

# TrueSacn: A Product Verification System Using Blockchain

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**Abstract-** This paper presents Truesacn which a system use to solve the problems of counterfeit products. Products are stored on blockchain by the manufacturer then unique QR codes are generated that scanned by user mobile phone to verify the authenticity. By storing the product on blockchain it ensures the transparency ,immutability and security .Truescan provides these all with location and analytics so that it helpful for manufacturer to take decision on that.

**Index Terms-** Blockchain, QR Code,Product Verification, Scan History ,Analytics Dashboard

## I. INTRODUCTION

In the todays global world counterfeit products are becomes are major challenge .These product not only cause the financial loss but also reduces the brand trust and reputation. To address this issue paper purposes the trueScan :a product verification system using blockchain.This system enables the manufacturer to register and store product in blockchain so unique QR code is generated .With the help of this QR code user can scan and see that product is fake or not .Blockchain technology ensures transparency , immutability and distributed so no one can change or alter it .The blockchain and the database connected together .There are four users of the this system supplier ,manufacturer ,retailer and customer ,where the system can track their location it tell that product is from which area the product is came .That also helps to analytics for creating dashboard.

In addition the basic verification, the purposed system introduced the scan history and analytics dashboard .The scan history feature records all the scan information and the analytics dashboard shows the in which areas the fake product count is increasing display it includes the scan frequency

,location based data and product usage pattern that help the manufacturer to improve supply chain transparency .The main Objective of the product is to develop a secure ,transparent and efficient system for product authentication which also provides a advance monitoring and analytical capabilities to enhance decision making and security.

## II. PROBLEM STATEMENT

Increasing the counterfeit products in market can has become the serious issue affecting both consumers and manufacturer .It is difficult to detect the fake products using the traditional methods ,Which leads to identification of this problem .

The problem of counterfeit products has led to the development of various product verification systems by different researchers and students. These systems mainly focus on verifying product authenticity using technologies such as QR codes and blockchain.

However during the research ,It was observed that system has lack of advance monitoring analytics features .They do not provide the detailed information of the product verification activities such that how many product scanned ,where it is scanned .This paper is solves the problems that above mentioned.

## III. OBSERVATION AND RESULTS

### A. Bits and Pieces together

The proposed system integrated the multiple things such as blockchain ,QR code,scan history and analytics dashboard.In this system the manufacturer stores the data in the blockchain then the unique QR code is generated.Customers can scan the product using the QR code to check the product

authenticity. Each scan is the part of scan history allowing track of the product usage and verification activities .

The collected data is displayed and goes further for analytics dashboard .Which provides useful insights .There is also a location tracker in the system so that it can track according to the location and dashboard displays it .

#### *B. Use of Simulation software*

The proposed system is developed using various software and technologies .For backend Truffle node js, anker sepholia website is used to create the blockchain ,matamask ,firebase firestore used to store the information of the product .For the frontend technologies are Flutter is used to develop the UI ,VS code is for to manage the code ,Windows powershell to run the command .

#### IV. ADVANTAGES

1. Provide Quick Scanning And Instant Results.
2. Helps Verify Whether A Product Is Original Or Fake.
3. Useful For Tracking Suspicious Activities And Repeated Fraud Attempts.
4. Provides Location Of Frequent Fake Scans And Number Of Location .
5. Helps Manufacturer Take Better Decisions.
6. Scan History Maintenance

#### V. LIMITATIONS

The system is highly dependent on the QR codes ,and if QR code is damaged ,missing or unreadable ,product verification becomes impossible .It also requires a stable internet connection ,which limits its usability in areas with poor connectivity .

User awareness is another challenge ,as customer must know how to properly scan products.

The system also can faces the data management issue when handling large volumes of scan records. Device compatibility and camera quality can further impact scanning performance.

#### VI. FUTURE SCOPE

In the future, the TrueScan system can be further enhanced by integrating advanced technologies such as artificial intelligence and machine learning to improve fake detection accuracy. The system can also be expanded to support more industries ,including agriculture ,automotive parts and healthcare equipment .

Also we can integrate with technologies like IoT can also be considered to enable automatic tracking of products throughout the supplychain. Overall the future scope of the project lies in making the system more secure ,intelligence and widely accessible for practical use.

#### VII. CONCLUSION

The proposed system successfully improves the product verification by providing secure and transparent solution using blockchain technology, It enhances monitoring features like scan history and analytics dashboard so it helps to identify it faster. This makes the system more reliable and effective in reducing the counterfeit products and increasing user trust.

#### APPENDIX

The presents the supporting details of the developed system for blockchain-based product authentication. It includes the actual system interfaces such as role selection login module ,QR code scanning ,and product verification result screens ,Which demonstrates the working of the application.

In addition testing was carried out on major features such as login ,QR scanning ,and fake product detection and the results confirmed the system is functioning correctly.

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#### REFERENCES

- [1] Research paper : "Fake Product detection using QR code and Blockchain Technology", International Journal Of Engineering Research & Technology (IJERT)
- [2] IBM Blockchain Platform Documentation
- [3] QR Code Technology Overview , Available: <http://www.qrcode.com>
- [4] Satoshi Nakamoto, "Bitcoin : A Peer-to-peer Electronic Cash System," 2008.