A Study of Blockchain Technology in Farmer's Portal

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ABSTRACT:
Blockchain is a method that uses a cryptocurrency to maintain a record of a deal's verification. The document is kept among multiple computers connected by a peer-to-peer network. Deals and agreements, as well as the records of them, define a country's financial system. They establish boundaries and keep the premises secure. This article emphasises the application of blockchain technology with farmer's portal that maintains the video of marketing and purchasing details of crops, taking into account the characteristics of blockchain such as immutability and also retaining the footage of transaction information. The blockchain system and Python programming language are combined in the suggested service to benefit farmers, suppliers, and the general public by upholding trade agreements. With the use of blockchain technology and the Python programming language, an interface for farmers is created that stores information on the seller, the buyer, the marketing and purchase of an item, as well as the total price agreed upon.
Keywords*:* Block chain, decentralized, security, assets.

1. INTRODUCTION

Blockchain is an open, shared, and decentralised ledger that may competently record transactions involving two parties in a verifiable and reliable manner (Iansiti, Lakhani 2017). In the definition above, "open" means that everyone can access the blockchain, "disseminated" means that there is no single party control and "decentralised" means that there is no primary third party available," "capable" means that it is faster and more scalable than traditional technologies," "confirmable" means that everyone can check the accuracy of the information," and "stable" means that the data is almost immutable, or that it is almost impossible to change or manipulate." They both confirm and validate the individuals' identities and the order of events. They support all transactions and activities that take place between people, groups, businesses, and

nations. In this digital age, the way that information is stored and preserved needs to change. It also needs to be exceptionally safeguarded, and the blockchain offers this solution.

A farmer's website has always been helpful for farmers in many ways during the age of information and communication technology, offering simplicity of use and also ease of information to the farmers. The Indian federal government has also made various efforts in the same direction. These websites include Krishijagran.com, farmer.gov.in, agricoop.nic.in, agriwatch.com, and others. In addition to these, there are other E-commerce websites, such as fert.nic.in and enam.gov.in, etc. Fig. 1 displays the industries now utilising blockchain. Using blockchain technology in the field can create a decentralised computing and information-sharing system that enables many trustworthy domain names, which do not trust one another, to cooperate, coordinate, and collaborate in a reasoned decision-making process. This can lead to the creation of a reliable information-recording system that can support the growth of the agriculture industry.

OVER VIEW:

But it doesn't offer a facility to search on the online forum for specific web content. There, the consumer must respond to each question in turn, starting with the most recent one. No one has the option to ignore a problem of any kind. Additionally, since the questions are answered by other users, there is no assurance of providing an exact response. Additionally, this employment is restricted to a specific region of India. Although it is restricted to a single fruit, it is nevertheless a wonderful promotion for Indian farmers. Another important task was the GappaGoshti mobile-based multimedia social networking system for the interchange of ideas and information, which was suggested by Lobo et al. An online multilingual, multimedia-based discussion platform for Indian commoners is designed by Ramamritham et al. In contrast to the internet, these social networking sites and online forums offer a more limited selection of information. Illiterate persons cannot obtain any information from there because the information's quality may not be up to par. Samanta et al. suggested a multimodal user interface for the average Indian to get past the barrier of illiteracy. However, the work's most well-known feature has nothing to do with agriculture. Numerous other positions also emphasise the need for a methodical approach that is necessary to deliver the precise information to farming opportunities. Not only is it important to get the information to the farmers, but it is also crucial to figure out how to motivate them to access the information. All of the aforementioned observations encourage us to conduct in-depth research to create an interface for the Indian farmer community that will undoubtedly be more usable, systematic, and useful for them regardless of language and technical proficiency. In the section below, we recommend a well-known user interface combined with a text-to-speech (TTS) engine enabling Indian farmers to access agricultural information from the internet's global database. To access information immediately without connecting to the internet, it is better to

additionally include a local repository with the user interface.

STUDY OF LITERARY WORKS FOR RESEARCH

1) A user interface for Indian farmers is Krishi-Bharati.

A. B. Garg, Sayan Sarcar, PSV S. Sridhar, Ojasvi Maleyvar, Ghosh, Soumalya, Raveesh Kapoor, and Sayan Sarcar are among the authors.

Rapid advancements in ICT support fundamental areas of human life, such as agriculture, education and learning, healthcare, etc. The moderate technological advancement of ICT applications, however, is only applicable to a small group of people who live in electronic pockets. Uneducated people, such as farmers and shopkeepers, are unable to gain from the ICT transformation. According to the UNESCO assessment, 64 percent of the world's population cannot use the invention due to a technical or linguistic barrier. In the context of constructing countries, the portion (76%) should also be raised. We advised the establishment of a well-known interface that is combined with speech-based interaction in Indian languages because the crucial farming information is very helpful to a farmer in making accurate decisions. The suggested user interface is carefully tested by farmers from various Indian states. The evaluation's findings demonstrated how effective the suggested user interface is.

2) Android-based solution for Indian agriculture called Krishi Ville

Singhal, Manav, Kshitij Verma, and Anupam Shukla are the authors.

In India, information and communication technology (ICT) in agriculture is a new field that focuses on the development of agriculture as well as the nation. It contains cutting-edge ICT applications in the nation's domain name. The advancement of ICT can be used to provide farmers with accurate, timely information and answers, fostering a favourable climate for farming. This essay describes a smartphone application for farmers that would undoubtedly be helpful to them in their farming endeavours. We suggest the Android-based mobile app Krishi Ville, which would undoubtedly take care of the updates for various farming commodities, weather forecast updates, and farming information updates. The application was created with Indian agriculture in mind.

3) Blockchain-based agriculture product provenance a distributed accounting system that uses both duplicated and common accounting

Hua, Jing, Xiujuan Wang, Mengzhen Kang, Haoyu Wang, and Fei-all contributed as authors.

To ensure the safety of the food, agricultural products must have a provenance (tracing) system. However, because the stakeholders (farmers, farmers, sellers, etc.) are many and geographically dispersed, a centralised approach to information management is challenging. As a result, the production process is still opaque, and trust is challenging to establish. In this work, we suggest an agricultural provenance system based on blockchain technologies that include decentralisation, communal maintenance, consensus trust, and reliable information to

address the trust issue in the product supply chain. The management practises (such as feeding, watering, etc.) with a certain data structure are included in the recorded information. The provenance of agricultural products can be tracked using blockchain technology, which not only broadens the application space for the technology but also helps stakeholders build trustworthiness around farm production.

4) A technical analysis of decentralised digital money, including Bitcoin and the history.

Tschorsch, Florian, and Björn Scheuermann are the authors.

In addition to generating a billion-dollar economy, Bitcoin transformed the field of digital currencies and had a significant impact on several adjacent fields. Additionally, this sparked a lot of clinical passion. We unroll and organise the multiple results and research study directions in this investigation. We begin by introducing the Bitcoin process and its fundamental components. The layout space is then examined by looking at previous contributions and results. At the same time, we analyse the underlying concepts and ideas that underlie the Bitcoin protocol and all of its uses. As we discuss and also show, numerous important ideas are also applicable in other contexts, thus their influence extends well beyond Bitcoin alone.

Existing system:

Farmers, in addition to agriculture, are the basis of existence under the current system. By creating inventions that support farming both directly and indirectly, much work has been done to improve agriculture.

Numerous studies have shown that despite various advancements in the field of ICT (Details and Interaction Technologies), farmers are unable to benefit from them and frequently fail to sell their plants for the correct price. An interface that benefited farmers by providing information on enhancing agricultural practises. many technical methods developed in agriculture, namely in the food and supply chain management sectors. By reducing the need for data verification, the integration of blockchain technology into farming has actually increased the efficiency of the farming supply chain. However, the suggested innovation only helped the producers in terms of preserving the accuracy of supply-side information.

CONSTRAINTS OF THE CURRENT SYSTEM:

Transaction is dependent on a third party.

Data saved on local web servers shows that information may not be secure.

PROPOSED SYSTEM:

The Proposed Farmer's site is a single portal through which crop shopping can be done. The portal's user experience can be tailored to suit each user's preferences. It is a single access factor, meaning that everything stays in one place and only a single login for authorised users is required. Individual: A person can buy something or sell something. The vendor could be a farmer or his agent. Tool: A computer or a laptop can be used by the user to engage with the portal. Interface: The user must sign up using a sign-up form in order to access the portal. The registered

user logs in using the correct credentials. Whenever a consumer checks in successfully. The person will be able to access the portal or user interface. A buyer can look at seeds and other things that are easily available along with their prices.

BENEFITS OF THE PROPOSED SYSTEM:

The buyer has the option of purchasing a product and searching for any kind of merchandise they may require. The product can be added to the cart.

The seller has the option to include a new item, enhance the ones that are already there, reserve the item, and raise the price.

Purchasing something is considered to be a transaction, which is properly recorded on the blockchain with the requisite unique digital signature and date to prevent any user from disputing the work they have done.

2. SUMMARIES OF COMPONENTS:

Sellers:.

The first to register may be the Vendor Customer. He needed a working user email when registration, as well as a mobile device for additional interactions. Admin can activate the Sellers after the user registers. The seller can immediately log in to our system after admin has prompted him or her. The vendor has the ability to assign, upgrade, add, and change the price of an item. In addition to extending the market's reach, it will also cut out the middlemen.

Buyers:.

The first can be registered by the seller person. He requested a legitimate personal email during registration as well as a mobile number for additional conversations. Once a user registers, the administrator can activate the sellers. Sellers can log into our system once the admin has switched them on. The customer has the option to purchase something and search for any product they desire. They have the option to both add and remove plants from the cart. After choosing the exact item to purchase and validating the cart, the person can look.
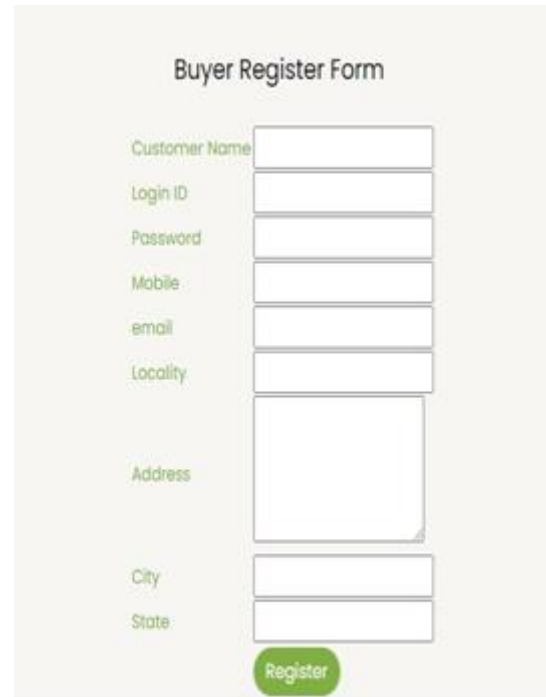
Blockchain:.

In 2008, Satoshi Nakamoto's essay, which outlined the Bitcoin cryptocurrency, gained recognised as a new technology. If someone on the blockchain network starts a transaction, this can be made clearer. The P2P network's nodes, where the transaction will be routed, Nodes will confirm the transaction. If the transaction is approved, it will be combined with other approved transactions to form a block. The block will be added to the current blockchain and is marked with the hash of the preceding block and a timestamp. The restriction is unchanged and unbreakable. There is no single point of failure issue, and there is no centralised web server to manage the network.

Every action linked to introducing a new product and making a purchase is treated as a purchase and added to the blockchain in accordance with the appropriate specific digital signature and timestamp to ensure that no consumer may contest the work they have completed.

Everyone in the network can see every single one of these purchases. The blockchain is a peer-to-peer system built on distributed node networks that uses consensus, time stamping, and information file encryption. Since the information is unchangeable, transparent, and accessible to everyone, it increases the website's safety and security.

Admins:.

With his login information, Admin can log in. He can activate the sellers and buyers as soon as he logs in. The activated user of our applications has just logged in. The buyer user's purchases can all be viewed by the admin customer. Each block chain transaction's prior block information and hash values are visible in the admin structure.
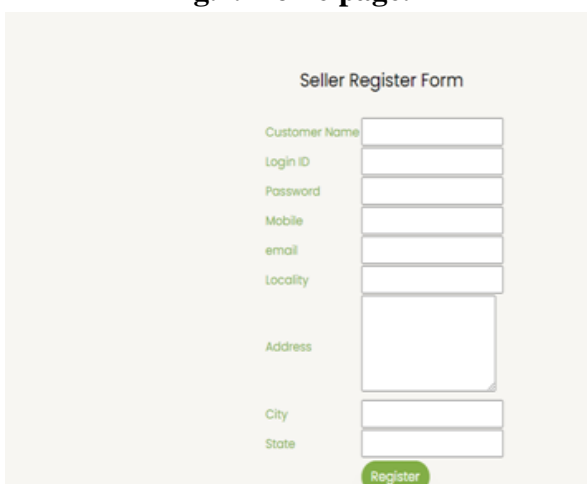
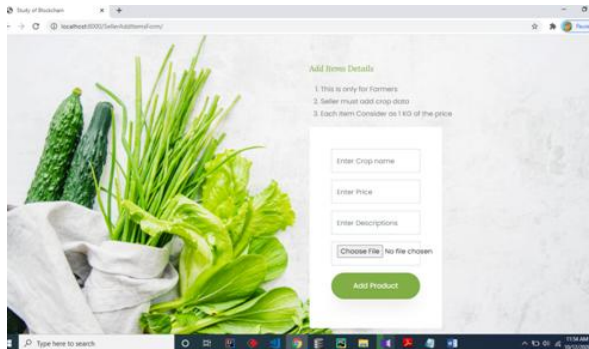**Fig.3. Buyer registration form.**
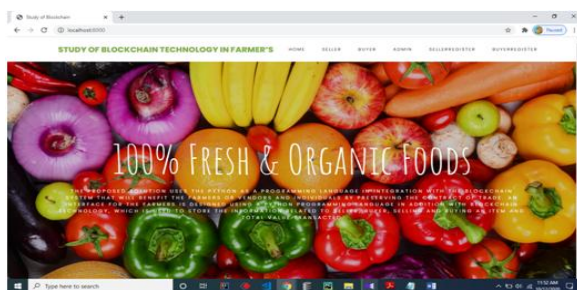
Fig.1. Home page.

Fig.4. Seller Login.

Fig.2. Seller registration form.

Fig.5. Seller Home.

Fig.6. Seller Adding crops Details.

Fig.7. Search Results.

Fig.8. Buyer View Transaction.

3. CONCLUSION

Blockchain technology has the potential to revolutionise the farming industry by securely preserving farmer data, guaranteeing seed quality, monitoring soil moisture content, tracking plant production, and last but not least, predicting crop demand and pricing. In this study, a blockchain-based website is suggested to address the issue of crop demand and list price, which would ultimately assure crop security for farmers and fair crop cost. For this, a website is suggested where farmers can register and promote their plants, with a blockchain contract being recorded when clients decide to buy a farmer's plant. The number of plants bought, the rate at which it is devoted to acquiring, and crop information can all be tape-recorded by this purchase. When compared to traditional techniques, the immutable nature of blockchain technology will help farmers receive an authoritative estimate of plant prices and lower the cost of the selling and buying of crops.

Future Potential: The immutable nature of blockchain technology will make it easier for farmers to determine a fair estimate of crop costs and reduce the cost of the process for selling and buying plants compared to current practises. The federal government and its affiliated bureaus can operate websites of this nature to promote improvements in crop production and trade, which will raise the status of the country's farmers. By incorporating blockchain technology into a wider range of applications and consolidating it into a single crucial gateway for farmers, this application can be enhanced even more. This can be accomplished by adding buyer and farmer information to the blockchain, adding more features and services to the single portal, and also integrating all relevant resources for farmers in the nation under one sui generis umbrella. Information honesty and also accuracy problems may be resolved by using open, protected, and also

trusted systems; the framework distribution and also video connections are safe and also well provided. The blockchain innovation did not guarantee the accuracy of the information in the video. As a result, there are several barriers to understanding on the blockchain that may require a crucial authority or a protected video of proof.

REFERENCES

[1] Lakhani, Karim R., and M. Iansiti. "The truth about blockchain." Harvard Business Review 95 (2017): 118-127.

[2] Hileman, Garrick, and Michel Rauchs. "2017 global blockchain benchmarking study." Available at SSRN 3040224 (2017).

[3] Mohanta, Bhabendu K., Debasish Jena, Soumyashree S. Panda, and Srichandan Sobhanayak. "Blockchain Technology: A Survey on Applications and Security Privacy Challenges." Internet of Things (2019): 100107.

[4] Yadav, Vinay Surendra, and A. R. Singh. "A Systematic Literature Review of Blockchain Technology in Agriculture."

[5] Ghosh, Soumalya, A. B. Garg, Sayan Sarcar, PSV S. Sridhar, Ojasvi Maleyvar, and Raveesh Kapoor. "Krishi-Bharati: an interface for Indian farmer." In Proceedings of the 2014 IEEE Students' Technology Symposium, pp. 259-263. IEEE, 2014.

[6] Singhal, Manav, Kshitij Verma, and Anupam Shukla. "Krishi Ville— Android based solution for Indian agriculture." In 2011 Fifth IEEE international conference on advanced telecommunication systems and networks (ANTS), pp. 1-5. IEEE, 2011.

[7] Potts, Jason. "Blockchain in Agriculture." Available at SSRN 3397786 (2019).

[8] Hua, Jing, Xiujuan Wang, Mengzhen Kang, Haoyu Wang, and Fei-Yue Wang. "Blockchain based provenance for agricultural products: A distributed platform with duplicated and shared bookkeeping." In 2018 IEEE Intelligent Vehicles Symposium (IV), pp. 97-101. IEEE, 2018.

[9] Zhu, Xingxiong, and Dong Wang. "Research on Blockchain Application for E-Commerce, Finance and Energy." In IOP Conference Series: Earth and Environmental Science, vol. 252, no. 4, p. 042126. IOP Publishing, 2019.

[10] Tschorsch, Florian, and Björn Scheuermann. "Bitcoin and beyond: A technical survey on decentralized digital currencies." IEEE Communications Surveys & Tutorials 18, no. 3 (2016): 2084-2123.