



Blockchain based Secured and Transparent Farmer Agent Model

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Abstract--Agricultural farmers face a range of challenges these days, ranging from seasonal fluctuations to a disrupted supply network; in this circumstance, beneficial. Knowledge exchange is essential in all facets of their work, whether it's regarding market trends or successful techniques. A separate data database with validated information would be highly useful. In this area, third-party influence could lead to the spread of incorrect information. To mitigate this risk, blockchain, a secure and immutable data ledger, can be used. The purpose of this study is to investigate the many ways in which blockchain technology can be applied as a transparent and dependable transaction mechanism in the agricultural supply chain.

Keywords: ASC, BCT, AES, visual cryptography, SHA 256, Java, JSP, Servlet, Web, etc.

I. Introduction:

Sunil Patidar, a farmer, drove 50 kilometres to a mandi to sell his onions (wholesale market). However, he returned disheartened. He couldn't even cover his costs of production, let alone earn a profit. It's not all about him. Many Indian farmers, like Sunil, are deeply unsatisfied. Their biggest gripe is that they don't get a fair price for their produce. The main reason for this is that their products are not guaranteed a minimum price (MSP). The government's minimum support prices are a guarantee price for farmers product.. The government sets a price to protect the producer, the farmers, against price reductions during years of abundant output. At a wholesale market in Indore, onions were selling for Rs 5-6 a kilo village, Mahu block, Madhya Pradesh, 40 kilometres from Indore. Harsola, a sleepy village in Madhya Pradesh, is renowned for growing high-quality, low-starch potatoes. Following the deaths of six farmers in Mandsaur, Madhya Pradesh, on June 6, 2017, when police opened fire on demonstrators, the state government decided to purchase onion directly from farmers at a rate of Rs 8 per kg. However, since the regime change, onions are no longer being purchased(Per quintal, Rs 500-600) Our materials are more expensive. We often wonder why we're growing onions in such a harsh environment," said Patidar, who lives in Harsola village, Mahu block, Madhya Pradesh, around 40 kilometres from Indore. Harsola, a peaceful Madhya Pradesh village, is known for its high-quality, low-starch potatoes. Following the deaths of six farmers in Mandsaur, Madhya Pradesh, on June 6, 2017, when police opened fire on protestors, the state government decided to buy onion directly from farmers for Rs 8 per kg. Onions are no longer available at this price following the regime change. Gaon Connection polled 18,267 persons in 19 states about the main challenges that Indian farmers confront. According to 43.6 percent of respondents, farmers not obtaining a fair price for their products is a big issue that needs to be addressed (4,649). While 19.8 percent of respondents said climate change is causing them problems, 17 percent said growing input costs are giving them sleepless nights. Based on our findings, we consulted with a number of experts, who all agreed that the main reason farmers don't get a fair price is that they don't earn the minimum support price for their produce. According to an OECD-ICAIR investigation, farmers lost Rs 45 lakh crore between 2000 and 2017 because they didn't get a fair price for their produce. According to a report issued in 2015 by Shanta Kumar's high-level committee for revamping the Food Corporation of India (FDI), only 6% of farmers benefit directly from MSP. This means that 94% of the population does not benefit from MSP. According to a 2016 study published by the NITI Aayog, 81 percent of farmers were aware that the government provides Minimum Support Prices on a variety of commodities, but just 10% knew the rates before harvesting season began.

II. Literature Survey:

A methodology for agri-food supply chain costing based on ABC costing:

A case study of the Peruvian coffee supply chain

Eduardo Casal, Andrea Villalva-Catao, Edgar Ramos-Palomino, Kelsey Provost

DOI: 10.1016/j.iestec.2019.00009.

2019 7th International Conference on Engineering, Science, and Technology (IESTEC)

The basic causes of Peruvian coffee's high logistical costs in the supply chain are examined in this article. In order to stabilise the current coffee crisis, a cost analysis technique will aid in the research, analysis, and creation of high supply chain costs. Indeed, the findings were investigated in order to help small businesses thrive over time. A Theoretical Implementation: Agriculture- Food Supply Chain Management using Blockchain Technology

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978-1-7281-1034-9/19/\$31.00 ©2019 IEEE

This article outlines a fully decentralized blockchain-based traceability system that can be used to produce agricultural building blocks that are seamlessly connected with IoT devices from provider to consumer. We did this by inventing the "Provider-Consumer Network," a fictitious end-to-end food tracking system. The goal is to create a distributed ledger that is transparent and accessible to all network users.

Blockchain in Agriculture by using Decentralized Peer to Peer Networks

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The distributed ledger, centralised servers, P2P (Peer to Peer) networks, As in [1] [10]RFID (Radio-Frequency Identification) tag, consensus verification, and other features of blockchain technology play a major role in the agriculture industry by improving transparency and food provenance in the supply chain. As a result, the proposed work looks at the numerous challenges that arise in agricultural production and suggests blockchain-based solutions to those issues.

Blockchain technology in current agricultural systems: from techniques to applications

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DOI 10.1109/ACCESS.2020.3014522, IEEE Access

In this study, we undertake a survey to look into the technique and applications of blockchain technology in agriculture. Data structure, cryptographic techniques, and consensus procedures are all thoroughly discussed first. Second, existing agricultural blockchain applications are categorised and assessed to illustrate the use of blockchain techniques. Additionally, there are examples of how practitioners use popular platforms and smart contracts to build agricultural applications. Finally, we discuss the underlying obstacles that many future agricultural systems will confront, as well as attempts and prospective answers to these problems.

Blockchain-based Data Traceability Platform Architecture for Supply Chain Management

Yihang Wei

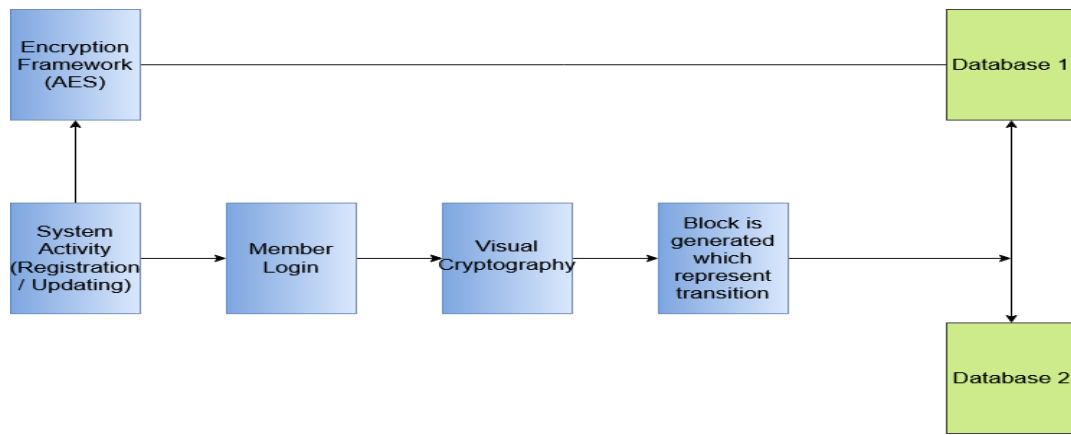
The IEEE 6th International Conference on Big Data Security on Cloud (BigDataSecurity), the IEEE International Conference on High Performance and Smart Computing (HPSC), and the IEEE International Conference on Intelligent Data and Security will all be held in 2020. (IDS)

Based on the multidisciplinary knowledge and technology of the Fabric Alliance chain architecture, perceptual identification technology, and cryptographic knowledge, this work provides a data traceability platform architecture design plan for supply chain management. The characteristics and drawbacks of data traceability of this method are examined at the end of the paper.

III. PROBLEM STATEMENT

This brings up an intriguing point. How can Indian farmers get a fair price for their produce if they are uninformed of the MSP's benefits? According to the study, 62% of farmers learnt about the MSP after their crop was ready to harvest. According to the study, 32% of farmers received cash payments, while 40% received checks. As a result, we'll set up a system that guarantees farmers a minimum fixed price for their produce.

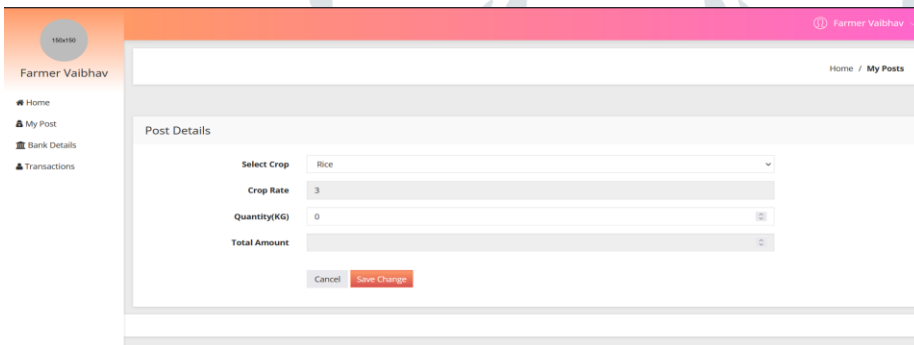
IV. Proposed System:



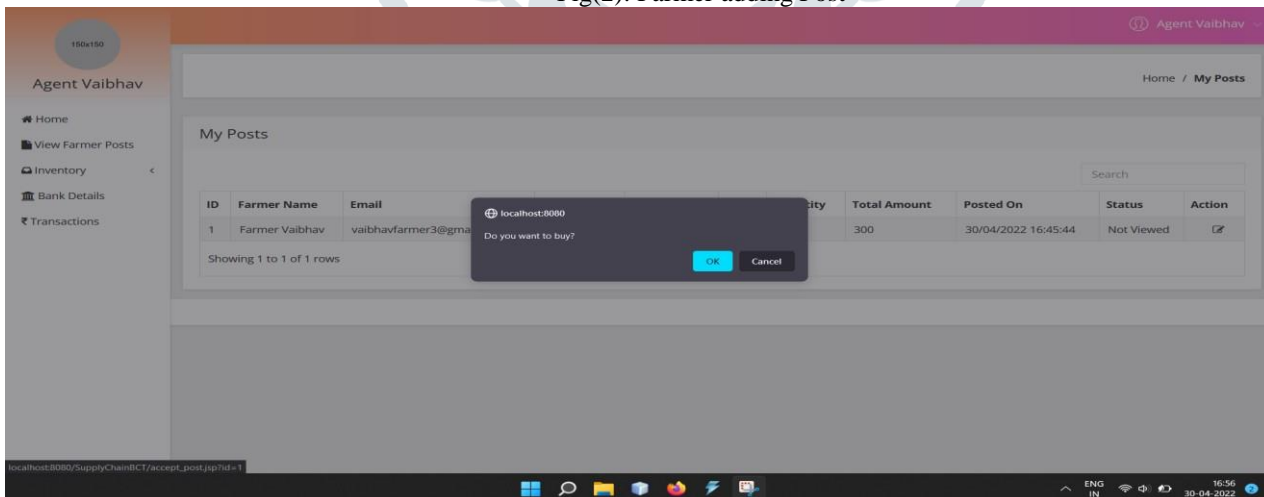
Fig(1): Proposed System

Every time a transaction occurs within the system, the record of the transaction is encrypted in the form of a hash value within the block. Each new block will be attached to the previous block, creating a virtual block chain. The hash value of a current block is generated using the data of a current block and the hash of the previous block plus a random number. If any of the blocks in the chain have been tempered, the hash of the next block in the chain must be changed. Multiple copies of the data are maintained at different servers, which will protect the data's security and confidentiality. Everything in the agricultural supply chain will be managed through an application interface, ensuring transparency throughout the process.

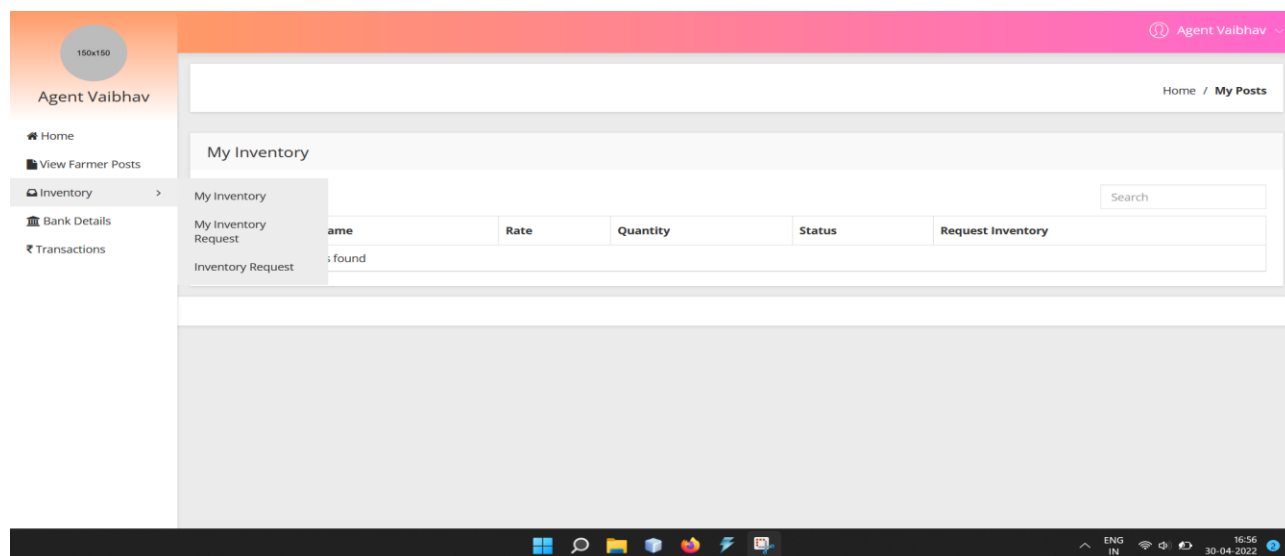
IV. RESULTS



Fig(2): Farmer adding Post



Fig(3): Buy Farmer Product



Fig(4): Agent Inventory

V. Conclusion:

As a result, we will implement an ASCM with BCT; the system with BCT will be an excellent answer to ASCM challenges. JSP and Servlet technology will be used to construct the system, which will be written in Java.

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