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## ENHANCING SUPPLY CHAIN INTEGRITY : LEVERAGING BLOCKCHAIN FOR COUNTERFEIT PRODUCT DETECTION

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### ABSTRACT

Since consumers are duped into purchasing counterfeit items without having a mechanism to confirm authenticity, counterfeit products are becoming a huge global problem. Due to its ability to foster confidence amid unreliable contributors, blockchain has become more and more popular recently. This technique prevents the auctioning of fake items by utilising blockchain technology. By utilising blockchain technology, we allow product manufacturers or creators to append verified product serial numbers to balance sheets. This allows customers to verify the authenticity of the product before committing to a purchase. To demonstrate that data was handled correctly and to create a secure environment, blockchain technology is essential. The recommended method uses a unique algorithm to detect products that are fake.

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

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### I. INTRODUCTION

Global product or technology development is always fraught with danger in the rapidly evolving world of technology. These hazards include, for example, copying and counterfeiting, which can have a detrimental effect on a business's income, reputation, and customer satisfaction. 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. The centralised network that conventional supply chains give allows the corporation providing the goods or services to control the market and the data, making them vulnerable to manipulation. The purpose of producing counterfeit goods is to profit from the lower quality of copycat items. As previously stated, traditional supply chains give centralised networks; on the other hand, blockchain offers decentralised databases, where each transaction involves the commodity's data value.

The fake area is believed to be worth US\$250 billion annually<sup>1</sup> and is extending, as per the UN. Forging represents a test to pretty much every firm, bringing about diminished pay and harm to mark notoriety. On account of these misfortunes, organizations generally can't recuperate their RD ventures, which ruins their future ability to create significant items. One more school of reasoning holds that fake merchandise assist with supporting coordinated wrongdoing in certain countries; any good business would have no desire to be associated with this.

Items that are fake seriously endangered shoppers, and some can be lethal or exceptionally hurtful to their health. When it comes to clinical supplies or youngster's toys, clients might find it trying or even hazardous to recognize fake products. We'll discuss the issue of phony spaces and focus on the areas where utilizing IT innovation may be gainful. In the wake of presenting the significant works, we will portray the arrangement idea and mechanical engineering and afterward talk about the issues related with carrying out and assessing such arrangements.

Since blockchain is a shared framework, this is accomplished by making a record whose precision can be checked by any individual from the organization. The maker might utilize this technique to guarantee that the client gets real items. This will assist with keeping up with client certainty and increment the brand's reasonable worth for the products. In a blockchain, each block comprises of information, a hash, and the hash of the block before it. The significant data is available in both the hash and the information.

The item inventory network the board blockchain further develops security by safely putting away information. Besides, it grants extensive alterations as per the savvy contract engineering. The control, design, and the executives of the blockchain organizing framework is being constructed. This incorporates secrecy, trustworthiness, accessibility, and the board..

## II. LITERATURE SURVEY

There[1] are numerous fake things in the ongoing store organization. It is essential to have a system for end client to truly investigate all experiences in regards to thing that they are buying so the client can check if the thing is genuine or not. Recently, Fake things expect a critical part in thing creating ventures. This impacts the association name, arrangements, and advantage of the associations. Block advancement is used to distinctive verification of authentic things and perceives fake things. Blockchain development is the coursed, decentralized and electronic record that stores esteem based information as blocks in various informational collection/center point laptops which is related with the chains. Blockchain advancement is secure as the data set aside once in the chain is constant in this way any block can't be changed or hacked. By using Blockchain advancement, clients or clients don't need to rely upon pariah clients for certification of thing realness and prosperity. Our Structure gives the emerging development of web use cases, Quick Response (QR) codes give a good technique to fight the demonstration of copying the things. Distorted things can be recognized using a QR code scanner, where a QR code of the thing is associated with Blockchain. Thusly, this system may be used to store thing nuances and made novel code of that thing as blocks in informational collection. It assembles the uncommon code from the client and com-pares the code against entries in the Blockchain informational collection. Expecting the code matches, it will give every one of the information of the thing some other way no information will be respected the client which shows that the thing is fake or copied

As of late[2] Counterfeit things expect a huge part in thing creating organizations. This impacts the associations name, arrangements, and advantage of the associations. Blockchain advancement is used to distinctive verification of veritable things and perceives fake things. Blockchain development is the dis tributed, decentralized, and automated record that stores esteem based information as blocks in various informational collections which associates with the chains. Blockchain advancement is secure development thusly any block can't be changed or hacked. By using Blockchain development, clients or clients don't need to rely upon outcast clients for attestation of thing prosperity. In this undertaking, with emerging examples in compact and distant development, Quick Response (QR) codes give areas of strength for a to fight the demonstration of producing the things. counterfeit things are distinguished using a QR code scanner, where a QR code of the thing is associated with a Blockchain. So this system may be used to store thing nuances and made exceptional code of that thing as blocks in the informational index. It accumulates the outstanding code from the client and breaks down the code against entries in the Blockchain informational index. If the code matches, it will give a notification to the client, some other way it will give the notification to the client that the thing is fake.

In Proposed[3] Framework, blockchain has gotten extending thought and different applications have ascended out of this development. A well known Blockchain ap-plication is the cryptographic cash Bitcoin, that has not solely been effectively handling the twofold spending issue yet furthermore it can confirm the genuineness of significant worth put together records without depending with respect to a concentrated system to do thusly. Accordingly, any application including Blockchain development as the base plan ensures that the things in its data are fixed. This paper uses the decentralized Blockchain development method for managing ensure that clients don't totally rely upon the transporters to conclude whether things are authentic. We portray a decentralized Blockchain structure with things unfriendly to fashioning, in that way producers can use this system to give genuine things without managing direct-worked stores, which can basically lessen the cost of thing quality affirmation.

Lately[4], Counterfeit product expect a vital part in thing creating ventures. This Idiosyncrasy impacts the arrangements and advantage of the associations. To ensure the distinctive evidence of veritable things generally through the store organization, a utilitarian block chain development used for preventing thing copying. By using a block chain development, clients don't need to rely upon the trusted in third standard associations with safely know the wellspring of the purchased thing. Any application that uses block chain advancement as a fundamental framework ensures that the data content is 'cap per safe'. Since a block chain is

the decentralized, conveyed and modernized record that stores esteem based records known as blocks of general society in a couple of informational collections known as chain across an enormous number. Thusly, any intricate block can't be changed early, without changing all subsequent block. In this paper, counterfeit things are perceived using normalized tag peruser, where a scanner tag of the thing associated with a Block Chain Based Organization (BCBM) system. So the proposed structure may be used to store thing nuances and stand-out code of that thing as blocks in informational collection. It assembles the exceptional code from the client and examines the code against segments in block chain informational index. If the code matches, it will give cautioning to the client, regardless it gets information from the client about where they bought the thing to perceive counterfeit thing producer.

With the approach[5] of globalization and the evergrowing speed of development, the volume of creation as well as straightforwardness of getting phony product has become phenomenal. Be it food, medicine or lavishness things, a great many current creators and shippers are as of now searching for more conspicuous straightforwardness underway organization errands to discourage distorting. This paper presents a decentralized Blockchain based application structure (DApp) with the ultimate objective of perceiving counterfeit things in the creation network system. With the quick rising of Blockchain advancement, it has become understood that data recorded inside Blockchain is long-lasting and secure. Consequently, the proposed project here uses this plan to manage the trading of liability regarding. A buyer can affirm the thing scattering and ownership information really looking at a Fast Response (QR) code made by the DApp for each thing associated with the Blockchain.

### III. PROPOSED METHODOLOGY

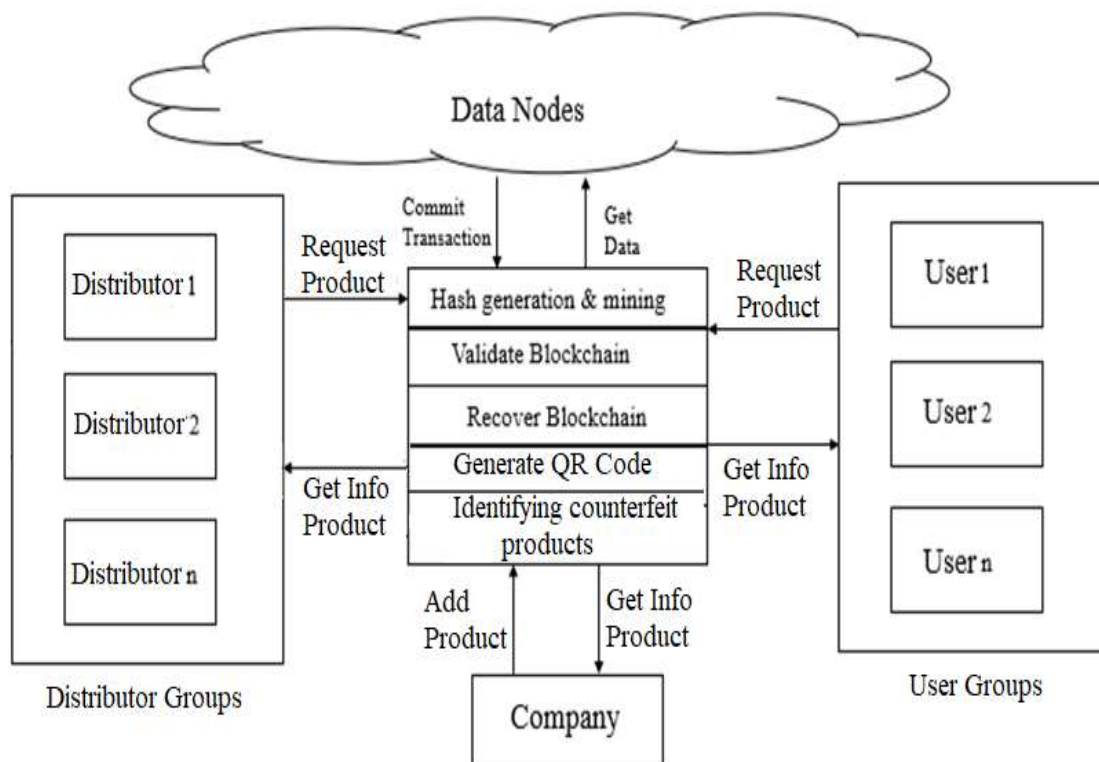


Fig: System Architecture

Using block chains to store data and deliver goods (medicines) along the supply chain is the basic concept behind the proposed technique. The solution eliminates the requirement for a third-party interface by enabling dependable communication between several parties. When we use the hash generating approach, the hash for the specified string will be generated. Prior to completing any transactions, we use peer-to-peer verification to verify the data. If any chain is deemed to be invalid, it will update or restore the current server blockchain. This will be validated until each node is verified and committed. The mining algorithm is used to validate the hash generated for the query. There is a valid hash generated.

#### IV. RESULT AND EXPERIMENTAL



Fig: Distribution Login



Fig: QR Code



Fig: User Login



Fig: User Registration

## V. CONCLUSION

Due to the complexity of this industry and the need for more dependable and efficient information management frameworks, there are several study courses available for using Blockchain technology to the transaction sector. The proposed approach that we are looking at for the blockchain applications takes these things into account. A variety of transaction use cases with similar communication and data exchange problems will require the application of an interoperable architecture. Examining Blockchain: Since it is a decentralised system, the network's data privacy and confidentiality are guaranteed. By using this strategy, trust will grow between the maker and the consumer, improving reliability and lowering dishonesty.

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