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A STUDY OF BLOCKCHAIN TECHNOLOGY IN FARMERS PORTAL

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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 informat ion 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, communit ies, organizations and nations as well. In this

era of digitizat ion, 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 initiat ives 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 informat ion sharing platform that

enables multiple authoritative domains, which do not trust each other, to cooperate, coordinate

and collaborate in a rational decisionmaking process, a reliable informat ion recording s ystem

can be made that can contribute for the development in the

agriculture sector. Since blockchain works like a publicledger, 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 object ive 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.

The availability and accessibility of information are the crucial points in taking the optimal

decision at right time. Nowadays, advancement of ICT make possible to retrieve almost any

information from the global repository (internet). The information in internet is primarily

maintained in English. So, a large number of people are deprived from the benefit of internet due

to technical and English language illiteracy. This scenario is very bad in developing country like

India where nearly 76 % are English illiterate 1 . Moreover, a large percentage of the English

literate people are also unable to find their exact need form the large database of internet due to

lack of proficient knowledge in English. Indian farmers belong to such type of people who are

not much sound in both technical as well as in English.

So, they are unable to access required information on the farming life cycle, seed selection,

pesticides, market price etc. from the internet. As a consequence, they are not capable to take

optimal decisions at different stages of farming life cycle, which make huge impact on the

farmer's revenue. As a result suicide rate has been increased rapidly among the Indian farming

community. According to the reports, those pathetic incidents are mainly happened due to the

frustration that they are unable to pay their debts. These types of situations create huge impact on

the agriculture sector. Consequently, the focus of new generation is shifted from farming sector

which will be threatening the near future in India. Our preliminary studies reveal that farmers

require information at the right stage of the farming life cycle to take the right decisions [1].

However, farmers are unable to get this information from internet due to English language and

technical illiteracy. Recently, some webpages like –Wikipedia, Indian Railway web page, etc.

provide facility of internet access in many users' language other than English by supporting

UTF-8 encoding3 . However, it is observed that information is not so useful to the people who

are having poor knowledge on internet and web browsing [2]. Moreover, this type of attempt is

meaningless for the illiterate people. A large number of people from the Indian farmer community are unable to read/write even their own mother tongue. So, it is obvious that text

based interface, instead of supporting farmer's own language, are not able to provide the required

information. The above mentioned scenario states that there is a requirement of alternative

interaction technique(s). By considering this fact, Plauché et al. proposed a speech-driven agricultural query system for Tamil Nadu state of India [3]. However this work does not able to

address the scenario of total India. Patel et al. designed an interactive voice application for small-

scale farmers in Gujarat, India [4]. However, it doses not provide a feature to search for specified

content in the forum. There, user needs to answer the questions sequentially starting from the

most recent question. User does not have the option to skip any question. Moreover, there is no

guarantee of giving accurate answer, as the questions are answered by other users. Furthermore,

this work is also confined to a particular area of India. In some recent efforts, expert system

based text animation has been proposed for diagnosis of most common diseases occurring in

Indian mango [5]. This work also uses picture based system alongwith the text query for easier

understanding of the disease symptoms. Though, it is a good initiative for Indian farmer, but

limited to a particular fruit. Another notable work was mobile based multimedia social

networking platform – GappaGoshti for information and advice exchange, proposed by Lobo et

al. [6]. Ramamritham et al. [7] design an online multilingual, multimedia based forum for

common man of India. However, those forums and social networking platforms provide limited

number of information as compared to the internet. Moreover, quality of information may not be

up to the mark, so illiterate people are unable to get any information from there. To overcome the

limitation of illiteracy, Samanta et al. [2] proposed and multimodal interface for the Indian

common man. However, the iconic module of this work is not related to the agricultural domain.

Other works [8, 9] also highlight the need of a systematic approach which is required to provide

the precise information to farming oppurmmunity. Moreover, not only providing of the

information to farmer, it is also essential to identify that how the farmers are motivated toward

accessing the information [10]. All the aforementioned observations motivate us to conduct in

depth research toward making an interface for Indian farmer community, which will be more

useable, systematical, and needful for them irrespective of language and technical proficiency.

Here, we propose an iconic interface integrated with a text to speech (TTS) engine to access the

agricultural information from the internet's global repository for Indian farmer community.

Further, we also integrate a local repository with the interface to access urgent information

without connecting the internet.

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. In the existing system Farmers, as well as agriculture, are the foundation of life. Numerous work

3. PROPOSED SYSTEM

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 logins 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.
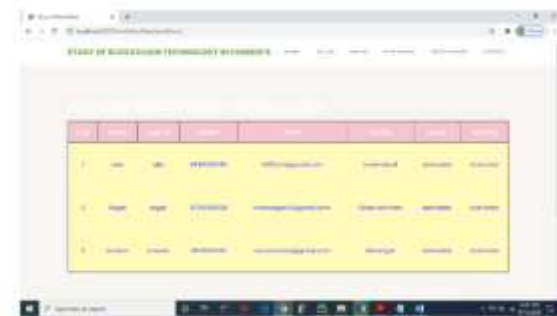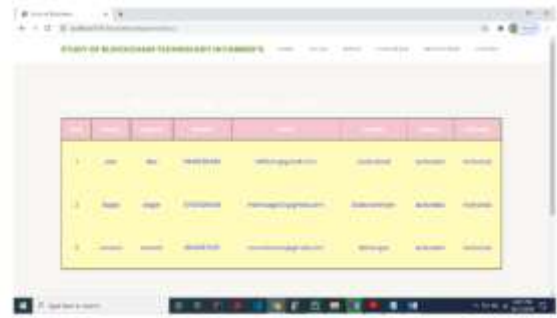
Advantages Of Proposed System:

➢ 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.

4. OUTPUTSCREENS

5. 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 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

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 legit imate price of crop and reduce the cost of operation for selling and buying crops when compared to traditional methods.

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