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Supply Chain Optimizer

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ABSTRACT:

As the economy develops, anti-counterfeit technology has gained a lot of attention, as clients have suffered a lot from the increased production of products that are hard to identify. Because people are so eager to save money on goods, dishonest firms have started selling cheap imitations that rob official businesses of their revenues and weaken public trust in the products. Currently, products using QR codes are the top choice for fighting counterfeiting. With blockchain technology, the current architecture and environment can be addressed effortlessly. For the first time, this project uses blockchain technology to make certain that real products are traced and not falsified as they pass along the supply chain.

Keywords: Technology to stop counterfeits, Fake goods, Protecting buyers, QR codes, Tracking systems, A central place for information, Blockchain.

1. INTRODUCTION

Counterfeiting is making, importing, exporting, distributing and selling consumer goods that pretend to be real but are actually not, so buyers are tricked into thinking they are real. Counterfeiters may also add the trademark or logo of a top consumer brand to a fake product. Duplicate goods are nearly always less solid and can be dangerous, often crafted with harmful or hazardous materials. Any item that is protected under intellectual property law may be copied and sold as a fake.

2. PROPOSED WORK

A blockchain supply chain management product includes a system for spotting counterfeit goods and protecting brands. Connect and automate how suppliers, manufacturers, distributors, logistics hubs, retailers and consumers all work in the supply chain. Four groups will take part in our system, namely Manufacturer, Distributor, Retailer and Consumer.



3. METHODS

1.Anti-Counterfeit Web Portal

To create anti-counterfeit technologies and spread information, the Anti-Counterfeit Portal is developed by following a multi-tier architecture methodology. The web dashboard for Product Anti Counterfeit is designed to allow customers to check the source of their goods from anywhere online. When the authentication service provider's KYPC code is found attached to the item the consumer can visit the provider's site and query this code to see the details.

2.Blockchain Integration

Blockchain module includes two different functions. The module serves to connect the client with the system, allowing the client to get information from the blockchain and make sure it is genuine.

2.1.Smart Contract

Smart contract should help nodes in the supply chain find out the address of the product node through interaction.

3.End User Module

3.1.Manufacturer

After buying raw materials from the supplier, the manufacturer applies processing to turn them into finished products. While the manufacturer gives products to the distributor, these products are distributed by the distributor worldwide. It is the manufacturer's job to seal the product information and then register it in the system as the product owner. The design of this paper involves using KYPC which helps create codes for our product that are unique. If a product is batched by manufacturers, it needs to be re-registered each time.

3.2.Distributors:

The main job of the distributor is to direct the movement of goods from the manufacturer to the end buyer so that product information stays unbroken while products are being traced.

3.3.Retailers

The retailer obtains products supplied by the distributor and sells them to consumers retail stores, directly trading with people buying them.

3.4.Consumers

It is the person who ends up buying and using a product, not simply choosing it. He may participate in Bitcoin as a lightweight node to view product information, query the blockchain using the permanent stored data or as a full node to share the upkeep of blockchain information.



4. Consumer Traceability

4.1. **KYPC Traceability Module:** In this module, the link between the client and the system allows requests to be made on the blockchain and the accuracy of the results can be verified. To minimize the cost of maintenance for users, a light node is included in this block.

4.2. **Information Cache Database:** This cache database is designed to keep the Drug traceability data that users want to see.



Figure 1:System architecture



Figure 2: System flow

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Figure 3: flow chart

4. RESULT

Since the market economy needs to develop properly, we must use effective anti-counterfeiting technology to stop today's illegal copying, with blockchain technology leading the way. A decentralized, unified database is what defines blockchain technology. Because of its high reliability and confidentiality, it is expected to succeed in overcoming the trust problem. When the smart contract details are fully disclosed, anyone can confirm the business is legitimate and use it as proof for their product purchase.





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5. CONCLUSION

In this project, it is proposed to enable product traceability by adding blockchain technology which ensures product history is always registered in the blockchain's ledger. After studying the needs and marks of our systems users deeply, we developed a multi-node system that interacts with the blockchain and KYPC network. Collaborative management of data on and off the blockchain allows us to handle the data explosion problem and decrease the data stored at every node.

6. ACKNOWLEDGMENT

The authors declare that they have no reports of acknowledgments for this .

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