

Block Chain Based Counterfeit Product Identification

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Abstract

In recent years, counterfeit goods have grown to be a significant issue for the product manufacturing sector. They affect the companies' sales, profit margins, and brand. Block chain technology is used to distinguish between authentic and fake goods. It is a distributed, decentralized digital ledger that keeps track of transactions by storing blocks of data across several databases linked together by chains. It is secure, therefore no block can be changed or breached. Block chain technology allows users and customers to verify a product's safety without depending on outside parties. Quick Response (QR) codes, which capitalize on new developments in mobile and wireless technology, provide a potent means of countering the practice of product counterfeiting in this project. It is possible to detect counterfeit goods with a QR code scanner that connects a product's QR code to a block chain.

Keywords: Counterfeit products, Block chain technology, QR codes, Manufacturing sectors, Secure, Digital ledger.

1. INTRODUCTION

The ability to recognize fake items has grown to be crucial in a number of industries, including pharmaceuticals and luxury goods. By offering a transparent and unchangeable record that can monitor a product's route from manufacturer to customer, blockchain technology presents a possible answer. Blockchain is a distributed ledger system that records transactions via a decentralized network of computers. Every transaction forms an unchangeable chain of blocks that is encrypted and connected to the one before it. Information cannot be removed or altered once it is entered into the blockchain, guaranteeing the data's integrity and immutability. A serial number or QR code can be assigned to each product as a unique identifier. This identity is connected to the blockchain and contains information about the product, including its manufacturing date, origin, and specifications. Customers can use a specialized tool or an app on their smartphone to scan a product's unique ID to confirm its legitimacy. To verify authenticity, the app obtains product data from the blockchain and verifies it against the product's physical characteristics

2.LITERATURE SURVEY

- [1] Smart contracts, broad Blockchain-based applications, and the architecture of cryptocurrencies have all been discussed by Muhammad Nasir Mumtaz Bhutta, Amir A. Khwaja "A Survey on Blockchain Technology: Evolution, Architecture and Security" was published. The study offers an interpretation of Blockchain designs concerning cryptocurrencies, smart contracts, and additional uses.
- [2] C. Rajapakse, B. M. A L. Basnayake Based on how the Blockchain idea may be used to improve the legitimacy and transparency of the agricultural supply chain and its procedures, "A Blockchain-based decentralized system to ensure the transparency of organic food supply chain" is proposed. The processes

involved in producing food and the raw resources needed to produce it have changed dramatically in recent years. [3]“User Interface of Blockchain-Based Agri-Food Traceability Applications” Suporn Pongnumkul and Atima Tharatipyakul are the authors. Providing stakeholders with information on food quality, safety, and nutrition through blockchain technology is thought to enhance the traceability of the agri-food supply chain. Usability problems could arise from inadequate understanding of the traceability application's user interface design.

3. EXISTING SYSTEM

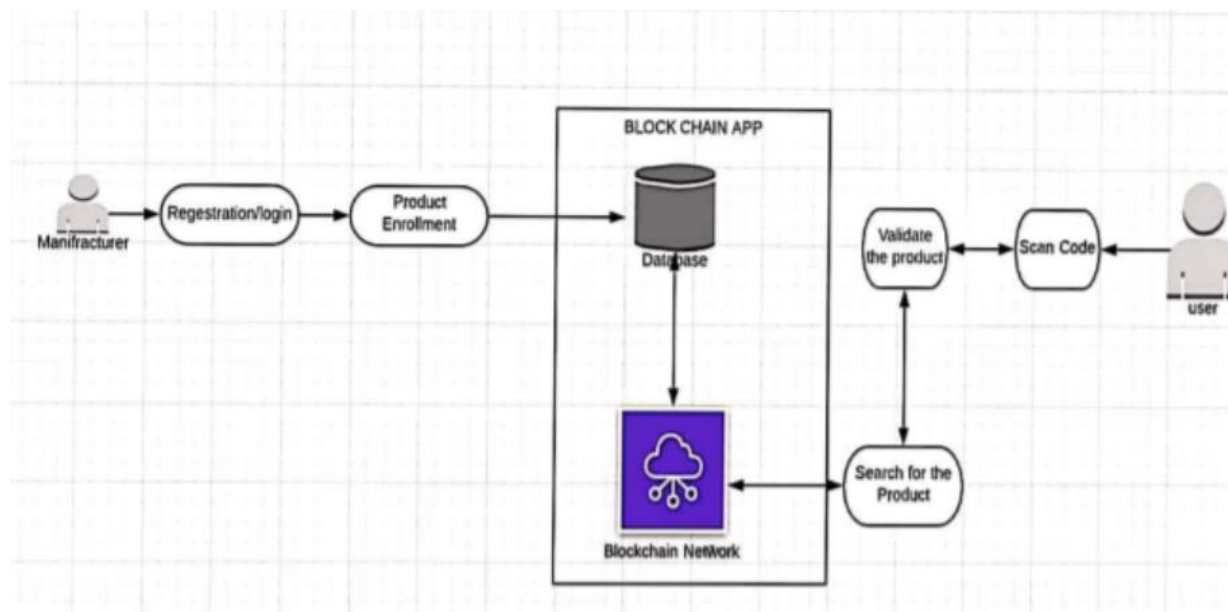
There are phony manufacturers behind every well-known brand who offer fake goods at lower prices that have erroneous and deceptive labels. It's possible that not even the company's experts can tell the difference between authentic and fake goods.

4. PROPOSED SYSTEM

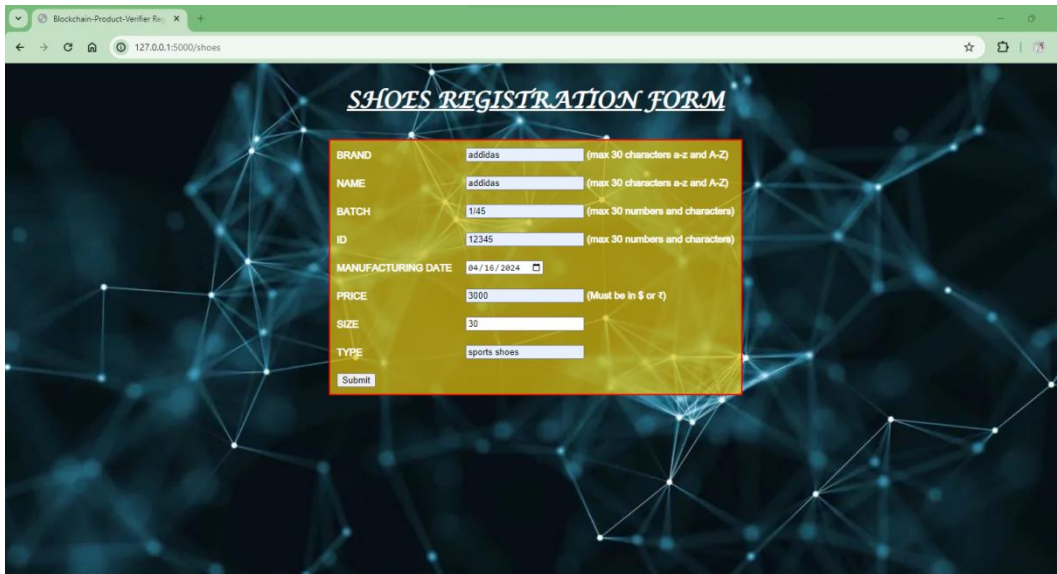
One could scan a QR code embedded by the original manufacturer on a product linked to the block chain system to determine whether or not it is a fake. If we come across a counterfeit object, we must be able to recognize it for what it is—a fake using its QR code, confirmed via a block chain. An attacker trying to insert a fake QR code via the block chain must be unable to change the chain. Every product has a block chain, and every block inside the block chain has a collection of related transactions.

Every block will have a date indicating when it was created, a unique index to distinguish between transactions, a verification code, evidence, and a collection of transactions.

Block Diagram of the Proposed Work:



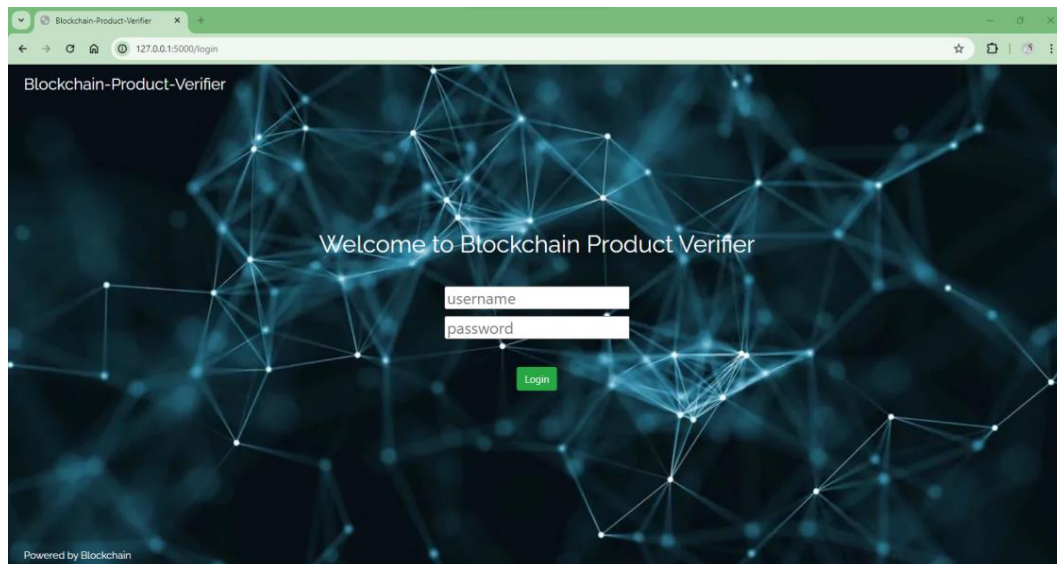
5. EXPERIMENT RESULTS



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5000/shoes". The page title is "Blockchain-Product-Verifier". The main content is a "SHOES REGISTRATION FORM" with a dark blue background featuring a network diagram. The form is a yellow box with the following fields:

Field	Value	Constraints
BRAND	addidas	(max 30 characters a-z and A-Z)
NAME	addidas	(max 30 characters a-z and A-Z)
BATCH	1/45	(max 30 numbers and characters)
ID	12345	(max 30 numbers and characters)
MANUFACTURING DATE	04/16/2024	
PRICE	3000	(Must be in \$ or ₹)
SIZE	30	
TYPE	sports shoes	

There is a "Submit" button at the bottom of the form.



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5000/login". The page title is "Blockchain-Product-Verifier". The main content is a "Welcome to Blockchain Product Verifier" page with a dark blue background featuring a network diagram. The page has a login form with the following fields:

Field	Value
username	
password	

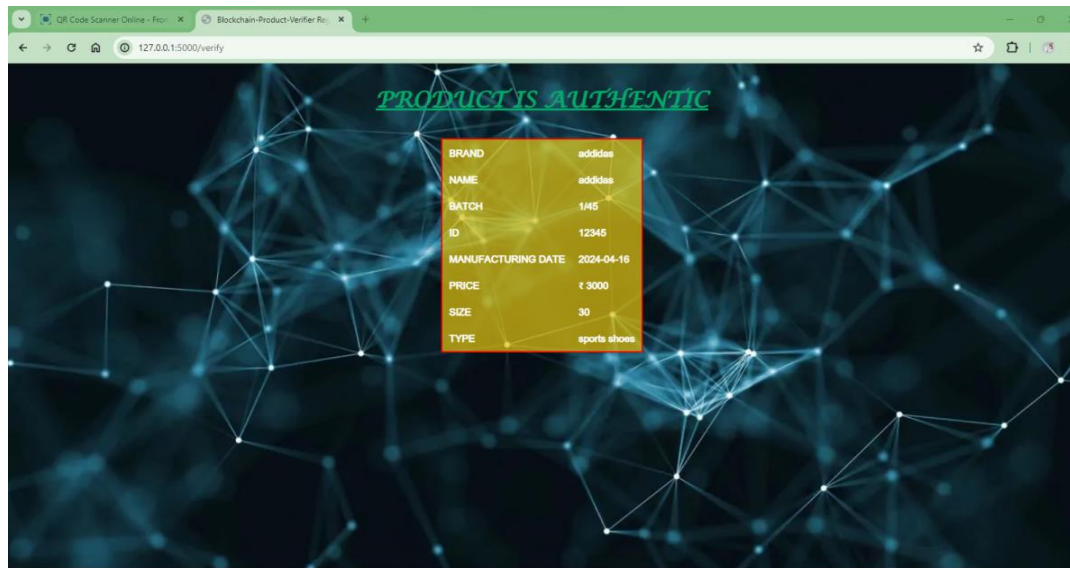
There is a green "Login" button below the password field. The text "Powered by Blockchain" is visible at the bottom left.



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5000". The page title is "Blockchain-Product-Verifier". The main content is a "Welcome to Blockchain Product Verifier" page with a dark blue background featuring a network diagram. The page has a list of links on the right side:

- Add Shoes
- Add Medicine
- Add Fertilizer
- Add Wine
- Logout

The text "Powered by Blockchain" is visible at the bottom left.



6. CONCLUSION

Therefore, the proposed method can assist end users in identifying fraudulent commodities in the company logistics. Users can determine if an item is legitimate by scanning the QR code to acquire information about transactions and the current owner of the item. In the future, we'll develop a system to oversee and manage product transportation data.

7. REFERENCES

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