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BLOCKCHAIN-INTEGRATED FARMER'S PORTAL: EMPOWERING AGRICULTURAL TRADE TRANSPARENCY AND SECURITY

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Abstract:

Block chain is a method in which a crypto-currency is used to keep track of a transaction's confirmation. The record is kept up with transitionally, connecting a few PCs in a shared organization. Agreements, exchanges, and the records of them characterize the monetary arrangement of a country. They protect the assets and establish boundaries. Taking into account the elements of block chain like unchanging nature and keeping up with the recording of exchange subtleties, this paper features the use of block chain innovation with rancher's entrance that keep the recording of selling and purchasing data of yields. The proposed arrangement involves the python as a programming language in mix with the block chain framework that will help the ranchers or merchants and people by saving the agreement of exchange. A connection point for the ranchers is planned utilizing a python programming language moreover with block chain innovation, which is utilized to store the data connected with merchant, purchaser, selling and purchasing a thing and all out esteem executed.

INTRODUCTION

Block chain an open, disseminated and decentralized ledger that evidences transactions involving two parties capably in a confirmable and stable way (Iansiti, Lakhani 2017). In the above given definition, open means the blockchain is accessible to one and all, disseminated means that there is no single party control and decentralized means there is no central third party available, capable means it is fast and more scalable than the conventional technologies, confirmable means that everyone can check the validity of the information and stable means that the data is nearly immutable that is it is nearly impossible to change or tamper the data or information. They verify and validate the identities and chronological events. They guide every action, transactions that have taken place among individuals, communities, organizations and nations as well. In this era of digitization, the way maintained and regulated these type of data must be changed, it must be

highly secure and the block chain is the solution to this.

In the era of information and communication technology, a farmer's portal has always been helpful for farmers in many ways, providing ease of use and convenience of information to the farmers [1]. The Government of India has also taken many initiatives for the same. Few examples of such portals are Krishijagran.com, farmer.gov.in, agricoop.nic.in and agriwatch.com etc. Apart from these some E-commerce websites are also available; fert.nic.in and enam.gov.in etc. The sectors currently using block chain are shown in Fig.1.Using block chain technology in the field can make available decentralized computation and information sharing platform that enables multiple authoritative domains, which do not trust each other, to cooperate, coordinate and collaborate in a rational decision-making process, a reliable information recording system can be made that can contribute for the development in the agriculture sector. Since block chain works like a public ledger, so it can be utilized to ensure many different aspects

● Protocols for Commitment: Ensure that every valid transaction from the clients are committed and included in the block chain within a finite time.

● Consensus: Ensure that the local copies are consistent and updated.

● Security: The data needs to be tamper -proof. Note that the client may act maliciously or can be compromised.

● Privacy and Authenticity: The data or transactions belong to various clients; privacy and authenticity need to be ensured.

LITERATURE SURVEY

1)Krishi-Bharati: an interface for Indian farmer

Rapid growth in the field of ICT helps in basic aspects of mankind like- agriculture, education, healthcare etc. However, the moderate technical growth of ICT applications is confined to the community of a limited number of people, who live in digital pockets. The illiterate people like – farmer, shopkeeper etc. are unable to take the advantages of the ICT revolution. According to the UNESCO report, population of such people in the globe is 64% who are unable to use the technology either language or technical barrier. Moreover the percentage (76%) must be increased in the context of developing countries. The essential agriculture information is very useful to a farmer for taking effective decision thus we proposed to develop an iconic interface which is integrated with speech based interaction in Indian languages. The proposed interface is critically evaluated with the farmer from different states of India. The evaluation results proved the effectiveness of the proposed interface.

2) Krishi Ville—Android based solut ion for Indian agriculture

Information and Communication Technology (ICT) in agriculture is an emerging field focusing on the enhancement of agricultural and rural development in India. It involves innovative applications using ICT in the rural domain. The advancement of ICT can be utilized for providing accurate and timely relevant information and services to the farmers, thereby facilitating an environment for remunerative agriculture. This paper describes a mobile based application for farmers which would help them in their farming activities. We propose an android based mobile application - Krishi Ville which would take care of the updates of the different agricultural commodities, weather

forecast updates, agricultural news updates. The application has been designed taking indian farming in consideration.

3) Block chain based provenance for agricultural products: A distributed platform with duplicated and shared bookkeeping

The provenance (tracing) system of agricultural products is important for ensuring food safety. However, the stakeholders (growers, farmers, sellers etc.) are numerous and physically dispersed, making it difficult to manage data and information with a centralized approach. As a result, the production procedure remains non-transparent and trust is hard to build. In this paper, we propose an agricultural provenance system based on techniques of block chain, which is featured by decentralization, collective maintenance, consensus trust and reliable data, in order to solve the trust crisis in product supply chain. Recorded information includes the management operations (fertilizing, irrigation, etc.) with certain data structure. Applying block chain techniques to the provenance of agricultural product not only widens the application domain of block chain, but also supports building a reliable community among different stakeholders around agriculture production.

4) Bit coin and beyond: A technical survey on decentralized digital currencies

Besides attracting a billion dollar economy, Bit coin revolutionized the field of digital currencies and influenced many adjacent areas. This also induced significant scientific interest. In this survey, we unroll and structure the manifold results and research directions. We start by introducing the Bit coin protocol and its building blocks. From there we continue to explore the design space by discussing existing contributions and results. In the process, we deduce the fundamental structures and insights at the core of the Bit coin protocol and its

applications. As we show and discuss, many key ideas are likewise applicable in various other fields, so that their impact reaches far beyond Bit coin itself.

ARCHITECTURE
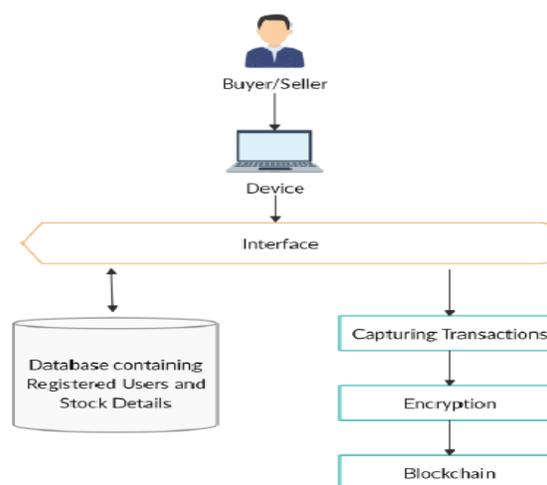
IMPLEMENTATION:

- Sellers
- Buyers
- Admins
- Block chain

Sellers:

The Seller User can register the first. While registering he required a valid user email and mobile for further communications. Once the user register then admin can activate the Sellers. Once admin activated the Seller then he/She can login into our system.The seller can add a new item, update the existing items, allot and update

the price of the item. It will increase the market reach and will also eliminate the middleman.

Buyers:

The Seller User can register the first. While registering he required a valid user email and mobile for further communications. Once the user register then admin can activate the Sellers. Once admin activated the Seller then his/her can login into our system. The buyer can buy a product and can search for any product according to the requirement. They can add the product in cart and delete crop from the cart. After finalizing the product to buy and verifying the cart user can check out.
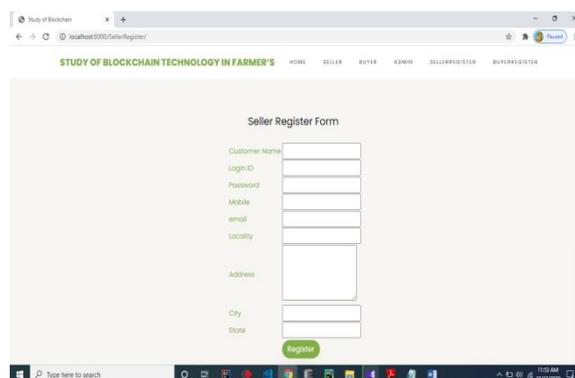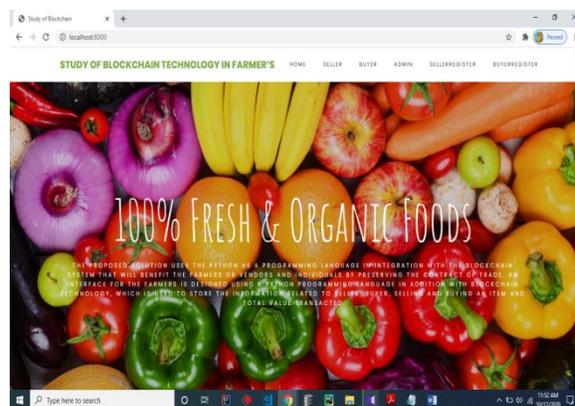
Admin:

Admin can login with his credentials. Once he login he can activate the sellers and buyers. The activated user only login in our applications. The admin user can view the all transaction which is done by buyer user. In the admin frame can view all block chain transaction with its previous block details and hash values.
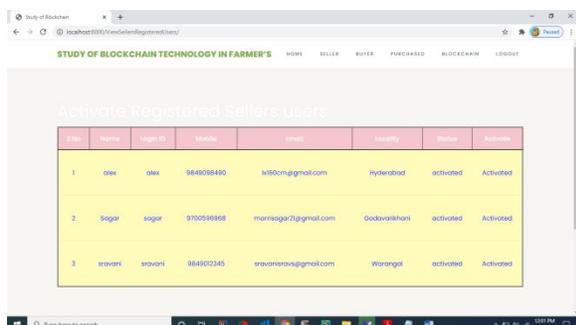
Block chain:

Every activity related to introducing a new item and purchasing an item is considered as a transaction and is added to the block chain accordingly with the correct unique digital signature and timestamp so that any user cannot deny the activity done by them. All these transactions are visible to everyone in the network. The block chain is a peer to peer transaction based on distributed node systems by

means of data encryption, time stamping and consensus. It makes the portal more secure at the data as it is immutable, transparent and accessible to all.

RESULTS

CONCLUSION

Block chain Technology in the field of agriculture can bring a revolutionary enhancement in the area of maintaining farmers data securely, ensuring the quality of seed, monitoring of moisture content in the soil, data of crop yield and lastly demand and s ale price of crops. In this work, a block chain-based portal is proposed to deal with the issue of demand and sale price of crops which in result ensure crop security to farmers as well as to get fair price of the crop. For this, a portal is proposed on which a farmer can register and sell his crops, recording a transaction on a block chain at a point when buyers commit to buy a farmer's crop. This transaction is capable of recording crop details, the price at which it is committed to buying and quantity of crop purchased. This immutable nature of block chain technology will fortify farmers to get a legitimate price of crop and reduce the cost of operation for selling and buying crops when compared to traditional methods.

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