

The Reliable E-Commerce Business Model using Blockchain

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Abstract: *The first step in online shopping is, apparently, to choose a reliable supplier. However, consumers and merchants may have different perceptions of product quality, and this may result in business disputes. The dispute about buying inferior goods may be caused from simple product photos or merchants making over the top claims about their products. This dispute problem cannot be resolved completely, even though customers choose reputable e-commerce companies, e.g., Amazon@com and Alibaba@com. In this project we present BlockStore which is a platform where individuals and small businesses can kickstart their digital stores on the blockchain. Cryptocurrency Transactions and status tracking would ensure transparency. With the ongoing NFT boom, everyone is talking about making quick bucks on the blockchain. While NFT has been mostly restricted to digital artists and collectibles, we want to create a platform that allows small stores and individuals to sell their physical creations directly to the public.*

Keywords: *e-commerce, blockchain, Cryptocurrency, Business Model*

1. INTRODUCTION

The digital store industry in the E-commerce sector directly or indirectly deals with the lives of millions of people. This particular sector can be easily exploited with the kind of architecture it currently possesses. This can cause tremendous life growth to all the people connected to this network. E-commerce growth in the last decade is tremendous. Thus, it becomes really important to create digital stores for small scale businesses so that they can also earn in this online market and traditional e-commerce is not that secure and easy for small scale business owners to set up their presence online. Features like traceability,

detectability, tracking, verification and accountability should be introduced in the E-commerce sector to improve its overall efficiency.

To improve the E-commerce system traceability and security, Blockchain technology has been producing interesting research zones due to its inventive attributes that give productive answers for the current loopholes identified. In simple terms, Blockchain can be defined as a conveyed information base, which is shared among and concurred upon by a distributed organization, also known as a peer-to-peer network. BlockStore is a platform where individuals and small businesses can kickstart their digital stores on the blockchain. Cryptocurrency Transactions and status tracking would ensure transparency. With the ongoing NFT boom, everyone is talking about making quick bucks on the blockchain.

2. PROBLEM STATEMENT

To enhance the approach of the traditional E-Commerce Business model using Blockchain to ensure source to consumer traceability and tracking which helps to improve efficiency in the industry by ensuring consumer protection, building trust, improving quality of service and overcoming gaps exploited by fraud E-commerce sites.

3. OBJECTIVE

The core objectives of this project are:

- I. Creating a system which is global using Crypto currencies like CELO allows sellers to transact across borders, reaching a wider audience.
- II. Improve the transparency , coordination and information sharing within E-commerce, Order status updates, product lists, authentication, prices everything is handled publicly on the blockchain, no databases.
- III. Protect the data authenticity.
- IV. Speed up the data retrieval.
- V. Design of distributed databases to avoid single point of failure.

4. PROPOSED SYSTEM METHODOLOGY

Blockchain Architecture

Blockchain technology provided the base for the peer-to-peer digital currency and led to the bitcoin platform. But the applications of blockchain technology are far more than cryptocurrencies, and it can provide an excellent solution for tracking products in the E-commerce sector. So, let's understand the working of the blockchain network and how it can solve the problem of drug-counterfeiting.

Blockchain is nothing but an immutable distributed ledger shared by a group of nodes over a peer-to-peer network. Each activity on this network is called a transaction. A group of such transactions forms a block. A block is associated with a hash value, timestamp, and hash of the previous block. This chaining of blocks together makes the ledger tamper-proof and immutable. The blocks are added to the network after verification by the Proof-of-Work consensus or any other custom consensus algorithm, which provides accountability and integrity to the blockchain network. The ability to store the transactions based on their sequence makes blockchain an ideal candidate for solving traceability problems in the supply chain management system.

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Initially, the manufacturer will create a QR code containing the manufacturer's name, manufacturing date, expiry date, and transaction number. The transaction number will help in identifying the medicine on the blockchain. Then the distributor will scan the QR code and check for validity. When the shipment leaves the distributor's storage, the distributor should add his signature details in the medicine's record. The wholesalers, retailers, and pharmacies will carry out the same tasks at their end. By recording the transactions at each stage of the supply chain, tracking and traceability can be made possible in the drug supply chain.

5. PROCESS DESCRIPTION

Architecture

- I. Ethereum smart contracts were used to develop DAPP which was connected to the Blockchain system.
- II. Buyer can Explore the Products, Create Orders, Pay for products, Monitor the status of orders.

- III. Sellers can Create Products, Receive the payments, Update and monitor order status.
- IV. Celo Blockchain and Sawo Labs are used for Authentication, Both Buyer and Seller are Authenticated using Sawo Labs using email. We are using Alfojores test network for testing the system.

What is SAWO?

Secure Authentication without OTP or SAWO is the next thing in authentication, we wish to provide convenience both to developers and the users using the same platform by providing a one-tap authentication service that is secure, swift, and sustainable.

SAWO does not save any personal data of the user since it is end-to-end encrypted and is coupled with highly secure open standards working on Public Key Cryptography.

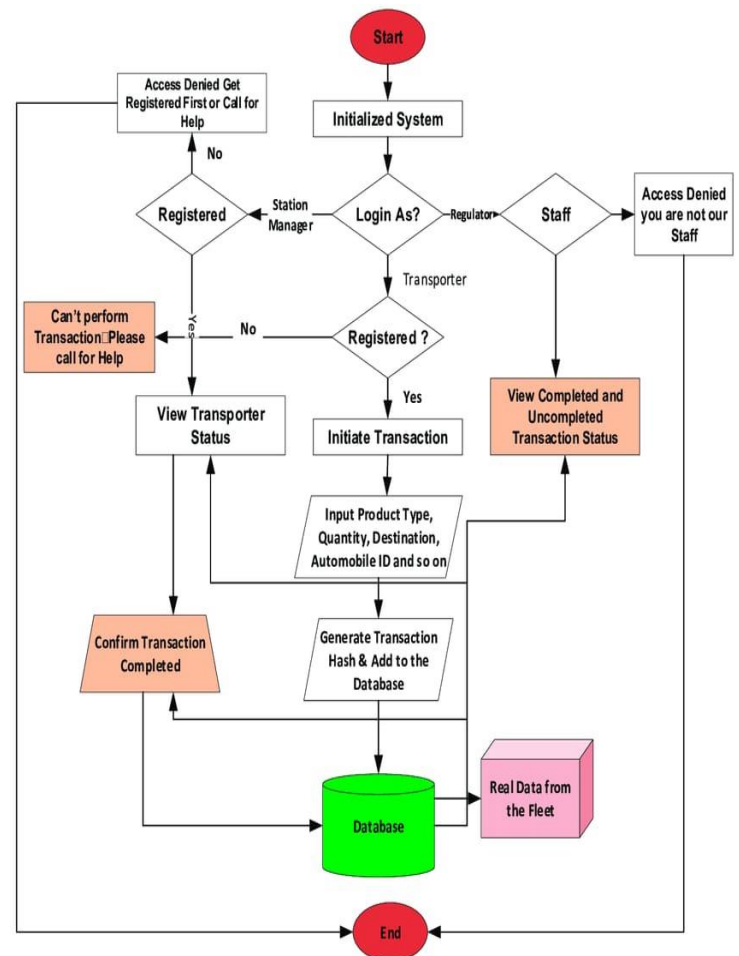
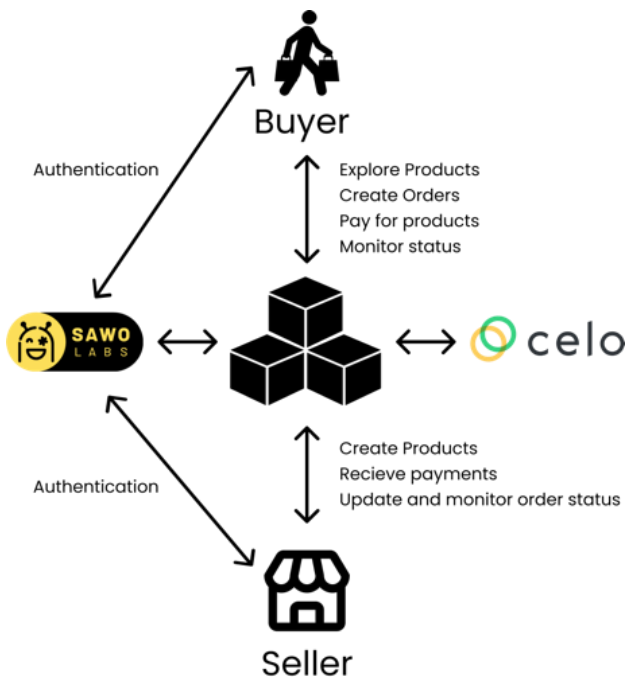
SAWO SDK acts as a hidden layer between your user and your platform, it's a magic layer which after a very fast integration is able to give you unmatched performance, you may wish to know about how this all flows from few lines of code to all solutions, thus let us take you through the journey.

Celo is a complete stack of new blockchain software, core libraries that run on that blockchain, and end-user applications including a Wallet app that communicate with that logic.

Blockchain - A blockchain or cryptographic network is a broad term used to describe a database maintained by a distributed set of computers that do not share a trust relationship or common ownership. This arrangement is referred to as decentralized. The content of a blockchain's database, or ledger, is authenticated using cryptographic techniques, preventing its contents from being added to, edited or removed except according to a protocol operated by the network as a whole.

Smart Contracts - Smart contracts are programs written in languages like Solidity that produce bytecode for the Ethereum Virtual Machine or EVM, a runtime environment.

Cryptocurrency - Celo has a native unit of accounting, the cryptocurrency CELO, comparable to Ether on Ethereum. Celo's ledger consists of accounts, identified by an address. There are two types of accounts. Externally owned accounts have an associated CELO balance and are controlled by a user holding the associated public-private keypair. Contract accounts contain the code and data of a single smart contract which can be called and manipulate its own stored data.



6. LIMITATONS

Scalability can be one of the major limitations of this project. Energy requirements can also pose a challenge during implementation of this project.

7. FUTURE SCOPE

IoT devices can be introduced at some stages to automate the system and thus increase its efficiency. Globally Recognized Avatars (GRAvatars) can be used to replace QR-codes to perform the task of scanning in a more secure way.

8. CONCLUSION

There are many stages in digital blockchain stores which can be exploited and thus it becomes important to secure them to avoid counterfeit products. Malfunctioning can take place in the system which cannot be even tracked using the current architecture. Thus, technology like Blockchain can be used to provide security to the system, thus improving overall efficiency of the system. If any duplicate product has been introduced, it can be

tracked along with its location of introduction. Thus, the proposed architecture also helps in reverse tracking of the system which in turn helps to secure the process.

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