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Blockchain Based Soyabean Traceability In Agriculture Supply Chain

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ABSTRACT

Globalized manufacturing and agricultural manufacturing distribution is focused on safety, quality, and validation of several significant criteria in agricultural and food supply chains. For maintaining the important quality managements a food safety there is an enormous need of an solution which we are providing through traceability. Traceability helps in not only managing the price of product but also ensures the quality, it also helps in tracing the location of product. In this project we are suggesting the strategy using block chain with traceability, with this two effective technologies we have estimated a solution for a trusted centralized authority intermediaries and offer record of transactions improving efficient science and safety with high integrity and reliabiltity. Ledgers are been created in block chain which contains records of transactions in sorted and unchangeable manner this ledgers are linked in to a decentralized system which gives an high level of transparency and traceability in the supply chain eco system in a secure, trustworthy, reliable and efficient way.

Index Terms—Block chain, smart contracts, traceability, agri- cultural supply chain, food safety.

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I. INTRODUCTION

Music To ensure product safety, monitoring the growth of agricultural products and effective management of logistics in the crops and agricultural supply chain is analytical. Due an high risk of food safety and contamination of food There is an need to focus on the concept of Traceability which is applied through Block chain As the Agricultural products traded across many nations multiple times because of which it requires monitoring accuracy and compliance with nation specific regulations Traceability of products in the agricultural supply chain needs that critical data be collected, communicated and managed by exactly defining the source, multiple exchanges Identify applicable funding agency here. If no of data in the supply chain. The dynamic nature of data in the food supply chain where products are manufactured, processed and sent through multiple intermediaries allows tracking and tracing difficult. Con- termination of products and its public health consequences highlight traceability as the required policy instrument for tracking food quality and safety. The presently traceability practice in the supply chain of agriculture is mainly affected by data fracturing and centralized controls that are susceptible to both informal- tion manipulation and management. Onset threat is identified the source isolates the product quickly from the supply chain, close coordination between various stakeholders in the agricultural supply chain is required. products in the agricultural supply chain needs that critical data be collected, communicated and managed by exactly defining the source, multiple exchanges of data in the supply chain. The vibrant nature of data in the agricultural / food supply chain where products are manufactured, processed and sent through multi- ple intermediaries allows tracking and tracing difficult. Con- tamination of products and its public health consequences highlight traceability as the required policy instrument for

tracking food quality and safety Dabbene and Gay claim. that the use of accurate data collection through information communication instruments such as barcode and RFID al- lows data acquisition and improved traceability in food 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 chain is required.

II. LITERATURE SURVEY

[1] This paper introduce the food industry is becoming more customer-oriented and needs faster response times to deal with food scandals and incidents. Good traceability systems help to minimize the production and distribution of unsafe or poor quality products, thereby minimizing the potential for bad publicity, liability, and recalls. The cur- rent food labeling system cannot guarantee that the food is authentic, good quality and safe. Therefore, traceability is applied as a tool to assist in the assurance of food safety and quality as well as to achieve consumer confidence. This paper presents comprehensive information about traceability with regards to safety and quality in the food supply chain. 2]This paper introduce supply chain has become very complex today. There are multiple stakeholders at various points. All these stakeholders need to collaborate with each other in multiple directions for its effective and efficient management. The manufacturers need proper information and data about the product location, its processing history, raw materials, etc at each point so as to control the production process. Companies need to develop global and effective strategies to sustain in the competitive market. Logistics helps companies to implement the effectiveness across the business supply chain from source to destination to achieve their strategic goals. Traceability has become one of the integrated parts of the supply chain logistics management that track and trace the product's information in upstream and downstream at each point Liability and Traceability in agri-food supply chains A[3]this paper introduce improving food safety, reducing the impacts of food safety problems, and providing a means to verify food quality attributes are driving the development of traceability initiatives in agri-food systems. Numerous and varied examples exist, from regulatory traceability initiatives, to industry-wide livestock traceability programmes, to individual supply-chain systems that combine traceability with quality verification. This paper explores the economic functions of traceability, examining the extent to which traceability can bolster liabil- ity incentives for firms to practice due diligence. [3]The Food and Agriculture Organization of the United Na- tions (FAO) and the International Telecommunication Union (ITU) continue to work together to promote the use of sus- tainable information and communication technologies (ICTs) in agriculture. The world faces enormous challenges when it comes to proving food for the ever-growing population, specifically: challenges from climate change, floods, drought, desertification, loss of biodiversity, pests and disease. Innova- tion in agriculture processes are needed to overcome some of these challenges and make agriculture attractive to and profitable for the smallholder farmers involved in feeding the world. [4]This paper introduce with the globalization of food industries, vitality of trace- ability has increased substantially. The need for a reliable identification and tracking system is therefore essential to ensure the safety and quality of food reaching the consumer. Current market for tracing technologies is restrained by various factors like high cost, skepticism about

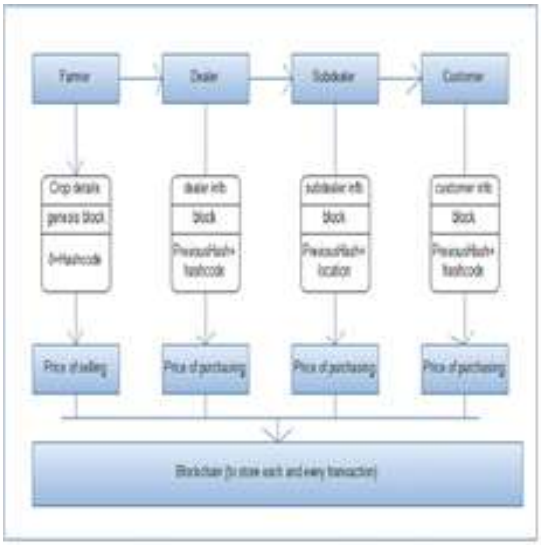

Fig. 1. System Architecture

efficiency and liability of technology. This paper gives an overview of relevant food tracing technologies available in the market and a descriptive.

III. EXISTING SYSTEM

There is no computerized system in place to trace the cost of agriculture. Agricultural products can not be obtained by the farmer.72 percent of the population in India is dependent on the farming industry. Farmers get enormous quantities of crop manufacturing, but they have not got the correct price because they can survive the present circumstances. So they are suicide and nothing is done by the government. So we are attempting to fix this issue in the suggested scheme by tracing the cost of the agricultural product from farmer to client.

IV. PROPOSED SYSTEM AND ADVANTAGES

The entire project is basically depended on the 7 entity ,All the participating entity has a different role, associated, and interact with the smart contract.

A. Farmer

Farmer is first block of the block chain 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 hash code using sha256 algorithm.

B. 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 hash code of the farmer.

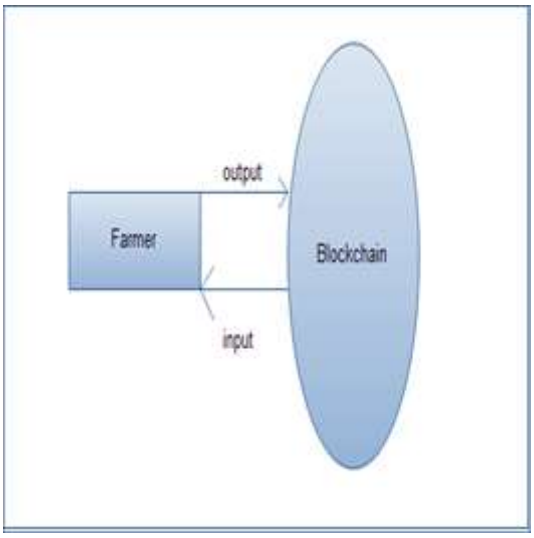

Fig. 3. Data flow diagram(A)

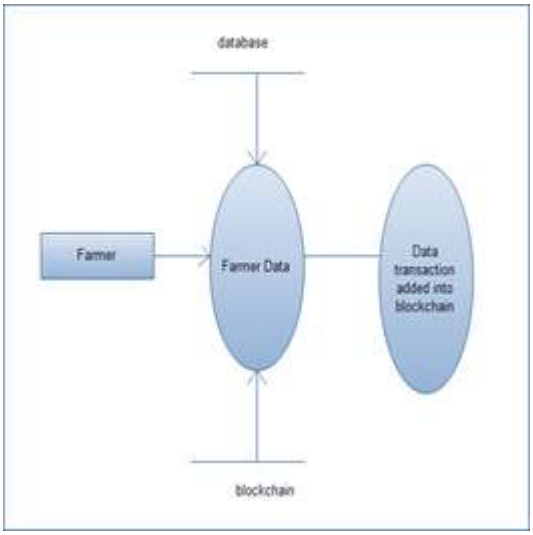

Fig. 2. Data flow diagram(B)

C. 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 block chain contain immutable so each and every time data change block can generate different hash code.

D. Customer

Customer is last entity of the block chain 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.

E. Data Flow Diagrams

A data flow diagram (DFD) is a graphical representation of the flow of data through an information system, modelling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated DFDs can also be used for the visualization of data pro- cessing (structured design). A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored.

F. *State Diagram*

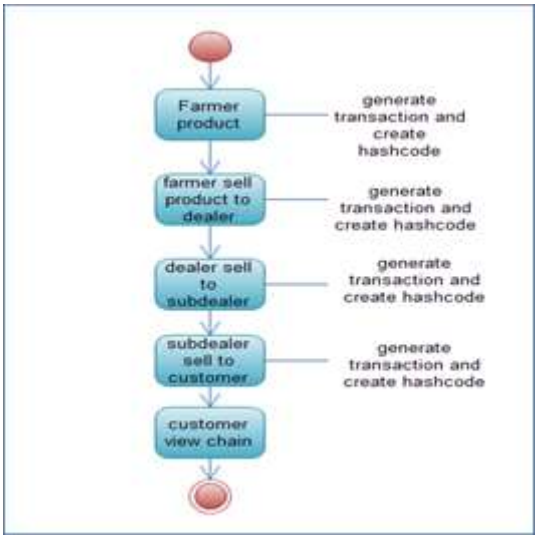

Fig. 4. State Diagram

Statechart diagram is one of the five UML diagrams used to model dynamic nature of a system. They define different states of an object during its lifetime. And these states are changed by events. So Statechart diagrams are useful to model reactive systems. Reactive systems can be defined as a system that responds to external or internal events. Statechart diagram describes the flow of control from one state to another state. States are defined as a condition in which an object exists and it changes when some event is triggered. So the most important purpose of Statechart diagram is to model life time of an object from creation to termination. Statechart diagrams are also used for forward and reverse engineering of a system. But the main purpose is to model reactive system.

G. 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.

V. CONCLUSION

In this project, we suggested a solution and generic structure leveraging blockchain and intelligent agreements to trace, monitor and execute company operations removing intermedi- aries and the key point of processing for crop price traceability across the agricultural supply chain We provided information and elements linked to architecture of the scheme, design, diagram of entity-relation, interactions, sequence diagrams and algorithms of execution. We have shown how our solution can be used to track and track the supply chain of crop prices.
However, the elements and information described are sufficiently generic and can be implemented in the agricultural supply chain to provide trusted and decentralized traceability to any crop or product. Block chain technology still faces major difficulties linked to scalability, governance, registration of identity, privacy, norms, and laws. We intend to address some of these main problems as a future job and create alternatives to them. We also intend to incorporate automated payments and evidence of delivery into our suggested solution -whereby parties are paid using cryptocurrency in an automated and centralized way through smart contracts upon effective physical delivery of plants and products.

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