FAKE PRODUCT IDENTIFICATION USING BLOCK CHAIN

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ABSTRACT

In the current supply chain, there are several phoney items. It is vital to have a system in place that allows end users to examine all data about the goods they are purchasing in order to determine whether the product is authentic or not.

Blockchain technology is a network of peer-to-peer nodes that keep a record of transactions, also known as blocks, and commonly referred to as "chains" in various databases. This type of storage is sometimes referred to as "digital ledge." It has a distributed file system and immutable properties.

IPFS (Inter Planetary File System), a Distributed Web File System, is used by our system to track product ownership.

IPFS is more helpful than http because it can efficiently distribute large amounts of data and does not allow duplication. IPFS and the Blockchain have a lot in common. IPFS allows you to handle large amounts of data and embed immutable, persistent IPFS links in blockchain transactions. This protects and time stamps your content without having to place the data on the chain. The system keeps track of the product's maker, how ownership changes, and allows customers to see who is the current owner of the goods. Customers will be given a Graphical user interface (GUI) to scan QR codes associated with products, and information about those products will be shown.

KEYWORDS – Inter Planetary File System (IPFS), Blockchain, supply chain, QR code.

1.INTRODUCTION

There are numerous fraudulent items in the supply chain, therefore a mechanism to assure product authenticity is required. It is necessary to keep track of the product's ownership history in order to ensure its authenticity. Inter Planetary File System (IPFS) is important for preserving product ownership. IPFS is a peer-to-peer file system that captures large amounts of data in the form of objects, blocks, or files, such as the Blockchain protocol. It is also higher than http as http only finds files on one device, but IPFS allows you to share effectively with large amounts of data.

IPFS also does not allow duplication, which is a crucial feature. When a product is stored on a network, its hash code is created, and it is feasible to keep track of the product's transaction history and present owner since a chain is created for that product's transactions. We assign a QR code to a specific product in the suggested system, and the end users may scan that QR code to acquire all details about that product.

2.OBJECTIVES

The idea for this project came about because of the proliferation of counterfeit products.

In this project, the following objectives are outlined:

1.Build an Anti-Counterfeit System using Blockchain.

2. Information about your product can be protected with a QR code

3. Client data should be secured before it is provided to customers.

3.LITERATURE REVIEW

In this paper [1], the author explains how a common cloud storage system is located in one place, and how a single failure point can cause the system to fail.

The system is powered by IPFS, Ethereum blockchain, and encryption-based encryption technology. Using the decentralised system, which is based on Ethereum blockchain, users can search encrypted text with keyword searches, which solves the problem of cloud servers not providing correct results in traditional storage systems.

The author of the paper [2] discusses a mechanism for the purpose of originality, validity of the published and also the digital material like music, books, and different media that are posted online.

Blockchain and IPFS (interplanetary file system). are among the cutting-edge technologies used in the system.

Despite its focus on originality, authenticity, and integrity for online books, the architecture, design, underlying logics, and smart contract code are flexible enough to allow them to be easily adapted and used to provide originality, authenticity, and integrity to all types of digital assets. Before uploading the content, the writer evaluated two possibilities depending on approval results supplied by the author for each publication requiring an attestation or validation.

By comparing Blockchain technology with existing supply chain systems, the author of this paper [3] explains the concept of Blockchain technology in food supply chain information security.

By utilizing blockchain to track, monitor, and audit the food supply chain, as well as assist producers in accurately tracking transactions, the proposed method addresses the drawbacks. There is no practical implementation of the suggestion system; rather, it is only a conceptual one.

4.SYSTEM ARCHITECTURE
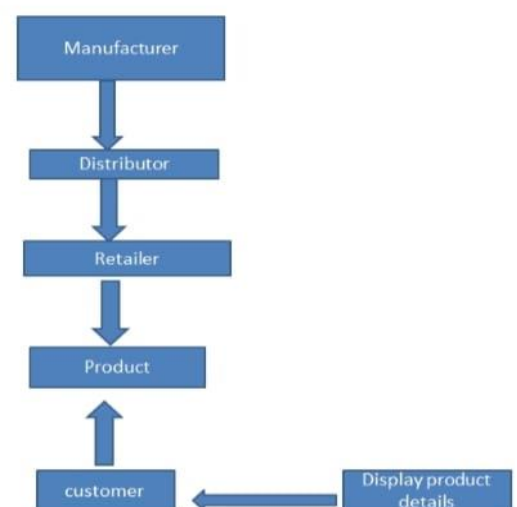
5.METHODOLOGY

The system keeps track of the product's condition, current owner, and time stamp, which indicates when ownership changed.

5.1. BASIC STEP OF SYSTEM

STAGE I: Product enrollment on the network:

Initially, the product will be owned by the maker.

When a manufacturer requests that a product be added to the network, a QR code will be allocated to that product. A genuine manufacturer will be enrolled in the network if the administrator receives a request from them.

STAGE II: Ship product to Distributor:

The next stage is for the manufacturer to ship the goods to the distributor, and the status will be set as sent. This will does not affect the proprietorship of the product until the supplier acknowledges receipt. After obtaining Acknowledgement (ACK), the distributor receives ownership of the goods.

STAGE III: Ship product to retailer:

At this point, the distributor will ship the product to the retailer, marking it as sent, and after getting confirmation from the retailer that the goods were received successfully, the retailer will be handed ownership of the product.

STAGE IV: End user get detail about product:

Customers will be given an Android app at this stage, and they will be able to scan the QR code assigned to the product with the app to obtain information about the product, such as the manufacturer and current owner, and decide whether or not to purchase the product.

6.DISCUSSION ABOUT THE PAPER

There has never been a good way to tell the difference between phoney and genuine items. Blockchain technology may be useful in addressing such issues.

So in this research paper the main purpose is to assist individuals in determining if a product is genuine or counterfeit.

Counterfeiting and duplication are always risk considerations in the worldwide growth of a product or technology, and they can harm the company's brand, revenue, and consumer health. In the supply chain, there are a plethora of items. To determine if the goods is genuine or counterfeit. As a result, the largest challenge and highest losses are faced by counterfeit or fraudulent goods makers. To discover the truthfulness of the product we'll be able to use Blockchain is a advanced model of technology.

In contrast to traditional data storage systems, blockchains prevent tampering, hacking, and defrauding. The blockchain consists of a network of computers that copies and disseminates a recorded history of transactions. A new transaction is recorded on the blockchain every time a new block in the chain is created, and each block includes several transactions, each one adding to the records of all participants. In Distributed Ledger Technology (DLT), a large number of people administer a decentralised database. An immutable cryptographic signature is used to record transactions using blockchains, which are distributed ledgers.

The blockchain technology aids in the resolution of these issues by using the technique Inter Planetary File System (IPFS). The issue of a product being counterfeited. It is more secure to use blockchain technology. After the product is stored on the network, a unique hash code is generated for it, which makes it possible to maintain a chain of all transactions involving it and its current owner. The blockchain will keep all transaction data in the form

of blocks. We assign a created QR code to a specific product in the suggested system, which the end consumer can scan. To learn everything there is to know about a product, scan its QR code. We can tell if a product is genuine or not by scanning the QR code.

7.CONCLUSION

As a result, the suggested method can help end users detect bogus items in the business logistics. By scanning the QR code, users can obtain information about transactions and the current owner of an item, helping them to determine whether it is legitimate or not.

We will create a system that manages and monitors product transportation information in the future.

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