



POTNURI GAYATRI Assistant Professor, Department of Computer Science & Engineering, , Sanketika Vidhya Parishad Engineering College, P.M. Palem Vishakhapatnam, Andharapradesh: smilyprince119@gmail.com
PAVAN KUMAR TELAKARAPU M.Tech Scholar, Department of Computer Science & Engineering, Sanketika Vidhya Parishad Engineering College, P.M. Palem,, Vishakhapatnam, Andharapradesh : pavankumartelakarapu@gmail.com

ABSTRACT

Blockchain is a method in which a confirmation of a transaction is kept by means of a crypto-currency. The record is maintained transversely, linking several computers in a peer to peer network. Contracts, transactions, and the records of them define the economic system of a country. They set boundaries and provide security to the assets. Considering the features of blockchain such as immutability and maintaining the footage of transaction details, this paper highlights the usage of blockchain technology with farmer's portal that keep the footage of selling and buying information of crops. The proposed solution uses the python as a programming language in integration with the blockchain system that will benefit the farmers or vendors and individuals by preserving the contract of trade. An interface for the farmers is designed using a python programming language in addition with blockchain technology, which is used to store the information related to seller, buyer, selling and buying an item and total value transacted.

1 INTRODUCTION

Blockchain 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 blockchain 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 blockchain are shown in Fig.1. Using blockchain 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 blockchain works like a public ledger, so it can be utilized to ensure many different aspects such as [3]:

- Protocols for Commitment: Ensure that every valid transaction from the clients are committed and included in the blockchain 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.
- Cryptography is a foremost part of the functioning of blockchain technology [4]. Public key encryption is the root of blockchain



wallets and transaction, cryptography hash functions endow with the trait of immutability and merle trees systematize transactions while enabling blockchain to be more competent.

Ensuring the above aspects numerous work has been carried out in the field of blockchain. The presented portal is a contribution over them. It can help to maintain a secure platform for farmers, where they can trade with the customers electronically. The main objective of this study is to record the secure transactions between a seller and a buyer that ensures a contract between the two. This can help farmers to get a legitimate price for their commodity. The system also facilitates a single place to record the whole trade transaction.

2 EXISTING SYSTEM

In the existing system Farmers, as well as agriculture, are the foundation of life. Numerous work has been done towards the enhancement of agriculture by developing technologies that support directly and indirectly to agriculture. A range of research shows that with the various enhancements in the field of ICT (Information and Communication Technologies), the farmers are unable to take its advantage and fail to get the proper sale value for their crops. An interface that benefited the farmers by providing the information related to the advancement of agriculture techniques. Various technical approaches made in agriculture, mostly in the field of food and supply chain management. The incorporation of blockchain technology in agriculture has improved the efficiency of the agriculture supply chain by reducing the need for verification of data. However, the technology proposed benefited only the producers in terms of maintaining the accuracy of data for supply.

DISADVANTAGES OF EXISTING SYSTEM:

- ⊗ Transaction depends on third party.
- ⊗ Data stored in local servers it means data may be not secure.

3 PROPOSED WORK AND ALGORITHM

The Proposed Farmer's portal is a single gateway through which the e-commerce activity of crops can be performed. The users' experience of the portal can be tailored according to the individual need. It is a single access point i.e., everything is in a single place, the only thing needed is single login to approved users.

User: A user can be a buyer or a seller. The seller may be a farmer or a representative of him. Device: The user can interact through the portal using a computer or a laptop. Interface: To access the portal, the user needs to register using a sign-up. The registered user logs in using the correct credentials. Once the user signs in successfully. The user will have access to the portal/interface. A user can view available items that are crops and seeds with their price.

ADVANTAGES OF PROPOSED SYSTEM:

- The buyer can buy a product and can search for any product according to the requirement. They can add the product in cart.
- The seller can add a new item, update the existing items, allot and update the price of the item.
- Purchasing an item is considered as a transaction and is added to the blockchain accordingly with the correct unique digital signature and timestamp so that any user cannot deny the activity done by them..

4. METHODOLOGIES

MODULES

SYSTEM MODULES:

- Sellers
- Buyers
- Admins
- Blockchain

MODULES DESCRIPTION:



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 he/She 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.

Blockchain:

Every activity related to introducing a new item and purchasing an item is considered as a transaction and is added to the blockchain 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 blockchain 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. Every activity related to introducing a new item and purchasing an item is considered as a transaction and is added to the blockchain 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 blockchain 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.

5 RESULTS AND DISCUSSION

FIG1 : SELLER REGISTRATION



FIG 2: BUYER REGISTRATION

FIG 3: SELLER LOGIN

FIG 4: SELLER COMMODITIES



FIG 5: UPDATING CROPS



FIG 6: BUYER LOGIN

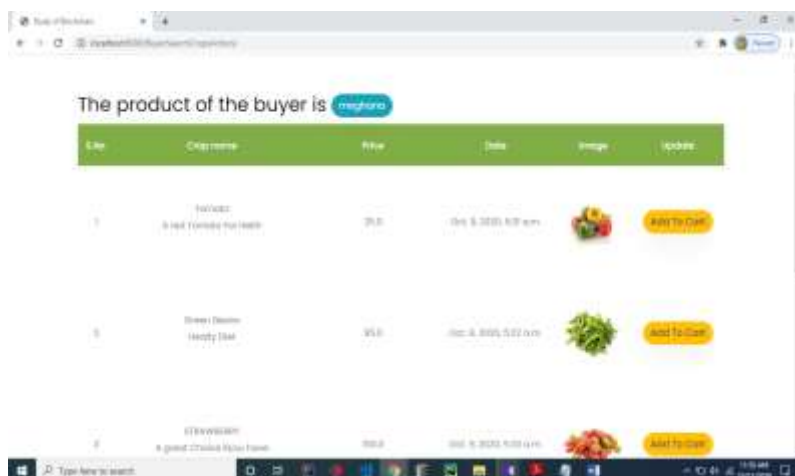


FIG 7: BUYER CART DETAILS

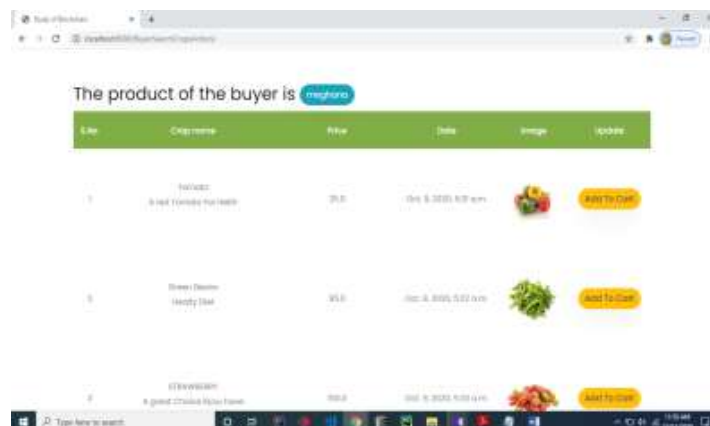


FIG 8 BUYER VIEW TRANSACTION

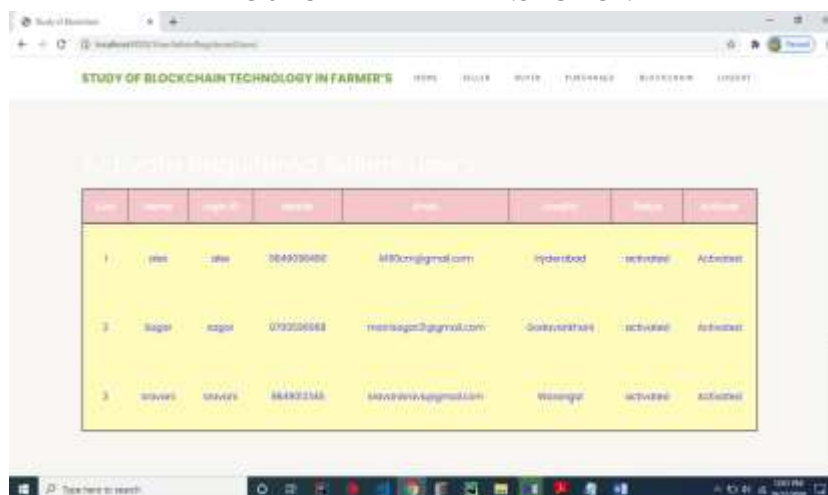


FIG 9 ADMIN ACTIVATE SELLERS

6.CONCLUSION

CONCLUSION

Blockchain 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 sale price of crops. In this work, a blockchain-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 blockchain 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 blockchain 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.

Akin kind of portal can be implemented by the government and its confederate bureaus to ensure amelioration in the field of farming and commerce of crops which will improve the prominence of the nation's farmers. This application can be more refined with increasing integration of blockchain in a spectrum of areas and constellating it into a single paramount portal for farmers. This can be done by putting farmer's crop details to the blockchain, buyer's data to the blockchain and adding more features



and services to the single portal and bringing all possible facilities for farmers of the nation under sui generis awning. Information integrity and precision issues can be solved using open, protected and trusted systems presumptuous; the infrastructure dispensation and footage connections are protected and suitably provided. The blockchain technology did not promise the information reliability in the footage. Thus realization in blockchain faces several boundaries that might require a vital authority or protected footage of confirmation.

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