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AGRICULTURE PRODUCT TRACING USING BLOCKCHAIN

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Abstract: Globalized producing and horticultural assembling dissemination give a recharged center to the food handling, food quality, and the approval of a few critical rules in farming and food supply chains. Expanding quantities of sanitation and food corruption dangers have made a gigantic requirement for an effective recognizability arrangement that goes about as a significant quality administration instrument guaranteeing proper item wellbeing in the farming inventory network. Blockchain is a problematic innovation that in horticulture and food supply chains can give an imaginative and option in contrast to item detectability. The present horticultural inventory chains are muddled biological systems including a few giver manufacturing it hard to approve a few critical necessities like country of beginning, crop development stages, quality principles consistence, and yield checking. In this task, we recommend a technique that influences the blockchain and productively leads organization activities across the horticulture's inventory network for crop value checking and discernibility. Our answer kills the requirement for a confided in brought together power, middle people and offers records of exchanges, improving proficient science and security with high respectability, dependability. All exchanges are recorded and put away in the unchangeable record of the blockchain with connections to a decentralized le framework and along these lines guarantee an undeniable degree of straightforwardness and detectability in the inventory network biological system in a dependable, solid, secure and proficient way

Keywords: Blockchain, Smart Contracts, traceability, agricultural supply chain, food safety.

I. INTRODUCTION

To ensure produce safety, monitoring the growth of agricultural products and effective management of logistics in the food and agricultural supply chain is carping. The increasing concern of safety of food and the risk of contamination has renewed the focus on increased traceability throughout the supply chain. Furthermore, agricultural products traded across multiple nations involve accurate monitoring and compliance with nation specific regulations Traceability of produce in the agricultural supply chain needs that critical data be collected, communicated and managed by exactly defining the source, multiple exchanges of data in supply chain. The vibrant nature of data in the agricultural / food supply chain locality where products are manufactured, processed and sent through multiple intermediaries allows tracking and tracing difficult. Contamination of products and its public health consequences highlight traceability as the required policy instrument for tracking food quality and food safety. Dabbene and Gay claim that the use of accurate data collection through information communication instruments such as use of barcodes and RFID allows data acquisition and improved traceability in food supply chains and agricultural supply chains. The present traceability practice in the supply chain of agriculture is mainly affected by data fragmentation and centralized controls that are susceptible to both information modification and management. In case of contamination that identifies the source and isolates the product quickly from the supply chain, close coordination between various stakeholders in the agricultural supply chains are required.

II. METHODOLOGY

A blockchain comprises of an appropriated data set of all organized exchanges. Each part of this data set is a "block" As the exchange state changes, a square is appended to the blockchain in a direct and sequential request with a reference to the past block. Then, at that point the new square is imitated over the organization, so t cap every hub has the equivalent blockchain. Every member in this exchange has a blockchain duplicate on it. In this way, any member may approve an exchange being referred to. This philosophy disposed of the requirement for a unified, confided in outsider approval of exchanges. Blockchain innovation has a wide scope of pertinence's and incredible potential for change. Business pioneers should accordingly utilize this innovation to investigate the scope of chances accessible to their business and their industry

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Existing System

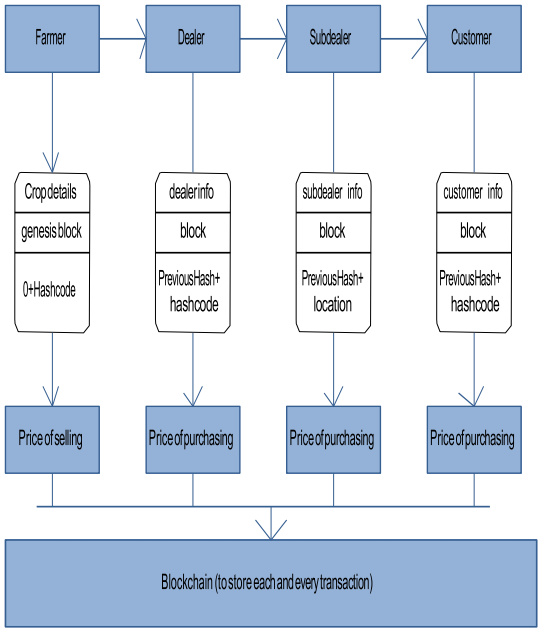
There is no mechanized framework set up to follow the expense of farming. Horticultural items can't be acquired by the rancher. 72% of the populace in India is reliant upon the cultivating business. Ranchers get colossal amounts of harvest fabricating, however they lack the right cost since they can endure the current conditions. So they are doing self destruction and nothing is finished by the public authority. So we are endeavoring to fix this issue in the proposed conspire by following the expense of the horticultural item from rancher to customer.

Proposed System and Advantages

Each participating entity has a role, a association, and interactions with the smart contract. There are seven participating entities and their roles are being summarized as follows.

Farmer: Farmer is first block of the blockchain which contain the farmer details like name , address, mobile no,crop name, crop selling price(FRP). All details are added into smart contract and smart contract generate the hashcode using sha256 algorithm. Then blockchain mine the block and added to blockchain network.

Dealer: Dealer contain the login registration which can hold the crop price details which are fix by the government and particular organization . the blockchain is immutable so no one can change the crop price and farmers details. So dealer is contain his own data and previous hashcode of the farmer.



Sub Dealer: Sub dealer can buy product from the dealer which is fix price and the price is determine by the government. And sub dealer cannot increase the price of the product . because blockchain contain immutable so each and every time data change block can generate different hashcode.

Customer: Customer is last entity of the blockchain which are purchase the product. He does not know the exact price of the product so we can give authenticate permission to check the price of the product from farmer to customer . so customer can get the all chain details and price details.

Advantages:

- Customer can get appropriate price of the product.
- Farmer can get the FRP price for his product or crop Government can trace the price of the crop and control the corruption between brokers.

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III.DATA SETS

DFD and ER diagram

Model and Dealer FRP Rate Dataset

id	cropname	Naturalprice
1	Wheat	2300
2	Paddy	3200
3	Maize	2300
4	Jowar	3500
5	Bajara	4000
6	Ragi	5000
7	Barley	4500
8	Gram	3600
9	Lentil	4600
10	Peas	5000
11	Urd	6000
12	Moong	8000
13	Arhar	5400
14	Cowpea	4500
15	Moth	3400
16	Groundnut	6500
17	Til	4700

Figure 2: Dealer rate FRP list

Model and Sub-Dealer FRP rate Dataset.

id	cropname	price
1	Wheat	2600
2	Paddy	3600
3	Maize	2600
4	Jowar	3800
5	Bajara	4500
6	Ragi	5500
7	Barley	4900
8	Gram	4000
9	Lentil	5000
10	Peas	5400
11	Urd	6300
12	Moong	8400
14	CowPea	4900

Figure 3: Sub-Dealer FRP Rate Dataset

Customer FRP Dataset

id	cropname	price
1	Wheat	2900
2	Paddy	3900
3	Maize	2900
4	Jowar	4100
5	Bajara	5000
6	Ragi	6000
7	Barley	5400
8	Gram	4500
9	Lentil	5500
10	Peas	6000
11	Urd	6900
12	Moong	8900
13	CowPea	5400

Figure 4: Customer FRP dataset

IV.RESULTS AND DISCUSSION

The Previews of the different modules utilized have been illustrated. To keep our undertaking in sight, we are setting up a bespoke local area of ranchers to really see our work. The consequences of the above testing(alpha testing) have been kept. We somewhat can clearly say that this can be something the India and the Indian will without a doubt be adjusting on a worldwide scale. We at first considered running this on ETHEREUM yet that was not feasible for us. Consequently we considered planning our own custom blockchain that will fulfill our necessities and prerequisites, thus this undertaking in JAVA.

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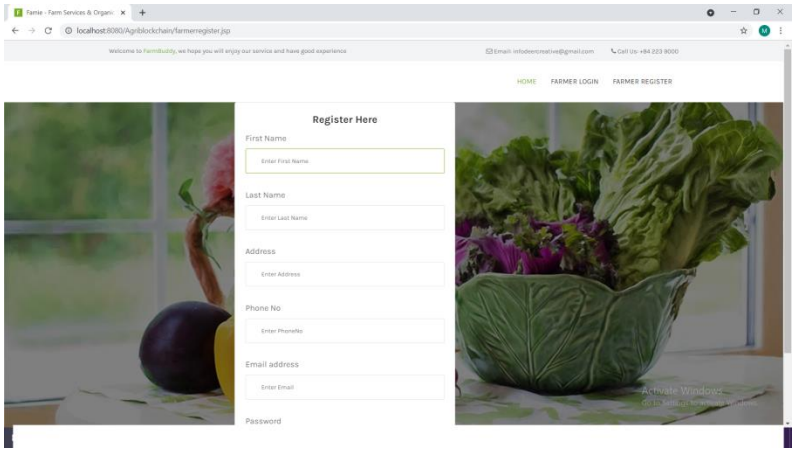

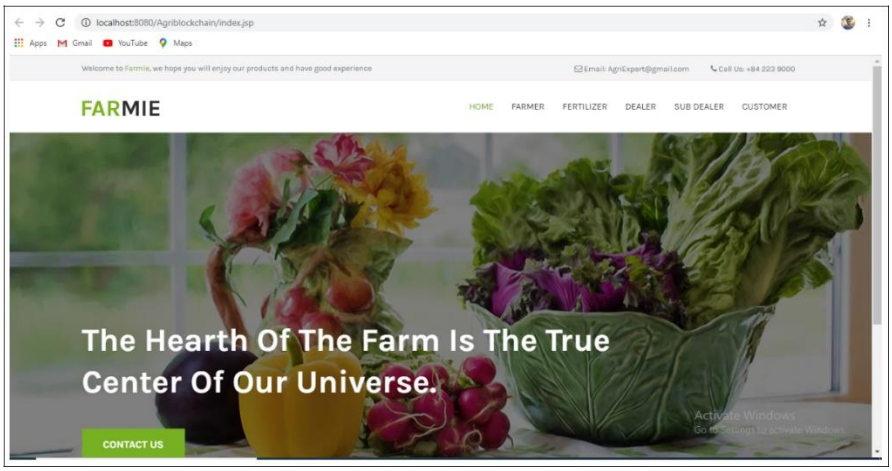

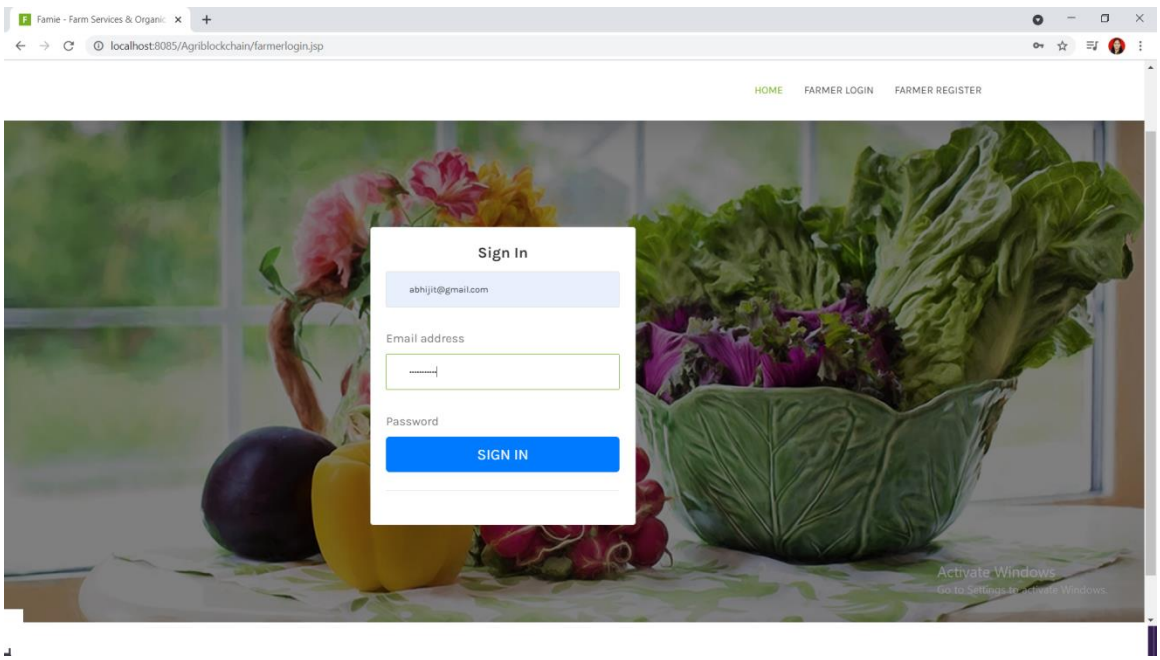

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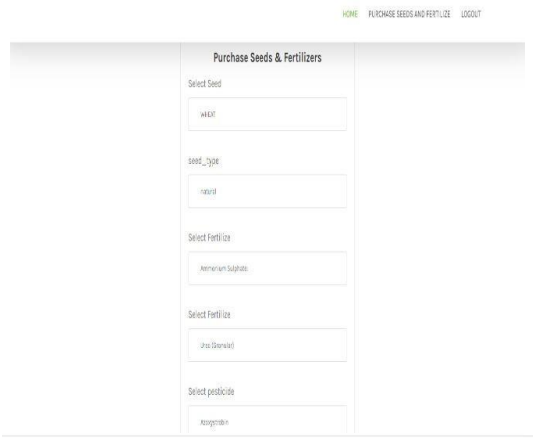

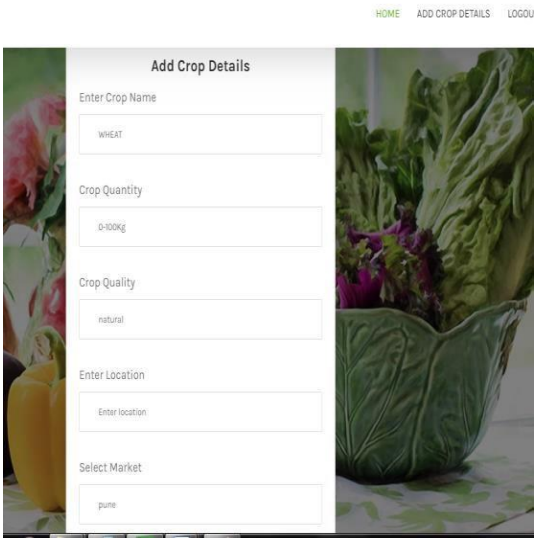

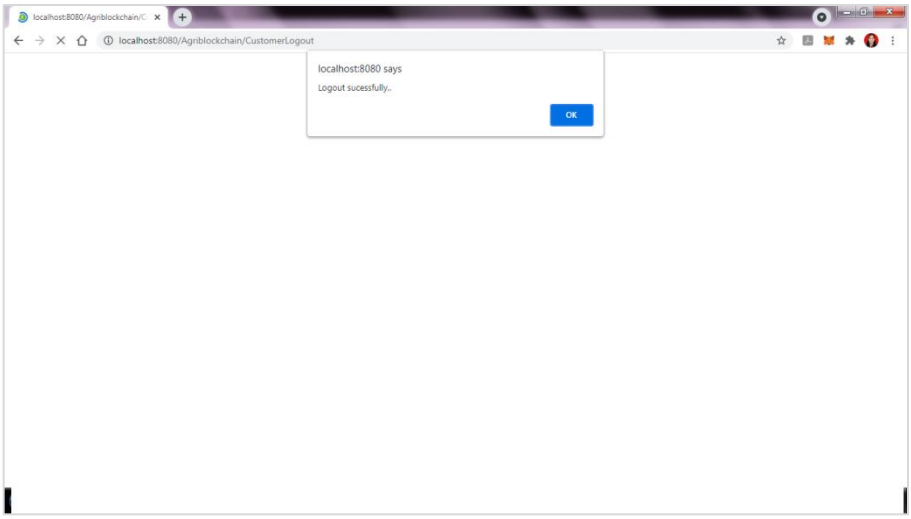

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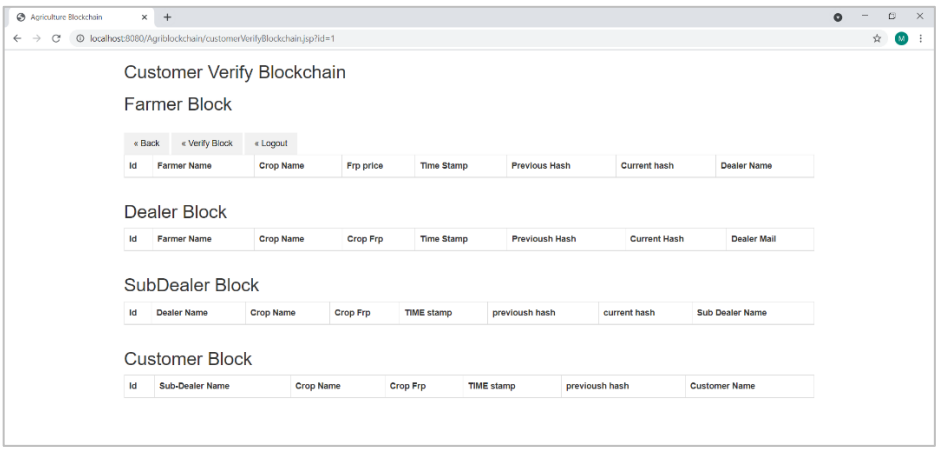

V. CONCLUSION

In this task, we proposed an answer and comprehensive construction utilizing blockchain and shrewd arrangements to follow, screen and execute organization activities eliminating go-betweens and the key preparing point for crop value detectability all through the horticultural store network We gave data and components identifying with conspire engineering, plan, element relationship outline, connections, grouping charts, and execution calculations. We have exhibited how our answer can be utilized to track and track crop costs in the inventory network. All things considered, the referenced components and data are sufficiently general and can be applied in the horticultural inventory network to give solid and decentralized recognizability to any edit or item. Blockchain innovation likewise faces significant difficulties identified with versatility, guideline, character verification, assurance, standards and enactment. We desire to address a portion of these primary issues as an expected work and assemble options in contrast to them. We additionally expect to coordinate robotized installments and evidence of conveyance into our proposed arrangement - whereby parties are paid in a mechanized and brought together way utilizing digital forms of money by means of shrewd agreements for fruitful actual dissemination of plants and items

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