

REVIEW OF BLOCKCHAIN- FAKE PRODUCT IDENTIFICATION

Ms. Vaishnavi Hedaoo, Ms. Sakshi Sawarkar, Ms. Mayuri Kosare, Ms. Pragati Gawande,
Mr. Swapnil Wahokar

B.E Student, CSE, AGPCE Nagpur, Maharashtra, India

B.E Student, CSE, AGPCE Nagpur, Maharashtra, India

B.E Student, CSE, AGPCE Nagpur, Maharashtra, India

B.E Student, CSE, AGPCE Nagpur, Maharashtra, India

ABSTRACT

Blockchain is one of the most secure and trustworthy technology. It is a decentralized technology. Blockchain provides a secure structure with its distributed structure and provides a transparent system with data set accessible by each user. Many important challenges and issues can be solved through blockchain. Nowadays, fake products are widely spread in our society. A new product or technology always comes with risk factors such as counterfeiting and duplication. In this work, we will recognize the fake product by using blockchain technology. It can be hacked, or change is near to impossible. In this path, we can scan the QR code of the product and then display the product details. The application will generate instant feedback into readable results based on the product's unique QR code, and consumers can check the authentication of the product.

Keyword : - Blockchain, QR code, fake product.

1. INTRODUCTION

Counterfeit means to imitate something authentic with the intent to steal, destroy or replace the original. Counterfeit products tend to have fake company logos and brands which result in patent or trademark infringement in case of goods. Shoes, handbags, clothes, and watches not only that product are fake pharmaceuticals, and unapproved aircraft parts are also counterfeit. The deaths of hundreds and thousands of people due to aviation accidents, and non-working medicine. So, we can find an innovative solution for addressing such challenges with the help of blockchain.

Blockchain provides a secure structure with its distributed structure and provides a transparent system with data set accessible by each user. Bitcoin is one example of a blockchain. Blockchain creates trust because it represents a shared record of the truth. Permanent records of all transactions in a file i.e., ledger, and blockchain is that file that has a single record or single block. Blockchain means the block of chain and in that block, there is some information/data stored. The first is relevant information, the second is hash, third is the previous hash.

In this research, we will recognize the fake product with the help of blockchain technology. This application will generate instant feedback into readable results based on the product's unique QR code and customers can check the

product's authenticity. In this path we can scan the QR code of the product then they display the product details. In this work, we can use the hash, in hash whatever the data stored in a block according to that data unique code is generated i.e, the hash generated.

2. LITERATURE REVIEW

[1] A survey of counterfeit product detection by Prabhu Shankar, R. Jayavadivel in (IEEE2019). Many peoples are not aware when they buy a product that product is real or fake. So, we will use blockchain technology to deal with this problem. In this work, a QR code is generated for each item because the manufacturer and customer both are satisfied with product authenticity.

[2] **Smart** Tags for Brand Protection and anti-counterfeit in the wine industry by Steven Marwi (IEEE 2018). In the wine industry, many low qualities wine is sold in a shop, because of the low quality of wine consumer faces health problems. So, we can drive the solution for that with the help of blockchain, each bottle of wine with smart tags that consists of a QR code & label printed with functional inks with the help of a cloud platform.

[3] A blockchain-based supply quality management framework by Si Chen, Rui Shi in (IEEE 2017). In this paper, we discuss how to improve supply chain quality management by adopting blockchain technology and purpose a framework for blockchain-based supply chain quality management. This framework consists of blockchain smart contracts & various IOT sensors blockchain provides a safely distributed ledger with various quality information, assets information, and transaction information.

[4] Fake News detection of social media news in blockchain framework by Akash Dnyandeo Waghmare in (IEEE 2021). Social media is becoming an increasingly important tool for journalists for news content to their audience. Fake news is a popular term around the world now. The purpose of this work is to detect fake news with the help of a blockchain framework.

[5] Fake check scams are a blockchain-based detection solution by Badis Hammi & Yves Chrisan Elloh Adja (IEEE 2019). Fake checks are typically used in scams. Fake checks can look so real it's very difficult for the consumer, or even bank employees to detect. We propose a blockchain authenticate check and identify fake check scams.

[6] Towards Blockchain Enable supply chain anti-counterfeiting and traceability by Neo C.K Yiu in (IEEE 2021). During this analysis, we offer the answer of the matter of counterfeit product mercantilism together with merchandise and pharmaceutical, it has been one of the among the foremost challenges the provision chain business blockchain technology helps to notice counterfeit product.

[7] Fake product detection using blockchain technology by Tejaswini Tambe, Sonali Chitalkar, Manali Khurud, S.Y. Raut in (IEEE 2021). The growing problem of brand counterfeiting threatens businesses and consumers in nearly every region of the world. In this work, we will identify the product that product is real or fake by using blockchain technology. Blockchain technology is secure in that block cannot be changed or hacked .

3. ALGORITHM

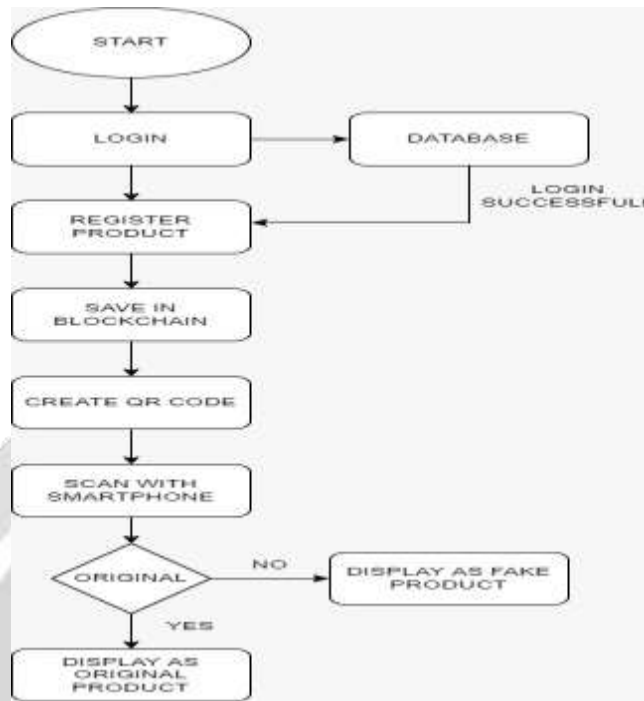


Figure 1. Algorithm

3. METHODOLOGY

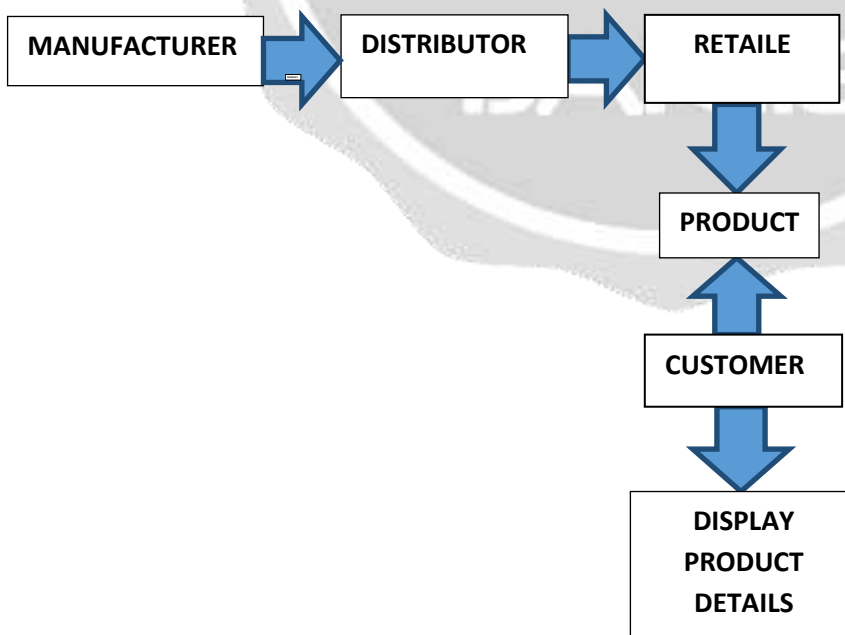


Figure 2. SYSTEM ARCHITECTURE

The first application is the manufacturer-side application in which we have to first register ourselves. After registration login into the application, the manufacturer can add the product details. In this app, we have a QR code scanner which we can. The QR code of the product then indicates whether the product is fake or true. Another option is a blockchain that shows the name of the generated block product, the hash value generated, and whether the product is corrupted. Customer login in this project, in the application. After logging in, he fills in the details to order the product and book the product. The product order can be shown to the manufacturer. The manufacturer decides whether the product request is acceptable or not. After the manufacturer accepts the product order, it generates a unique QR code for the product. Once the product order is stored on the network, the hash code of that product is generated and the transaction of the product can be maintained. The proposed system generates a QR code for a specific product. Customers scan the QR code on a product or package using the smartphone's QR code reader application, or the consumer application has the option of a QR code scanner. After scanning, we get the product results true or fake. Lastly, the blockchain system contains these product details along with the transaction history to enable it to track the product along the distribution chain. All product details, block names, and hash values are stored in the Firebase cloud database.

counterfeit products are detected using a QR code scanner, where a QR code of the product is linked to a Blockchain. So this system may be used to store product details and generated unique code of that product as blocks in the database.

So, there is a strong need to detect counterfeit products, and blockchain technology is used to detect fake products. Furthermore, the information is encoded into a QR code. Customers or users scan the QR code and then they can detect the fake product.

This real-time system can be implemented to check whether the received product is a counterfeit product or an origin product. The manufacturer uses the SHA-256 algorithm to generate a QR code in blockchain technology. The generated QR code is scanned by the user to check given product is fake or real .



Figure 3. QR Code

- RESULT OF PRODUCT



Figure 4. Original result



Figure 5. Fake result

4. CONCLUSIONS

We tried to include all the necessary points that are required for the given topic. This paper presents some key points at the starting we see in the introduction part learn some basic concepts of blockchain technology, what is blockchain, how blockchain is a constantly growing ledger, and how blockchain placed information secure. then we see in between literature surveys like smart tags for brand protection In the wine industry by Steven Marko brand protection based on smart tags and cloud-enabled technologies, then we learn about problem statements and proposed model in between we see how innovation stores & exchange, how it works like, how the end-user can record in blocks we can recognize utilizing QR code the fake item & check whether the product is genuine or not detect the product and get gathered some product history, owners details, etc.

With this system, the product's journey from manufacturer to customer can be recorded, and the customer is assured that the scans weren't faked. Manufacturers are able to prove their product is authentic and is also able to track their product's pathway. The setup is easy to implement and requires less operation cost.

With this Blockchain system that proposes a fully functional product genuineness system by paying a very low transaction fee, users of our system no longer need to be concerned about the possibility of receiving a genuine and good quality product.

Manufacturers can use the system to store information about products that will sale and bought on Blockchain which is accessible to everyone. This system provides Identity Verification by using transparency.

Thus, the purposed system is useful for an end-user to detect fake products in the supply chain. The end-user can scan the QR code assigned to a product and can get all the information like transaction history, and current owner based on which end-user can check whether the product is genuine or not.

This paper is the first Blockchain system that proposes a fully functional anti-product forgery system. By paying a very low transaction fee, users of our system no longer need to be concerned about the possibility of acquiring a counterfeited product. Manufacturers can use the system to store relevant information on product sales in Blockchain which is accessible to everyone. The total amount of sales that can be sold by the seller and the number of products currently left by the seller are transparent. The user can use the functions provided by our system to

immediately perform vendor-side verification. The system provides identity verification by using digital signatures. There are no other means to decrypt the private key of the key owner unless the key owner accidentally leaks his key.

This paper presents a modern and convenient phenomenon using the Blockchain and Supply Chain technologies which itself dispenses high security and transparency in the system, but to escalate these features some extra characteristics are added to this supply chain member and products and updating the product details in the blockchain after it is sent to the next stage in the supply chain, and further the product standards are monitored by the Quality Control Officer who is deployed by the factory in-charge for the same. Taking inspiration from the related works of the researchers who have developed various creative models which have been of great use to the community in preventing the counterfeit of products in different industries. This study can be summarised by considering our System model which picturizes the whole supply chain process from the factory stage to the processes in brief, and the web application. In the future, it is believed that methodology can be made a base and many more features will be added to it including a mobile application that can be installed on the mobile phones of the supply chain members for a smoother experience for tracing and tracking the product easily making the system even more transparent and stable.

4.1 FUTURE SCOPE

- To track every genuine product that is to be sold.
 - Implement this idea in other fields.
- Virtual transactions.
 - Using tamper-proof tags
 - Dynamic (read & write NFC tags)
 - QR codes that have secure graphic
- Implement our own tokens which can be sold to users so that they can purchase ownership of a product using tokens which helps in insurance processing's

4.2 FUTURE ENHANCEMENT

In the future, we will implement a system that controls and monitors product transformation details.

The future work of this system can be proof of code simplicity. The customer can trust that the distributed application because of the simplicity of code, and no redundancy code in it will have additional consumption.

- As we have seen in our projects it will work with information based.
- So, we have to implement this project in the future next level.

Improve the security and implement Real-time products.

In the future, we have to add a tracking system for tracking the product.

5. REFERENCES

- [1] A survey of counterfeit product detection by Prabhu Shankar, R. Jayavadivel in (IEEE2019).
- [2] Smart Tags for Brand Protection and anti-counterfeit in the wine industry by Steven Marwi (IEEE 2018).
- [3] A blockchain-based supply quality management framework by Si Chen, Rui Shi in (IEEE 2017).
- [4] Fake News detection of social media news in blockchain framework by Akash Dnyandeo Waghmare in (IEEE 2021).
- [5] Fake check scams are a blockchain-based detection solution by Badis Hammi & Yves Christian Elloh Adja (IEEE 2019).
- [6] Towards Blockchain Enable supply chain anti-counterfeiting and traceability by Neo C.K. Yiu in (IEEE 2021).
- [7] Fake product detection using blockchain technology by Tejaswini Tambe, Sonali Chitalkar, Manali Khurud, S.Y. Raut in (IEEE 2021).

