IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

LAND REGISTRATION USING BLOCK CHAIN METHOD

R.Palson Kennedy [1] Delhi Babu.R [2] Gokula Krishnan.R[3],Balarishi.S[4]

Professor[1,], Student[2,3,4]

Department of Computer Science and Engineering

PERI INSTITUTE OF TECHNOLOGY

Abstract

The process of land registration in any country is known to be a multistep process, since it entails the engagement of all stakeholders who will have a direct or indirect stake in the registration. The currently used land record title storage system raises major issues about data fraud, the security of highly sensitive data, and the risk of system failure due to natural disasters, such as the server used for data storage going down. Compared to the current approaches and procedures for land title management and data storage, blockchain is a cutting-edge technology and database that has the ability to completely address the problems that plague current systems. The basic and most important aspect of blockchain technology is that it is a decentralised network in which all data supplied by a single node are confirmed by all other available nodes, and only after a consensus is made can then the shared data be saved to the blockchain.There are various platforms being used for the creation of reliable, decentralised, transparent, immutable, and secure blockchain-based land registration and management systems. Smart contracts based on the Ethereum blockchain are gaining traction among these systems. Being a public blockchain platform, it allows anyone to participate in the blockchain ecosystem .

Introduction

Blockchain was developed from a bitcoin paper published by Nakamoto in 2008. It is a peer-to-peer network where all participants (peers) serve as a node and all the nodes hold the same information . Blockchain is a ledger dispersed publicly above a network that registers transactions associated with other network applicants . Instead of relying on the single authority such as administrators that can forge the database, blockchain technology offers a decentralised environment that offers robustness and security as well. Untrustworthy administrators can abuse this power. A normal database suffers from that issue which

is the failure that occurs at a single point, and it makes them to depend much on backups if some failure occurs.

Moreover, due to this failure if both, i.e., backups and an operating databases are abused, it is catastrophic . The process of the land management and title recording system is being used for storing land title facts and running the transactions that are intertwined in land titles. As these records are sensitive, land management and title cataloguing processes should be strong in order to avoid falsification, making these records available all the time, and more importantly, these processes should be completed in a very short span of time . The functionality of blockchain also considered a digital register.

Blockchain-based land registry schemes use the same functionalities as sound land registry systems have. At the same time, blockchain knows that these assets are owned by that person and also at what time a particular transaction took place. The intuition behind building this was to make the process of land registration resilient and decrease the cases of fraud in the process. Using the system, validation of the lands is also possible as immutable transactions are being stored in the public ledger. So the Land Registration system using blockchain is a distributed system that will store all the transactions made during the process of land buying. This will also be helpful for buyers, sellers and government registrars to transfer the land ownership from seller to new buyer as well as it will accelerate the process of registration.

Literature survey

[1] This paper highlights issues related to manual land registrations processes such as transparency, centralization, authenticity, reliability, etc and proposes a better method to overcome these problems using Blockchain Technology for the people in Bangladesh.The introduction of Blockchain to the current land registration system will bring transparency in ownership evaluation and prevent illegal Transactions. **Drawbacks** 1. Lacks user verification, this can lead to multiple fake accounts 2. Uses land inspector as a middleman between buyer and seller which can be time consuming3. Lacks taxation info.

[2] This paper proposes a framework for secure data storage of land registration using Blockchain as it is decentralised, transparent and fast compared to the traditional software approach. For the validation of the proposed framework, it compares the proposed and existing methods.The aim of this paper is to develop a land registry system using Blockchain with a detailed and user-friendly feature with high reliability and good interface. It mainly focuses to cover the rules and procedures stated by the Indian government regarding the land registration. The proposed system aims at providing the exact details of land records and ownership. By knowing such details about a land, it can be sure about the exact details of the land and ownership **Drawbacks:** 1. Limits only to officials 2. Acts more like a database to store land and transaction information 3. Lacks user validation

[3] This paper discusses the transparent nature of the blockchain and how it will make it possible to trace the property's hands. The immutable,auditable and traceable features of blockchain entices government around the world to implement decentralised technology within the process of land Registration.

Result

Through blockchain the paper achieves

1. Uniqueness of documents
2. Encoding of documents
3. Distributed documents

Drawbacks

1. It is only to store the documents
2. Limits only to basic blockchain functionality (validation and storing documents)

[4] Title:A Blockchain Based Land Registration System Proposal for Turkey

In order to this the land registration process, which took place in eight steps, was analyzed, system participants were identified, and an application was developed using the selected smart contract infrastructure. In this paper, these steps of developing a Blockchain-based land registration System

Result

The application is similar to smart contract structure and uses external bank for transaction among the individuals, it ensures security and validity of every transactions.

Drawbacks

1. Uses external source for sending money between parties

[5] Title: Land Registration System Using Block-chain

In this paper, the usage of smart contracts to deal with the assets and transactions among the participants is discussed. It puts forward a blockchain based land registration system which provides a

transparent, secured and decentralized method for execution of transactions between the participants by employing the concept of hyper ledger.

Result

The system uses blockchain with the employment of hyperledger. This gives rise to a system that is more evolved and features all the activities like buying and selling in an efficient and reliable way. Blockchain technology made this system secure and faster

Drawbacks

1. Uses external source for sending money between parties
2. Acts more like a database to store land and transaction information.

[6] Title: A secured land registration framework on Blockchain

This paper proposes a secure record keeping mechanism that addresses these issues using a Blockchain based system which can create record for the physical assets into an immutable liquid Blockchain based token asset.

Result

This Blockchain based system proves to be apt for handling all the cases of land ownership transfer at the cost of the participating entities of each transaction in the network

Drawbacks

1. Lacks user verification
2. Lacks property verification

[7] Title: Registration of Land and Building Certificate Ownership using Blockchain Technology

In this paper, the proposed system is decentralized by involving several peers who run the blockchain network. The technology used to build the blockchain network is Hyperledger Fabric.

Result

The design of the land and building certificate ownership registration system using blockchain technology is generally divided into three main components, namely the frontend as the interface used by

the user, the backend as the frontend intermediary to perform operations on the blockchain network, and the blockchain network that is run by more than one peer on a network.

Drawbacks

1. Uses third Party for money transfer
2. Lacks user verification

[8] Title: Land Registry Management using Blockchain

Here the user who owns the land registers his land details and also enters market value of the land by providing all the necessary proofs. Lands coming under a particular village can be registered to the system only through the super admin who is assigned to that village.

Result

Blockchain is a technology which is currently in an evolving stage, use cases like Land Registrations are bothered as the deployment levels were increased moderately. The land registry using blockchain improves the accuracy of data.

Drawbacks

1. Lacks user verification
2. It's more like a database to store documents.

[9] Title: LandChain: A Blockchain Based Secured Land Registration System

In this paper, they propose a system based on blockchain that have the capability to dramatically reduce the time taken to sell or buy land property, prevent frauding, and provide a high level of security in

ownership. Introducing this system in land management will assist the government in tax collection, service delivery, and other areas of governance.

Result

Due to the immutability and high security features offered by blockchain technology, it is extremely beneficial in the Land Registration sector. It also eliminates intermediaries involved in the land registry operation

Drawbacks

1. Lacks user verification
2. It is not a smart contract

In the proposed papers, a common flaw can be observed where anyone can create an account and upload their documents for registration. This paves way for duplicate IDs and other discrepancies in the system. By using blockchain technology for registration of land, there can be a huge potential for turning it into a marketplace where users can buy and sell land. This feature has not been implemented in these papers and is listed in the future scope in some of these.

There is also a crucial part of asset management missing, which is the tax. These papers do not give much importance to the implementation an calculation of tax and other scenarios such as debts, but it is very important when buying and selling are taken into account.

System Design

In the system we propose we will create a platform in which the user will be given an option to register as – Buyer or seller. The user can later change their role if they want, by incurring a minimal fee. This fee is sought to cover the fees of the miner to validate the change. There will be a special user role called as Inspector which will be assigned to certain people by the Government. When a seller uploads the documents for the land to be sold, the Inspector gets notified. The inspector then verifies the details of the land and approves it to be listed on the platform. Once it is listed on the platform, buyers can view it and buy the property. When the buyer buys a land, a smart contract is executed such that the ownership details are changed and now the deed is in the name of the buyer. Another part of the smart contract is that, it

automatically sends a certain amount which contains the tax, GST and other legal fees to the government account.

System Components

User Interface (Front End):

This is where the interaction between the user and the proposed system is going to happen. This servers as an interface between the user and the underlying blockchain.This component has mainly 4 users

- Buyer
- Seller
- Inspector
- Higher official (Government)

This component is going to be developed using React JS

Crypto wallet

The wallet chosen for this project is Meta mask however it is possible to use other crypto wallets as well It lets user to transfer money to other user via Ethereum BlockChain It lets user to maintain crypto wallet address and enables frontend to detect the crypto wallet address

Smart contract

The program is going to be implemented using solidity which enables the developer to create smart contracts on the ethereum blockchain Ethereum blockchain provides the essential framework for this project development such as money transfer etc Ethereum Network The application is going to be implemented on one of Ethereum test network (Rinkeby-Network) which lets the user to check the overall application This

network also provides essential blockchain miners which can be used to verify the authenticity of a particular transaction

System Architecture

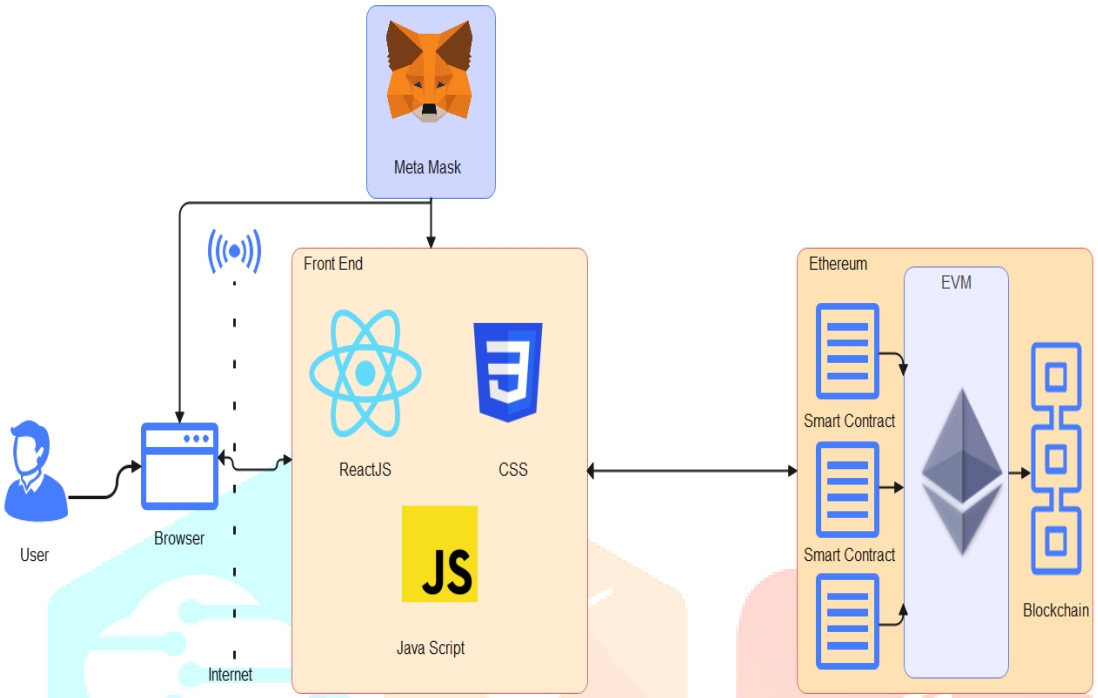

Fig 1:System Architecture

Conclusion

A land registry combined with blockchain technology has the potential to truly revolutionise governance. After identifying the necessary components, we developed a framework based on fundamental notions that have been employed in both classical and new record keeping systems. Land record storage, like today, has a centralised origin. As a result, this centralised storage can be hacked, forged, or misappropriated, while in our framework, we used entirely decentralised blockchain-based solutions. We have also highlighted privacy as a fair consideration. Some of the nodes in the framework are required as part of the decentralised system's characteristics. Only those who are permitted to interact, such as a block generator or a government official or officer, can interact in this system. In terms of methodology, we

gathered primary data directly from the stakeholders, including government offices and officers, village officers, and the general public who use this system.

References

1. Blockchain based land registry system using Ethereum Blockchain Journal of Xi'an University of Architecture & Technology – Rijhwan Khan, Shadab Ansari, Sneha Jain,
Saksham Sachdeva

2. Blockchain-Based Land Registration System: A Conceptual Framework Hindawi - Applied Iqbal, Ahmad Alturki, Saddam Hussain,Amerah Alabrah ,and Syed Sajid Ullah

3. Land Registry Using Blockchain - A Survey of existing systems and proposing a feasible solution - IEEE Published in: 2019 5th International Conference On Computing, Communication, Control And Automation (ICCUBEA) Disha Shinde; Snehal Padekar; Siddharth Raut; Abdul Wasay; S. S. Sambhare