



Direct Delivery Of Agricultural Products From Farmer To Consumer, Then Processed Food To The NGO Using Block Chain

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Abstract: The automation and complexity of supply chains are resulting in significant advantages in the present environment. Concurrently, individuals are placing more emphasis on the quality of food goods. Traditional supply networks are centralised and depend on an external entity for transactions. Centralised structures lack transparency, accountability, & auditability. We have developed a detailed plan for a blockchain-powered food and agricultural supply chain. The system leverages the fundamental characteristics of blockchain technology and employs intelligent contracts that are structured within the blockchain network. Blockchain guarantees data permanence inside the network but does not resolve critical supply chain management challenges including party trustworthiness, trade procedure transparency, and item tracking. The storage system generates a hash value for the data saved on the blockchain to provide an effective, secure, and reliable solution.

Keywords: Blockchain, NGO, SHA

I. INTRODUCTION

Data is stored securely in the food supply chain management blockchain which enhances security. It also allows updates to the entire blockchain according to the smart contract system [11]. Blockchain hash functions offer better strategies for signature protection than a food supply chain management system using blockchain. Blockchain networking system works on to build the control, configuration, particularly confidentiality, integrity, availability and management.

II. LITERATURE SURVEY

Table 1: Overview of existing systems

Title	Methodology	Algorithm	Gap Analysis
Blockchain-enabled decentralized identity management: The case of self-sovereign identity in public transportation [1]	A decentralized identity management system based on blockchain technology can leverage the SSI architecture to offer robust security and transparency for all stakeholders within public transportation systems.	Hyperledger Indy blockchain as a proof-of-concept and identity credentials via the SSI framework.	Recognizing the differences between the intended and actual states, such as the need for improved system interoperability, privacy concerns, and a lack of user control.

A peer-to-peer file storage and sharing system based on consortium blockchain [2]	A consortium blockchain-based peer-to-peer storage system with identity access facilitates data validation, cross-organizational data retrieval, trusted authorization, and sharing.	a consortium blockchain-compatible authentication mechanism and Role Based Control	Centralized control, no data integrity assurances, and the requirement for incentive mechanisms between the current systems and the ideal state.
Digital Identity Using Blockchain Technology [3]	A blockchain-based digital identification paradigm that utilizes encryption to guarantee the confidentiality, authenticity, and reliability of personal user data.	Ethereum blockchain and Smart Contract	It is very difficult to verify the level of security offered by this system
A multi-layer trust framework for Self Sovereign Identity on blockchain [4]	This study a novel multi-layer structure that leverages faith relationships established through the entities involved in the SSI standards, namely the verifiers and issuers of verifiable identifications.	Solidity smart contracts and both private and public blockchain networks	Vulnerable to security and privacy
Fog-enabled private blockchain-based identity authentication scheme for smart home [5]	The authentication process is carried out collaboratively by smart contracts on the local private blockchain and off-chain operations.	fog nodes in smart homes and block chain, smart contracts	These concepts include Proof of Work, Proof of Stake, and Byzantine Fault Tolerance.

III. PROPOSED SYSTEM DESIGN

Figure 1 illustrates the design and implementation of an approach for direct delivery of agricultural crops as of farmers to consumers, followed by processed food delivery to the NGO using blockchain technology. The system contains following modules:

Supply (Farmer)- The farmer is the first participant in the agricultural food supply chain and the first to initiate a smart contract for trade.

User’s Group (Consumer): The warehouse is responsible for processing, storing, and controlling the supply of products from suppliers. It also certifies different product standards and authenticates quality.

NGO: NGO's purpose is to buy consumer goods and gather excess food from various locations.

Block chain: The Blockchain is a decentralized ledger that records the current status of authorized access privileges inside the system. The Root Authority and the Attribute Authorities manage permissions for interacting with the Blockchain.

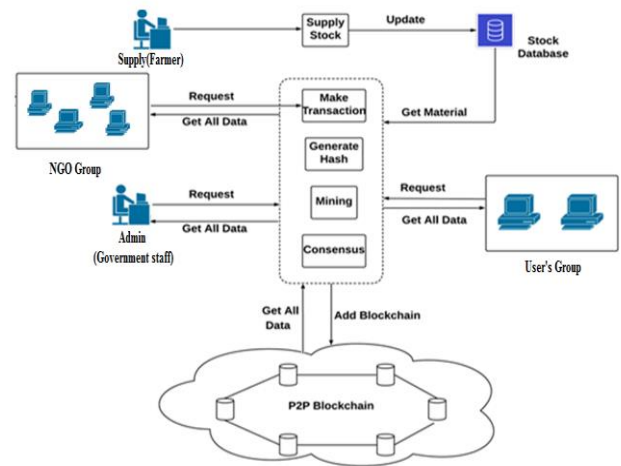


Figure 1: Proposed System Design Algorithms 1: SHA-256 Values Generation

Input: The original block, previous-hash, and data d,

Output: The hash H was generated based on the provided data’s.

Step-1: The record is inputted as d.

Step-2: Utilize SHA-256 from the hash values range.

Step-3: C_Hash= SHA-256(d)

Step-4: Return C_Hash

Algorithms 2: Peer-to-peer (P2P) verification protocols

Input: The user receives an IP address and a User Transaction TID.

Output: Activate the IP address or current query to determine the validity of any connection.

Step 1: The user generates a mysql query using DDL, DML, or DCL.

Step 2: Retrieve the present IP address.

For each (read IP into IP address)
 If(Assuming that the connection (IP) is true)
 Flag=true
 Else
 Flag=false
 End for-each
 Step 4 : if (Flag.equals(valid))
 Peer-to-peer (P2P) verification valid
 Else
 Peer-to-peer (P2P) verification Invalid
 End if
 End for

CONCLUSION

An online system can be developed to facilitate the buying and selling of agricultural products with accurate cost estimation and safety considerations. It can also provide high-quality processed food for those in need. This system would utilize appropriate software and hardware to benefit consumers, farmers, government officials, and non-governmental organizations. Several research suggestions exist for using the

technology of blockchain into agri-food supply chain transactions in order to address the industry's vast size in addition the need for more reliable and efficient inform management results.

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