International Journal of Research Publication and Reviews

UNIBLOCKSIBLE INDICATOR (Android Application using Blockchain and QR)

Priyangasri K.G[1], ShriAbhirami R[2], Ramesh E.R[3],

[1]Department of Information Security and Digital Forensics, Dr. M.G.R. Educational and Research Institute, Chennai - 600095, TamilNadu, India
priyangasri.kg@gmail.com
[2]Department of Information Security and Digital Forensics, Dr. M.G.R. Educational and Research Institute, Chennai - 600095, Tamil Nadu, India.
shriabhi178@gmail.com
[3]Center of Excellence in Digital Forensics, Chennai - 600096, Tamil Nadu, India.
rameshvani@gmail.com

ABSTRACT

This paper implements the blended strategy of blockchain and QR code is used in this implementation. In this project, the approach is carried out by designing an app i.e., Uniblocksibe indicator app (i.e; uni - unique, block - which we use blockchain approach and sible- suffix) in which both the manufacturer and the user utilize the same app, giving our app a distinct identity. In this task, with arising patterns in mobile and remote innovation, QR codes give a hearty procedure to battle the act of forging the items. fake items are recognized utilizing a QR code scanner, where a QR code of the item is connected to a Blockchain. So this framework is utilized to store product information and produce unique codes for each product as database blocks in the app. It takes the user's unique code and compares it to records in the Blockchain database. If the code matches, the client will be notified; otherwise, the consumer will be notified that the product is unavailable or fake.

INTRODUCTION

Consumers face a huge issue in identifying counterfeit products in today's market, and it's even more dangerous when it comes to pharmaceuticals. Counterfeit products also have a significant impact on other industries such as electronics, apparel, and fashion accessories. E-commerce has grown rapidly throughout the years, from $39 billion in 2017 to $200 billion by 2026. This follows the increased use of the internet and smart phones. According to numerous market assessments, counterfeit products are on the rise, and this trend could have a negative impact on development and economic growth. In addition, many prominent companies are suffering as a result of this.

Almost every reputable company is attempting to halt this trend, which is destructive to everyone on the planet. Various reputable or branded companies are developing current technologies to distinguish counterfeited products from the real product on the market, and the IT industry can provide positive signals and assist in the prevention of counterfeit goods. Among the different IT technologies accessible, blockchain is one of the most promising technologies that can be utilised to reduce counterfeiting of goods. The use of blockchain and QR codes can help to solve the problem of product counterfeiting.

There The distribution of counterfeit goods has become widespread in recent years. In today's supply chain, there are a lot of fake products. Fake product cases have increased in recent years, according to the research. It is vital to have a system in place that allows customers or users to examine all of the product's details in order to determine whether the product is genuine or not. There is currently no system in place in India to detect counterfeit goods. As a result, the solution entails a simple QR code-based identification that allows the end-user or buyer to scan and verify the product's authenticity using a app through smartphone.

RELATED WORK

On the business side, a company called Seal Network is combining Blockchain technology and Near-field communication (NFC) to develop a product authentication platform. This company inserts NFC chips into each item and uses them as the certificates of the product. The NFC data is uploaded into the company's Blockchain. However, using NFC chips is not suitable for all types of products. For instance, fresh food or small commodities.

Furthermore, in this kind of system, customers still get the products from the sellers and not directly from the manufacturer and reasonably the consumers may have concerns trusting the sellers.

The paper entitled 'A Comparison Survey Study on RFID Based Anti-Counterfeiting Systems' describes Radio frequency identification tag Anti-forging is an applied arrangement that has gotten consideration in the previous few years. This system represents a review concentrating on the exploration subject hostile to duplicating items utilizing Radio Frequency Identification tags on product. Radio frequency identification (RFID) and remote sensor networks (WSN) are two significant remote advances that have a wide assortment of utilizations and give limitless future possibilities, while RFID tags are like an actuator which requires a control signal and a wellspring of energy. RFID perceives areas and recognizable proof of labeled things — yet as opposed to perusing laser light reflections from printed standardized tag names, it uses low power radio frequencies to gather and store information. In a stockroom or distribution center, this system is utilized to automate information assortment. The transceiver scans radio frequencies and sends them to a RFID tag. The distinguishing data is then communicated from a little microchip inserted in the tag and communicated to the RFID reader. RFID needs a lot of involvement of users as it is not automated because users are required to remove the label and then to write the code and send it to the system. And also use radio waves, RFID readers are 10 times expensive, Implementation is difficult and also time-consuming

In ''Makerchain: A blockchain with chemical signature for self-organizing process in social manufacturing'' presents an anti-counterfeiting method composed of chemical signature to represent unique features of personalized products.

Sahoo proposed the ECDSA(Elliptic Curve Digital Signature Algorithm) in their paper which added traceability and visibility for the protection of drug counterfeiting in the pharmaceutical industry and provided a strong and transparent drug supply system by which we can block the loopholes in our current drug supply chain. This paper becomes important for the pharmaceutical industry since there is an urgent requirement for improvement in the medical industry as there is a lot of distrust regarding the genuineness of medicines in the consumer's mind which will be fulfilled by this methodology. But, if we take the flip side of the security and transparency provided there are still the chances of a malicious entity replacing the genuine medicines with the counterfeited medicines so blind faith in any methodology may lead to life-threatening problems in a worst-case scenario.

Smart Tags for Brand protection and anti-counterfeiting in the wine industry by steven, Marko. This paper describes a brand protection and anti counterfeiting solution for the wine industry based on smart tags and Cloud enabled technologies. The main idea behind smart tags is to utilize quick response codes and functional inks supported by the Cloud system and two-way communication between the winemaker and end-user.

Holographic standardized tags utilizing Computer created visualizations are actualized utilizing MATLAB. The decoding of the barcode recreated from the holograms gives the corresponding product recognizable proof number assigned for the product.

REQUIREMENT SPECIFICATION

- Android studio
- Firebase cloud
- A computer with a minimum 8 GB ram with a processor like i5 or i7 with 15 to 20 GB storage space.
- Android mobile for testing the work.

PROPOSED SYSTEM

The implementation in this paper is done utilizing Android Studio and the Kotlin programming language. We're also introducing blockchain capabilities to our backend, the Firebase Cloud Database, which stores data in blocks. This entire phase can be broken down into three components.

i. MANUFACTURE LOGIN

Manufactures must first register and login to the app, following which they have two options. One option is to feed the product specifics, such as art name, size, kind, etc., and a QR code is generated, which is then recorded in our database. Another option is to open the QR scanner, allowing the manufacturer to see and inspect the product details.

ii. CUSTOMER LOGIN

Customers will also be able to register and login through the app. Customers will only be able to use the QR code scanner. The QR code will be scanned by the customer. If the QR code matches one in our database, it will display product information; if it does not, it will indicate that the product is unavailable or counterfeit. Only the specific QR codes listed in our database are scanned by this QR code scanner. And it does not scan everything.

iii. TRANSACTION HISTORY

If the product is given to the seller 1 by the manufacturer.This will be stored as blocks in our database. And it will be displayed in transaction history, indicating whose seller the product belongs to and when it was last updated. So that the buyer is aware of the manufacturer's transaction data as well as the product's authenticity. As a result, all records are updated and distributed accurately, resulting in transparent data, which is a blockchain capability.
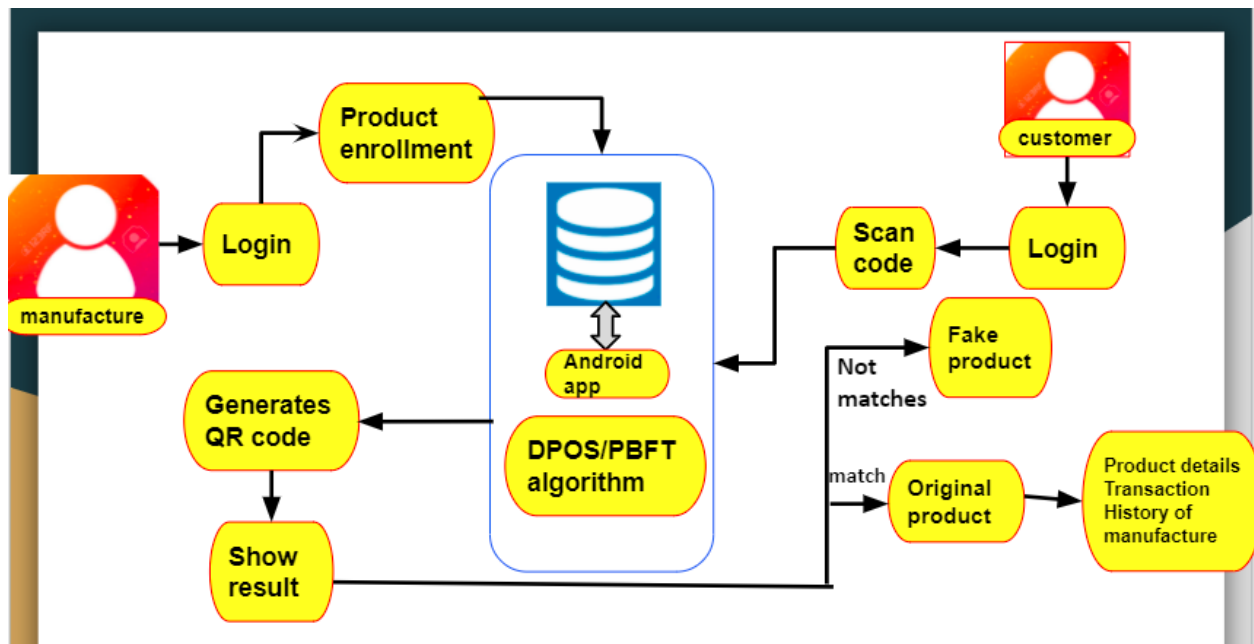
CONCLUSION

The proposed framework is valuable for end clients to identify counterfeit items in the inventory network. End client can check QR code allotted to an item and can get all the data like exchange history, current proprietor dependent on which end client can check if the item is counterfeited or not. Small-scale company organizations, as well as customers, can benefit greatly from utilizing our app. In the initial step, marketing the uniblocksibe indicator app and cooperating with small size organizations, then upgrading to partnering with large scale manufacturers.

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.

Digital signatures are used to verify identification in the system. Unless the key owner's private key is mistakenly leaked, there are no alternative options for decrypting it. According to our system study, the original product record contract will cost only 1.2893394289 US dollars, while each product selling procedure will cost 0.17415436749 US dollars. Both are far less expensive than working with reputable large chain retailers or established Direct Selling Stores. Our technology effectively lowers the anti-counterfeiting threshold for branded goods, providing enterprises with limited financial resources with an easier approach to providing consumers with confidence that they would not purchase counterfeit items.

REFERENCES

[1] J. Leng, P. Jiang, K. Xu, Q. Liu, J. L. Zhao, Y. Bian, and R. Shi, ''Makerchain: A blockchain with chemical signature for self-organizing process in social manufacturing,'' J. Cleaner Prod., vol. 234, pp. 767–778, Oct. 2019.

[2] N. Alzahrani and N. Bulusu, ''Block-supply chain: A new anticounterfeiting supply chain using NFC and blockchain,'' in Proc. 1st Workshop CryptocurrenciesBlockchains Distribution System. (CryBlock), 2018, pp. 30–35.

[3] A Blockchain-Based Application System for Product Anti-Counterfeiting JINHUA MA 1 , SHIH-YA LIN 2 , XIN CHEN 1 , HUNG-MIN SUN 2 , YEH-CHENG CHEN

[4] https://www.mdpi.com/2224-2708/8/3/37/pdf A Comparison Survey Study On RFID Based Anti-Counterfeiting Systems

[5] https://ieeexplore.ieee.org/document/6731643 Security With Holographic Barcodes Using Computer Generated Holograms.

[6] Counterfeited Product Identification in a Supply Chain using Blockchain Technology Shivam Singh, GauravChoudhary ,Shishir Kumar Shandilya, VikasSihag , and ArjunChoudhary.

[7] Fake News Detection In Social Media using Blockchain: - Shovon Paul, Jubair Joy, ShailaSarkar.

[8] A Blockchain and Machine Learning-Based Drug Supply Chain Management and Recommendation System for Smart Pharmaceutical Industry

KhizarAbbas , Muhammad Afaq, Talha Ahmed Khan and Wang-Cheol.

[9] Roxanne, E.; Lisa, D.; George, P. Anticounterfeiting in the fashion and luxury sectors: Trends and strategies. In Anti-Counterfeiting—A Global Guide, 2013.

[10] Smart tags for brand protection and anti-counterfeiting in wine industry Steven, marco.