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ENHANCING SUPPLY CHAIN INTEGRITY : LEVERAGING BLOCKCHAIN FOR COUNTERFEIT PRODUCT DETECTION

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ABSTRACT

These days, counterfeit products are a major worldwide issue since buyers are tricked into buying fake goods without having a way to verify authenticity. Blockchain has gained popularity recently because it encourages trust amongst untrustworthy contributors. Blockchain technology is used by this system to prevent the auctioning of phony goods. Through the use of blockchain, we enable creators or producers to add verifiable product serial numbers to balance sheets, which consumers may use to confirm the legitimacy of the product before making a purchase. Blockchain is crucial to proving that data was handled carefully and creating a secure environment. The suggested solution makes use of a custom algorithm to identify products that are counterfeit.

Keywords: Blockchain, Counterfeit Products, Auctioning, Custom Algorithm.

I. INTRODUCTION

In the quickly changing world of technology, there is always a risk associated with the global development of a technology or product. Examples of these risks include copying and counterfeiting, which can negatively impact a company's reputation, revenue, and the well-being of its clientele. The primary objective of the project is to verify if the product that the consumer has purchased is authentic or fraudulent using blockchain technology against our traditional supply chain. Conventional supply chains provide a centralized network in which the company offering the goods or services controls the market and the data, leaving them open to manipulation. Counterfeit goods are produced in order to capitalize on the inferior quality of the imitation products. Traditional supply chains offer centralised networks, as was previously established, while blockchain provides decentralised databases, with each transaction involving the data value for the commodity.

The counterfeit sector is thought to be worth US$250 billion annually1 and is expanding, according to the UN. Counterfeiting poses a challenge to almost every firm, resulting in decreased income and damage to brand reputation. Because of these losses, companies usually aren't able to recover their RD investments, which hinders their future capacity to produce meaningful products. Another school of thinking holds that counterfeit goods help finance organized crime in some nations; any respectable business would not want to be connected to this.

Products that are counterfeit put consumers at risk, and some can be deadly or very harmful to their health. When it comes to medical supplies or kid's toys, customers may find it challenging or even dangerous to identify counterfeit goods. We'll talk about the issue of fake domains and concentrate on the areas where using IT technology might be beneficial. After introducing the relevant works, we will sketch the solution concept and technological architecture and then discuss the issues associated with implementing and evaluating such solutions.

Since blockchain is a peer-to-peer system, this is achieved by creating a record whose accuracy can be verified by any member of the network. The manufacturer may employ this strategy to ensure that the customer obtains authentic products. This will help maintain customer confidence and increase the brand's market value for the goods. In a blockchain, each block consists of data, a hash, and the hash of the block before it. The relevant information is present in both the hash and the data.

The product supply chain management blockchain improves security by securely storing data. Moreover, it permits blockchain-wide modifications in accordance with the smart contract architecture. The control, configuration, and management of the blockchain networking system is being built. This includes confidentiality, integrity, availability, and management.

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II. LITERATURE SURVEY

In Proposed[1] System, blockchain has gotten expanding consideration and various applications have risen up out of this innovation. A famous Blockchain ap-plication is the cryptographic money Bitcoin, that has not exclusively been successfully tackling the twofold spending issue yet additionally it can affirm the authenticity of value-based records without depending on a concentrated framework to do as such. Thusly, any application involving Blockchain innovation as the base design guarantees that the items in its information are sealed. This paper utilizes the decentralized Blockchain innovation way to deal with guarantee that customers don't completely depend on the shippers to decide whether items are certifiable. We depict a decentralized Blockchain framework with items hostile to forging, in that way makers can utilize this framework to give veritable items without overseeing direct-worked stores, which can essentially diminish the expense of item quality confirmation.

Lately[2], Fake merchandise assume a crucial part in item fabricating enterprises. This Peculiarity influences the deals and benefit of the organizations. To guarantee the distinguishing proof of genuine items all through the store network, a utilitarian block chain innovation utilized for forestalling item duplicating. By utilizing a block chain innovation, customers don't have to depend on the confided in third standard connections to securely know the wellspring of the bought item. Any application that utilizations block chain innovation as an essential system guarantees that the information content is 'hat per safe'. Since a block chain is the decentralized, conveyed and computerized record that stores value-based records known as blocks of general society in a few data sets known as chain across a large number. Along these lines, any elaborate block can't be changed ahead of time, without changing all resulting block. In this paper, fake items are recognized utilizing standardized tag peruser, where a scanner tag of the item connected to a Block Chain Based Administration (BCBM) framework. So the proposed framework might be utilized to store item subtleties and one of a kind code of that item as blocks in data set. It gathers the special code from the client and analyzes the code against sections in block chain data set. In the event that the code matches, it will give warning to the client, in any case it gets data from the client about where they purchased the item to recognize fake item maker.

With the approach[3] of globalization and the evergrowing pace of innovation, the volume of creation as well as simplicity of securing fake merchandise has become uncommon. Be it food, medication or extravagance things, a wide range of modern makers and merchants are presently looking for more prominent straightforwardness in production network tasks so as to dissuade falsifying. This paper presents a decentralized Blockchain based application framework (DApp) with the end goal of recognizing fake items in the production network framework. With the fast ascent of Blockchain innovation, it has become realized that information recorded inside Blockchain is permanent and secure. Subsequently, the proposed project here utilizes this idea to deal with the exchange of responsibility for. A purchaser can confirm the item dispersion and proprietorship data checking a Speedy Reaction (QR) code created by the DApp for every item connected to the Blockchain.

There[4] are many phony items in the current store network. It is important to have a framework for end client to really take a look at all insights regarding item that they are purchasing so the client can check in the event that the item is certifiable or not. Lately, Counterfeit items assume a significant part in item fabricating enterprises. This influences the organization name, deals, and benefit of the organizations. Block innovation is utilized to distinguishing proof of genuine items and recognizes counterfeit items. Blockchain innovation is the circulated, decentralized and computerized record that stores value-based data as blocks in numerous data set/hub PCs which is associated with the chains. Blockchain innovation is secure as the information put away once in the chain is unchanging thusly any block can't be changed or hacked. By utilizing Blockchain innovation, clients or clients don't have to depend on outsider clients for affirmation of item realness and wellbeing. Our Framework gives the arising innovation of web use cases, Fast Reaction (QR) codes give a hearty method to battle the act of duplicating the items. Falsified items can be identified utilizing a QR code scanner, where a QR code of the item is connected to Blockchain. Along these lines, this framework might be utilized to store item subtleties and created novel code of that item as blocks in data set. It gathers the extraordinary code from the client and com-pares the code against passages in the Blockchain data set. Assuming the code matches, it will give all the data of the item any other way no data will be yielded to the client which shows that the item is phony or duplicated

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As of late[5] Fake items assume a significant part in item fabricating businesses. This influences the organizations name, deals, and benefit of the organizations. Blockchain innovation is utilized to distinguishing proof of genuine items and recognizes counterfeit items. Blockchain innovation is the dis tributed, decentralized, and computerized record that stores value-based data as blocks in numerous data sets which connects with the chains. Blockchain innovation is secure innovation along these lines any block can't be changed or hacked. By utilizing Blockchain innovation, clients or clients don't have to depend on outsider clients for affirmation of item wellbeing. In this task, with arising patterns in portable and remote innovation, Speedy Reaction (QR) codes give a strong method to battle the act of forging the items. fake items are identified utilizing a QR code scanner, where a QR code of the item is connected to a Blockchain. So this framework might be utilized to store item subtleties and created special code of that item as blocks in the data set. It gathers the exceptional code from the client and analyzes the code against passages in the Blockchain data set. In the event that the code matches, it will give a notice to the client, any other way it will give the notice to the client that the item is phony.

III. PROPOSED METHODOLGY

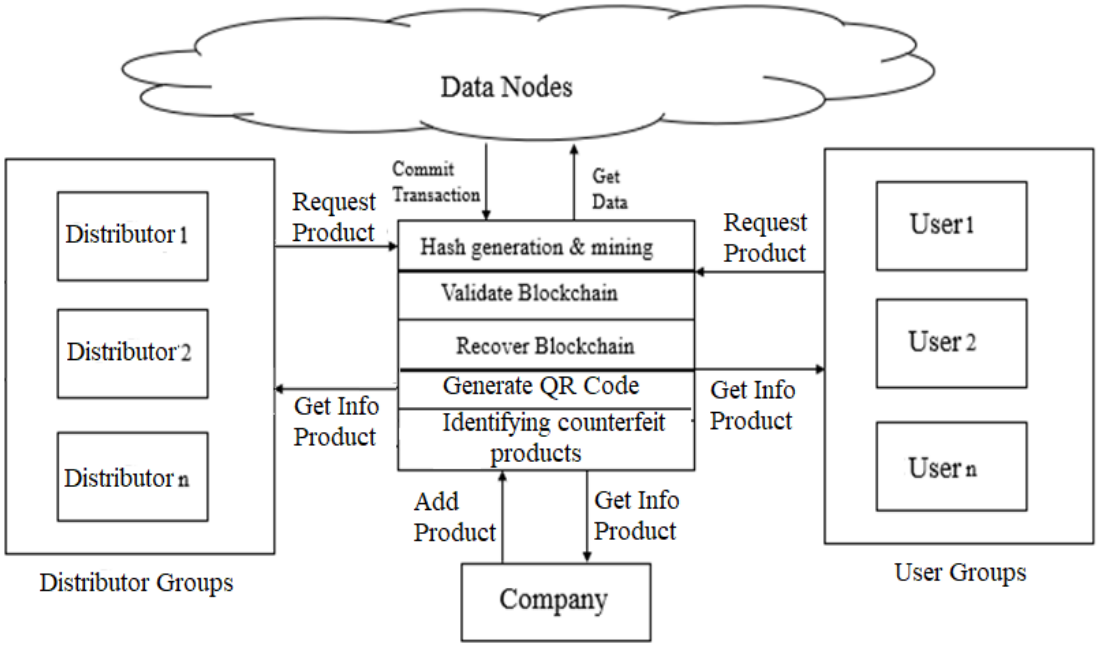

Fig 1:- System Architecture

The main idea of the suggested method is to use block chains to store data and distribute products (medicines) along the supply chain. The system facilitates reliable communication between several parties without the need for a third-party interface. The hash for the supplied string will be created when we use the hash creation technique. We check the data using peer-to-peer verification before to conducting any transaction. It will update or restore the existing server blockchain if any chain is found to be invalid. Up till every node is confirmed and committed, this will be validated. To verify the hash created for the query, the mining algorithm is employed. A legitimate hash is produced.

IV. CONCLUSION

There are several study paths to apply Blockchain technology to the transaction business because of the intricacies of this field and the want for more reliable and effective information management frameworks. These factors are taken into consideration in the suggested system we are examining about the blockchain applications. A number of transaction use scenarios with comparable data exchange and communication issues will need the use of an interoperable architecture. Analysis of Blockchain: As a decentralized system, it guarantees the privacy and secrecy of data on the network. This technique will increase the confidence between the manufacturer and the customer, which will enhance providence and decrease dishonesty. A custom algorithm for the system's usage in the identification of counterfeit goods is suggested.

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