology. Block chain can help e-commerce businesses to handle data more efficiently.

The platforms can store information about users, products, orders, deliveries, manufacturers, sellers, and much more in an organized manner in a block chain network. Block chain is well-known for its security features that provide the ecommerce sector with extra layers of security. It cuts down the intermediaries and promotes peer-to-peer transactions.

We get many added features like quick transactions, reduced charge back frauds, customer reviews verification, personalized product offerings. With traceability, block chain guarantees end- to-end product tracking to the customers. Ultimately, people can track their orders in real-time and also check the products' authenticity.

II. PROBLEM ANALYSIS
EXISTING SYSTEM

In existing E-commerce application all customers and product details will be stored and managed in single centralized server and if this server crashed due to too many requests and or if server is hacked then services will Not be available to their customers and to overcome from this problem, we are migrating E-commerce application to Block chain which will maintain data at multiple nodes/servers and if one node down then customers can get data from other working nodes.

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PROPOSED SYSTEM

Advantage of Block chain has inbuilt support for data encryption and immutable (data cannot be alter by unauthorized users) and it will consider each data as block/transaction and associate each block storage with unique hash code and before storing new records Block chain will verify hash code of previous blocks and if all nodes' blocks verification successful then data is consider as secured. To implement this project, we have used Blockchain Ethereum with Truffle to store Ecommerce data and Block chain cannot store images so we are storing products images inside IPFS (interplanetary file storage) server, and this server will store image and returned hash code of stored image and by giving that hash code we can retrieve images from IPFS.

1. Signup: Using this module both customers and suppliers can sign up with the application to get username and password.

2. Login: Using this module product suppliers and consumers (customers) can login to application.

3. Add Product: Using this module supplier can add new product details with images in Block chain.

4. Update quantity: Using this module supplier can update quantity for the product in Block chain.

5. View Orders: Using this module supplier can view orders from the customers.

6. Browse Products: Using these module customers can search product and make an order

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III. RESULTS

We can interact with the Block chain by using Solidity codes we need to create solidity function for signup users, add products and book orders and then this solidity has to deploy on Ethereum Block chain and by using WEB3 python package can call this solidity contract.

Fig 1 . Registration Screen

In above screen click on'Register Here' link to sign up two users such as consumer and supplier.

Fig 2. Login Screen

In above screen supplier is login and after login will get below screen

Fig 3. Add New Products

In above screen click on 'Add New Products' link to add new product details

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Fig 4. Choose Product Image

In above screen enter new product details with image and then click on 'Add Products' button to add details in Block chain and get below output.

Fig 5. IPFS Image Storage Hash Code

In above screen in blue color text we can see product details added and we can see hash code of image where image is stored in IPFS.

Fig 6. Update Product Quantity

In above screen select any product name and enter new quantity and press button to get below output.

Fig 7. Consumer Login

In above screen we need to login as customer and search the products then the supplier will login and click view consumers orders.

Fig 8. Browse Products

In above screen login as Customer and click on 'Browse Products' link to get list of product

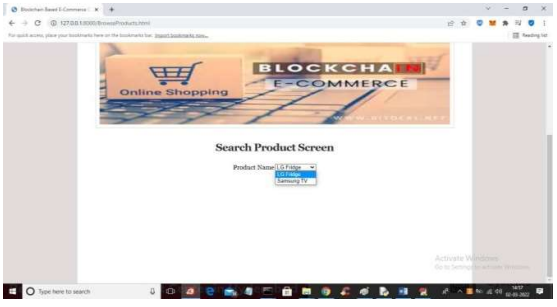

Fig 9. Search Product

In above screen user can select desired product and press button to get below list of products

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Fig 10. Search Product Screen

In above screen user can view list of products and then click on 'Click Here' link to make an order, then the order will be updated

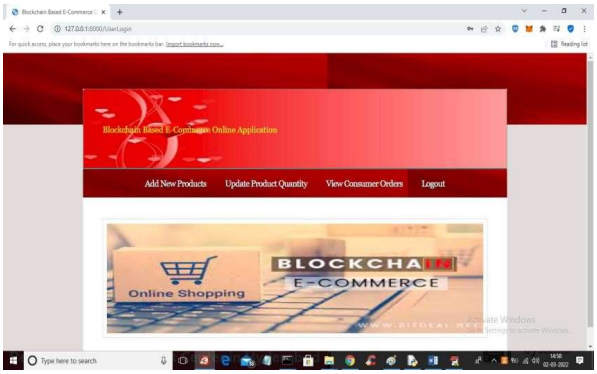

Fig 11. View Consumers Order Screen

In above screen click on 'View Consumer Orders' link to get below order details.

Fig 12. Order Placed Screen

Here the supplier will login and click on view Consumers order and see customer contact number and address and complete product delivery.

IV. CONCLUSION

In existing E-commerce application all customers and product details will be stored and managed in single centralized server and if this server crashed due to too many requests and or if server is hacked then services will not be available to other customers and to overcome from this problem, we are migrating E-commerce application to Block chain which will maintain data at multiple nodes/servers and if one node down then customers can get data from other working nodes.

We have used Block chain Ethereum with Truffle to store Ecommerce data and Block chain cannot store images so we are storing products images inside IPFS (interplanetary file storage) server, and this server will store image and returned hash code of stored image and by giving that hash code we can retrieve images from IPFS.

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