

A Study of Blockchain Technology in Farmer's Portal

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Abstract- Blockchain may be a methodology within which a authentication of a transaction is unbroken by betokens that of a crypto-currency. The record is maintained transversally, linking many computers during a peer to look network. Agreement, transactions, and therefore the documentation of them outline the economic system of a rustic. They set boundaries and supply security to the assets. Considering the options of blockchain like changelessness and maintaining the footage of group action details, this paper highlights the usage of blockchain technology with farmer's portal that keep the footage of mercantilism and shopping for data of crops. The planned answer uses the python as a programming language in integration with the blockchain system that may benefit the farmers or vendors and people by conserving the contract of trade Associate interface for the farmers is designed employing a python proگرامing language additionally with blockchain technology, that is employed to store the information associated with vendor, buyer, mercantilism associated shopping for an item and total price transacted.

Keywords— Blockchain, Digitisation, Crypto-currency, Immutability, Public-ledger, ICT, Farmer's portal

I. INTRODUCTION

Blockchain an open, disseminated and redistributed ledger that evidences transactions involving 2 parties aptly during a falsifiable and stable means .Within the on top given definition, open suggests that the blockchain is approachable to 1 and every one, disseminated implies that there's no single party management and redistributed suggest that there's no central third party out there, capable suggests that it's quick and additional scalable tan standard technologies, falsifiable implies that everybody will check the validity of data.The government of India has conjointly taken several initiatives for an equivalent. Using blockchain technology within the field will built out their redistributed computation and data sharing platform. A reliable information audio system will be created that may contribute for the event within the agriculture sector. Since blockchain works sort of a public ledger, therefore it will be used to confirm many alternative aspects for which helps in providing security like:

Protocols for commitment : make sure that each valid dealings from the shoppers' square measure committed and enclosed within the blockchain among a finite time.

- Consensus : Make sure that the native copies square measure consistent and updated.

- Security : The info must be tamper – proof. Note that the consumer could act maliciously or will be compromised.
- Privacy and Authenticity : The info or transactions belongs to varied clients; privacy and credibility got to be ensured.

Public key encoding is that the root of. blockchain wallets and dealings, cryptography hash functions endow with the attribute of changelessness and ouzel trees order transactions. The most objective of this study is to record the secure transactions between a vendor and a emptor that ensures a contract between the 2. The availability and accessibility of data square measure the crucial points in taking the optimum call at right time. The data in net is primarily maintained in English. An oversized variety of individuals are underprivileged from the good thing about net because of technical and West Germanic language illiteracy. An overwhelming range of individuals from the Indian farmer community are unable to read/write even their own maternal language. So, they're unable to access needed info on the farming life cycle via the net. As a result, suicide rate has been inflated apace among the Indian farming community. It's an honest initiative for Indian farmer, however restricted to a specific fruit. In some recent

efforts, knowledgeable system primarily based text animation has been projected for diagnosing of commonest diseases occurring in Indian mango. This work additionally uses image primarily based system along with the text question.

II. AIMS AND OBJECTIVE

a) Aim

The blockchain technology permits the traceability of knowledge within the food provide chain and therefore helps Improve food safety. It provides a secure approach of storing and managing knowledge, that facilitates the event and use of data-driven innovations for good farming and good indexed agriculture insurance.

b) Objective

- **Protocols for Commitment:** make sure that each valid dealings from the purchasers are committed and enclosed within the blockchain at intervals a finite time.
- **Consensus:** make sure that the native copies are consistent and updated.
- **Security:** the info has to be tamper-proof. Note that the consumer could act maliciously or may be compromised.
- **Privacy and Authenticity:** the info or transactions belong to numerous clients; privacy and genuineness ought to be sured.

III. LITERATURE SURVEY

Paper 1: Krishi-Bharat i: Associate in Nursing interface for Indian farmer. World Health Organization sleep in digital pockets. The illiterate individuals are unable to require the benefits of the ICT revolution. The essential agriculture data is extremely helpful to a farmer for taking effective call therefore we incline to develop Associate in Nursing painting interface.

Paper 2: Krishi Ville—Android based mostly solution particle for Indian agriculture.

Information and Communication

Technology (ICT) in agriculture is a rising field

specializing in the sweetening of agricultural and rural development in Asian nation. It involves innovative applications exploitation ICT within the rural domain. The advancement of ICT is often used for providing correct and

timely relevant data and services to the farmers, thereby facilitating Surroundings for remunerative agriculture. This paper describes a mobile based mostly application for farmers which might facilitate them in their farming activities. We have a tendency to propose a golem based mostly mobile application - Krishi Ville which might look out of the updates of the various agricultural commodities, forecast updates, agricultural news updates. The appliance has been designed taking Indian farming in thought.

Paper 3: Blockchain based mostly place of origin for agricultural products: A distributed platform with duplicated and shared bookkeeping.

The place of origin system of farming product is vital for making certain food safety. The stakeholder's area unit various and physically spread. As a result, the assembly procedure remains not clear, and trust is difficult to create. Blockchain technology can be applied to the place of origin of an agricultural product, rather than just the production process itself.

IV. EXISTING SYSTEM

The existing system Farmers, as well as

agriculture, are the foundation of life. Numerous

works 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 several enhancements in the area of Information and Communication Technology (ICT), the farmers are impotent to take its advantage and fail to get the proper sale value for their crops. An interface that benefited the farmers by giving the information related to the advancement of agriculture techniques. Various technical approaches made in agriculture, Various technical approaches made in agriculture, mostly in the field of food and supply chain management. The chartering of blockchain technology in farming has change the efficiency of the agriculture supply chain by abbreviating the desideratum for verification of data.

However, the technology offered 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.

V. COMPARTIVE STUDY

SR NO.	PAPER TITLE	AUTHOR NAME	METHOD	ADVANTAGE	DISADVANTAGE

1.	Krishi-Bharat i: an interface for Indian farmer	Ghosh, Soumalya, A. B.Garg,Sayan Sarcar, PSV S. Sridhar,Ojasvi Maleyvar, and Raveesh Kapoor	The moderate technical magnification of ICT applications is restricted to the community of an inhibited number of people, who live in digital pockets.	Expeditious magnification in the field of ICT avails in rudimentary characteristics of mankind like agriculture, inculcation, healthcare etc	The illiterate people are unable to take the advantages of the ICT revolution.
2.	Krishi Ville—Android based solution for Indian agriculture	Singhal, Manav, Kshit ij Verma,and Anupam Shukla	It involves innovative applications using ICT in the rural domain	The advancement of ICT can be utilized for providing precise and timely germane information and accommodations to the farmers, thereby facilitating an environment for wellpaid agriculture	As it's based on mobile application as majority of farmers are illiterate are not able to take benefit of it.
3.	Blockchain based provenance for agricultural product. A distributed platform with duplicated and shared bookkeeping	Hua,Jing,Xiujuan Wang, Mengz hen Kang, Haoyu Wang, and Fei	The tracing system of agricultural products is paramount for ascertaining pabulum safety.	As it's useful for verifying food safety and food quality.	The stakeholders are numerous and physically distribute, making it hard to manage data and information with a centralized approach. As a result, the formation procedure remains nontransparent, and trust is hard to build
4	Towards utilizing ICT to enhance flow to information to avail farmer economic development in sri lanka	:L.N.De Silva, J.S. Goonetillake, G.N. Wikramanayake, and A.Ginige	Bitcoin transform the field of electronic cash and affect many adjacent areas	It rollup and structure the many overlap results and research directions	In the process, it concludes the fundamental structures and intuition at the core of the Bitcoin protocol and its applications.

Table no :- 1

VI. PROBLEM STATEMENT

To create a project using blockchain in famers portal which provides them the availability of the needs of the famers and can make their transactions and their data safe and can also provide a platform where they can sell their goods in a feasible price. Using blockchain technology in the field can make available distributed algebraic and data sharing platform that allow many reliable domains, which don't trust each other, to cooperate, arrange and combine in a rational decision-making process, a reliable information recording system can be made that can contribute for the development in the agriculture sector.

- User: A user can be a buyer or a seller. The seller may be a farmer or are presentative or assistant of him.
- Device: The user can communicate through the portal using a computer or a laptop.
- Interface: Permission to enter the portal, the user needs to register using a sign-up. The registered users logins using the correct credentials.Once the user signs in successfully.

The user will have access to the portal/interface..A user can see available items that are crops and seeds with their price.

VII. PROPOSED SYSTEM

The Proposed Farmer's portal is a single entrance through which the e-commerce activity of crops can be performed. The users' experience of the portal can be converted 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.

ADVANTAGES OF PROPOSED SYSTEM:

- The buyer can purchase a product and can search for any product according to the requirement. They can also 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 connected to the blockchain accordingly with the unique

digital signature and timestamp so that any user cannot deny the activity done by them.

VIII. ALGORITHM

The algorithm of application for the juncture at which footage is recorded when a commodity is added to the system:

Step.1: - START

Step.2: - Function Add Items:

Step.3:- If user not authenticated seller:

Step.4:- Return "Login with seller account"

SellerUserRegisterActions(request)

SellerUserHome(request)

SellerAddItemsForm(request)

SellerAddItemsAction(request)

SellersCommodities(request)

SellerUpdateProducts(request)

SellerDeleteProducts(request)

Step.5:- If HTTP request is POST

Step.6:- Input item details Json Packet = {Name:

Step.7: - Add Json Packet as a transaction to the blockchain.

#Transaction Data

cardnumber

=request.POST.get('cardnumber')

request.POST.get('nameoncard') nameoncard =

request.POST.get('cvv') cvv = request.POST.get('cvv')

cardexpiry = request.POST.get('cardexpiry')

Step.8: - Add item in a database

Step.9:- Return to item table page

Step.10:- END

The algorithm of application for the juncture at which footage is recorded when a commodity is purchased:

Step.1: - START

Step.2: - Function Buy Items In Cart:

Step.3:- If HTTP request method is POST:

Step.4:- Select all Items available in Cart

Step.5:- Set flag to 0

Step.6:- For item in cart:

Step.7:- If item not in stock:

Step.8:- Set flag to 1

Step.9:- If flag is 1:

Step.10:- Return "Item Shortage"

Step.11:-For item in cart: Json Packet ={Name:

Item Name, Quantity: Quantity of items

Purchased, Buyer: Buyer Name, Price: Total

Value of transaction};

Step.12: - Add Json Packet as a transaction to blockchain.

Step.13: - Update Item in stock

Step.14: - Return "Thank you For Purchasing"

Step.15: - END

IX. MATHEMATICAL MODEL Calculation of variety of dealings:

Using the Formula:

$$(n/2) (\text{first number} + \text{last number}) = \text{sum},$$

Where n is that the variety of integer. For this application to be designed modules of python are employed in it.

- FLASK – it's a micro-web framework for the backend of internet applications written in python. During this work, it's accustomed develop the backend of a portal victimization its functionalities particularly Routing, Rendering of Templates, Framing Redirects, and Building Sessions etc. Flask relies on Jinja2 for model and Werkzeug for WSGI toolkit. it's

straightforward to use associated an economical framework to use in applications like e- commerce or trade portal.

- SQL Alchemy – it's a Python SQL Tool Pack that provides ease and suppleness of victimization SQL around the application. during this portal, it's accustomed integrate SQL to internet applications directly and perform needed operations.
- Hash lib - it's a module to blame for giving associate interface to programs for several of the hashing and message digest algorithm like SHA1, SHA224, SHA256, SHA384, SHA512 and RSA MD5. It has created a comparison for Average time (MS) and cost (%) for blockchain with RSA-DS and blockchain while not RSADS. The author has found that a blockchain with RSA-DS is economical. However, the RSA-DS doesn't contain any hashing therefore, to form it safer.
- SHA2 is suggested since it provides higher security. The planned system uses SHA256. It's accustomed generate a hash of the block containing index, transaction, timestamp, previous hash and nonce.

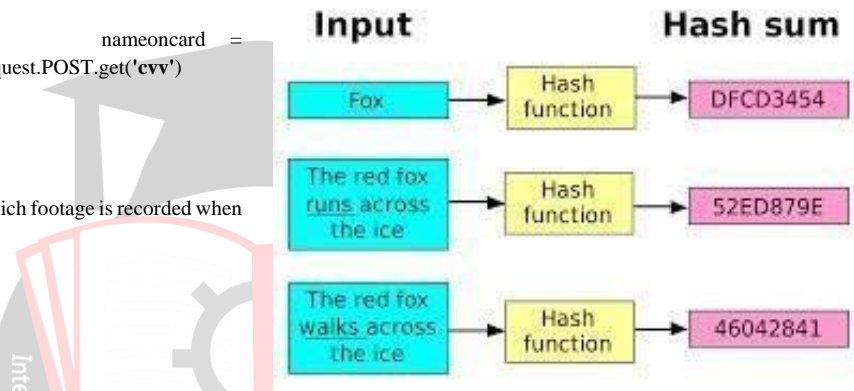


Fig 1.1 :- Hashing Structure

- JSON - it's a light-weighted knowledge interchange format that is employed to request knowledge in JSON format.
- TIME - This module is provided with functions related to time. In our work, it's been accustomed our work, it's been accustomed capture the juncture on that the dealing is being succeeded. our work, it's been accustomed capture the juncture on that the dealing is being succeeded.

OS: This module equips practicality that relies on the software package. In our work, it's used for outlining system ways, Directories etc. variables required to drive the net app.

X.SYSTEM ARCHITECTURE

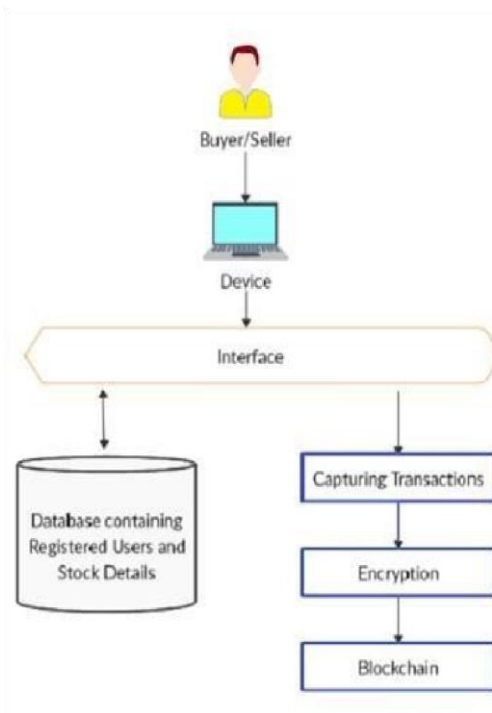


Fig 1.2 :- System Architecture

Description:

- User: A user can be a buyer or a seller. The seller may be a farmer or are presentative or assistant of him.
- Device: The user can communicate through the portal using a computer or a laptop.
- Interface: Permission to enter the portal, the user needs to register using a sign-up. The registered user's logins using the correct credentials. Once the user signs in successfully. The user will have access to the portal/interface. A user can see available items that are crops and seeds with their price.

XI. ADVANTAGES

- Blockchain for business uses a shared and permanent record book that is ready to only be obtain by members with permission.
- Network members management what knowledge every organization or member could even see and what actions every will take.
- on such a lot of side matters of trust, blockchain delivers even different business benefits, beside the value savings from accrued speed, efficiency, and automation.
- By greatly decreasing work and errors, blockchain considerably decreases overhead and dealings prices, and decreases or eliminate the third parties or middlemen to confirm transactions.

XII. DESIGN DETAILS



Fig 1.3:- screenshot

XIII. CONCLUSION

Thus, we have tried to implement the paper of "Rahul Talreja, Rohan Chouksey, Sushma Verma", A Study of Blockchain Technology in Farmer's Portal "IEEE 2020". conclusion is blockchain technology within the field of agriculture will bring a revolutionary **improvement**. **A portal is planned on that a farmer can register and sell his crops, recording a dealing on a blockchain. This dealing is capable of recording crop details, the price at that it's committed to purchasing and amount of crop purchased.**

XIV . REFERENCE

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