

Authentifi: Fake Product Identifier

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Abstract:

Blockchain technology is presently in high demand. It has gained significant interest over the once many times, particularly in the fiscal assiduity. Unlike traditional systems, blockchain doesn't bear any trusted conciliator to operate. This technology is known for its faster deals and increased translucency. Blockchain is used to store tamper- evidence fiscal transactional records. Consumers are now more conservative than ever when copping products, as there are a growing number of fake and parlor products on the request[1]. To bring further translucency and help the product of fake products, blockchain technology can play a vital part. This paper proposes a system that delivers the original product to the client and helps identify whether the product is fake or real. This proposed system not only prevents the product of fake products, but it also raises mindfulness of this issue. Each product should be handed with a unique digital law for identification. This exploration paper proposes a form of relating to fake products using blockchain technology. The perpetration process involves surveying the product law using the operation and vindicating whether the product is authentic.

Keywords: Counterfeits, Blockchain, Web3, Fake, Decentralized Application, QR Code.

I. INTRODUCTION

A fake product is a low- quality reduplication of an original item by description, the intention is substantially to reproduce a luxurious product at a lower price to encourage consumers to save plutocrats. The quality of these particulars has come nearly entirely identical to the original product. According to the Organization for Economic Co-operation and Development (OECD), the

global trade in fake goods has increased steadily over the past many times, counterfeiting earnings removes profit from original brands, and, depending on the nature of the goods. numerous online shops are investing in ways to reduce the number of fake guaranteed unique law of each product as blocks in the , the announcement will be transferred to the client indicating the If the law matches. authenticity of products appearing on their websites[7]. supposedly,

Amazon has blocked ten billion attempts to list fake goods and destroyed two million fake goods in its storehouse since initiating Project Zero (2). Project Zero is a machine-learning tool that detects fake products that have been flagged. Amazon has invested over \$700 million and signed 1,000 workers to shield their website from hackers. These issues have created a huge need for a dependable way to authenticate products before they are being bought, particularly if they're being changed between consumers (secondhand). At the moment, blockchain technology is a cost-effective way to produce a platform of communication between consumers. By establishing a central tally with agreement, provenance, invariability, and futurity to enable consumers to guarantee the authenticity of their purchases, deals of counterfeiting products will be greatly reduced while still allowing consumers to protect with confidence.

II. BASIC CONCEPT

The manufacturing and marketing of fake or indistinguishable products and goods leads to consequential fiscal, health and safety trouble to end druggies[4]. It also impacts on the profitable growth of original manufacturers and businesses through profit loss, product vilification, time-out, relief charges, forcing brands to spend plutocrats fighting fakes, trust among business mates can also be at threat, stealing deals etc. To overcome these pivotal goods of counterfeiting, a blockchain grounded system is used in identification of original products and detects indistinguishable products to insure the identification of original goods. In this work, with massive arising trends in wireless technology, QR (Quick Response) canons and barcodes provides a robust fashion to cut down the practice of counterfeiting the products. The fake products are detected using a camera scanner, where QR or barcode of the product is linked to a block chain in order to store product details and issues that need to be resolved in order for them to function more effectively. the product and differently if it doesn't match, an announcement will be transferred to the client that the product is fake or counterfeited as well as to the manufacturer about the place of purchase if the client accepts the request made by the operation. This approach ensures that consumers won't fully calculate on merchandisers to determine if products are original or forged.

III. RELATED WORK

Application areas for blockchain technology include product authentication and supply chain management. The use of blockchain to identify counterfeit goods has been the subject of a number of related works.

H. Al Natsheh et al.'s anti-counterfeiting trade agreement, for instance's 2019 publication titled "A Blockchain-Based Solution for Product Authentication"[4]. A smart contract-based product authentication and traceability solution is proposed by the authors of this paper. It is based on the blockchain. With the proposed solution, stakeholders can verify products and track their movement through the supply chain.

M. Hussain et al.'s "Blockchain-based answer for food detectability with fake discovery" is one more related work. (2019). To enable food traceability and the detection of counterfeit goods, the authors of this paper propose a blockchain-based strategy that makes use of smart contracts. By filtering a QR code on the food item's bundling, shoppers can utilize the proposed answer for affirm the item's legitimacy.

Additionally, "Luxury Goods Counterfeiting Solutions: L. Wang et al.'s". A Survey" An extensive examination of the different blockchain-based enemy of falsifying answers for extravagance products is given in (2020). The authors discuss the advantages and disadvantages of each solution, as well as the In general, these related works demonstrate how supply chain management and counterfeit goods detection can benefit from blockchain technology.

IV. PROBLEM STATEMENT

The problem with identifying fake products using blockchain is that the technology alone cannot solve the issue of counterfeit goods in the market. While blockchain provides a secure and transparent system for tracking products, it requires collaboration and adoption by all stakeholders in the supply chain to be effective in combating fake products.

1) Adoption by all stakeholders: For a blockchain-based system to be effective in identifying fake products, all stakeholders in the supply chain need to participate in the system. This includes manufacturers, distributors, retailers, and consumers. Without buy-in from all parties, the system will not be able to track products effectively.

2) Interoperability: There are different blockchain platforms available, and they are not always compatible

with each other. This can create challenges in implementing a blockchain-based system for fake product identification, as the different parties in the supply chain may be using different platforms[1].

3) Privacy concerns: While blockchain provides a secure and transparent system for tracking products, it also raises privacy concerns. The system would need to balance the need for transparency with the need for privacy and data protection.

4) Cost: Implementing a blockchain-based system for fake product identification can be costly, particularly for smaller companies. The cost of developing and maintaining the system, as well as the cost of training employees to use it, can be a barrier to adoption.

5) Scalability: As the number of products being tracked on the blockchain grows, the system needs to be scalable to handle the increased volume of data. This can be a challenge for some blockchain platforms, which may not be designed to handle large-scale data processing.

Overall, while blockchain has a lot of potential for identifying fake products, there are several challenges that need to be addressed to make the system effective in combating counterfeit goods in the market.

V. PROPOSED SYSTEM

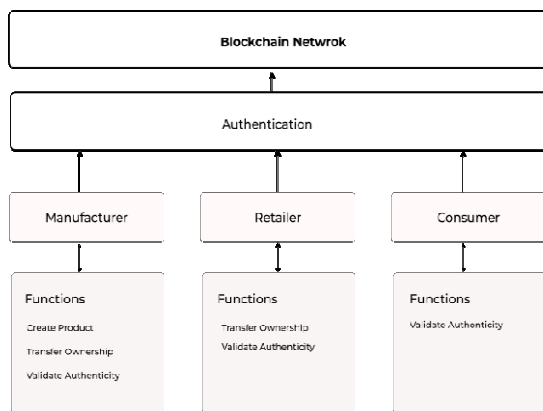


Fig 1 System Overview

Product registration and issuance of unique IDs: The manufacturer of the product registers the product on the blockchain network and issues a unique ID for the

product. This ID is recorded on the blockchain network, making it tamper-proof and immutable.

Transfer of product ownership: When the product is transferred from the manufacturer to the distributor, retailer, or other party, the transfer is recorded on the blockchain network, along with the new owner's identity. This ensures that the transfer is transparent and traceable.

Verification of product authenticity: The auditor can check the authenticity of the product by verifying its blockchain entries. They can check the product IDs, timestamps, and transfer details to make sure the product is genuine.

Consumer verification: The consumer can scan the product's QR code to view its blockchain history and verify its authenticity. This enables them to check whether the product they have purchased is genuine or not.

Let's take a closer look at each entity involved in the methodology:

Manufacturer: The manufacturer is responsible for registering the product on the blockchain network and issuing a unique ID for the product. They need to ensure that the product is genuine and that the unique ID is not duplicated or tampered with.

Distributor and Retailer: The distributor and retailer are responsible for transferring the product from one entity to another. They need to ensure that the transfer is recorded on the blockchain network and that the product is not tampered with during the transfer.

Auditor: The auditor is responsible for verifying the authenticity of the product by checking its blockchain entries. They need to ensure that the product's ID, timestamp, and transfer details are all valid and that the product is not fake.

Consumer: The consumer is responsible for verifying the authenticity of the product by scanning its QR code and checking its blockchain history. They need to ensure that the product they have purchased is genuine and has not been tampered with.

In conclusion, the methodology for fake product identification using blockchain involves registering the product on the blockchain network, transferring ownership of the product, verifying the authenticity of the product, and enabling consumer verification. By using blockchain technology, we can ensure that the product is genuine, tamper-proof, and transparent, thereby preventing the circulation of counterfeit products in the market.

VI. FINAL RESULTS

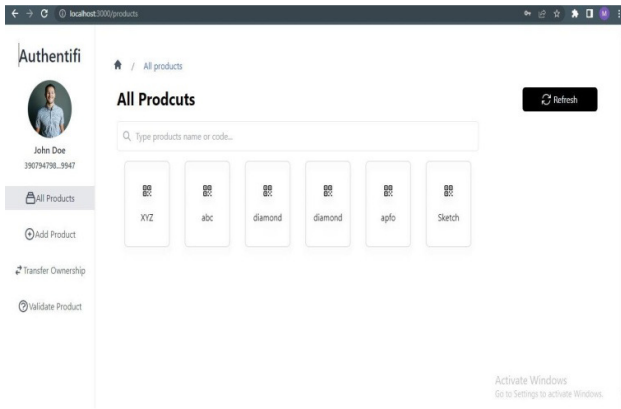


Fig 2 All Product

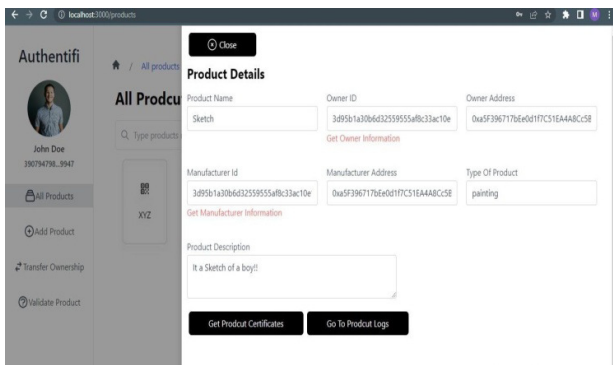


Fig 3 Verify products

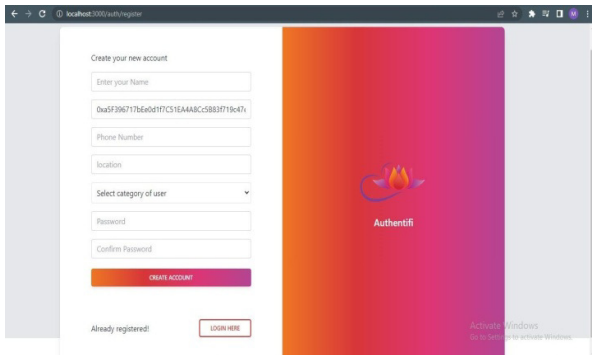


Fig 4 Register Customer/Manufacturer

VII. APPLICATION

- 1.) Distributed computers all across the world gather the data required for this suggested system. All distributed computers demonstrate their processing prowess by securing and rigidifying data.
- 2.) The entire blockchain system uses authentication, delivery, and data operation on the original side using functions and power allocations. Blockchain technology is independent, has no internal controls, and is not dependent on new external controls.
- 3.) The switch to the blockchain is simple and totally transmittable. Everyone from anywhere in the world is welcome to visit them.
- 4.) We implant comparable IDs in the Blockchains and use cryptography algorithms to add a unique identification to each piece of information. As we employ single-direction cryptographic processes, it is impossible to duplicate the substance from any identifier.

VIII. FUTURE SCOPE

The use of blockchain technology in product identification has a lot of eventuality for the future. Blockchain can give a secure and transparent system for tracking products and vindicating their authenticity, which can help reduce the frequency of fake products in the request.

1. Increased relinquishment of blockchain in Force chain operation As further companies borrow blockchain technology for tracking products in their force chains, it'll come easier to corroborate the authenticity of products at each stage of the product and distribution process.
2. Integration with IoT bias Blockchain can be integrated with IoT bias to produce a tamper-evidence system for tracking products. Each product can be assigned a unique identifier that's stored on the blockchain, and IoT detectors can be used to track the product's movement and descry any attempts at tampering[7].
3. Expansion of blockchain- grounded product instrument systems Some companies are formerly using blockchain to certify the authenticity of their products, similar as luxury goods and organic foods. As these instrument systems expand, consumers will be suitable to corroborate the authenticity of a wider range of products.
4. Partnership with governments and nonsupervisory bodies Blockchain can also be

used to help governments and nonsupervisory bodies crack down on fake products. By partnering with these associations, blockchain-grounded systems can be developed to descry and help the product and distribution of fake goods. Overall, the future looks promising for using blockchain technology in fake product identification. As the technology becomes further extensively espoused, it has the implicit to revise the way we corroborate the authenticity of products and cover consumers from fake goods.

IX. CONCLUSION

In conclusion, blockchain technology can be a powerful tool for identifying fake products. By creating a tamper-proof digital record of a product's journey from production to sale, blockchain can help ensure authenticity and prevent counterfeiting. Additionally, blockchain-based solutions can provide real-time tracking and tracing of products, enabling businesses to quickly identify and address any issues in the supply chain.

However, implementing a blockchain-based solution for fake product identification requires careful planning and consideration. Businesses need to ensure that the technology is secure, scalable, and cost-effective. They also need to work closely with their suppliers and partners to ensure that the necessary data is being recorded and shared on the blockchain.

Overall, blockchain technology has the potential to revolutionize the way we identify and combat fake products. As the technology continues to evolve and mature, we can expect to see more businesses and industries adopting blockchain-based solutions for supply chain management and product authentication.

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