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Securing Land Registration Using Blockchain

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ABSTRACT: Real estate management is an inefficient and scary system in India and many other parts of the world. Improving a secure system that not only speeds up but also makes the land registration system more efficient and secure will be completed successfully. Blockchain technology, which has evolved over the last 9-11 years, is one of the most recent and secure technologies on the horizon. Blockchain technology has enormous potential for use in global industry. This paper introduces a powerful blockchain management system for property management that will provide transparency, efficiency, and security.

KEYWORDS: Blockchain, Proof of Work, Cryptograph

I. INTRODUCTION

Historically, we have relied on reputable foreign companies to register and transfer land and buildings. Several issues have been resolved as a result of the model. Documents are not always computer-generated, which makes them difficult to access, difficult to update, and sometimes lost in time.

Blockchain technology is a new way to keep digital records. Blockchain aims to eradicate corruption permanently. Fraudulent records by forcing the expansion of space. Sharing means that records are kept on the blockchain for no reason.

Keywords: Blockchain, Smart Contracts, Real Estate Management, Ethereum Virtual Machine, Transparent Contracting Process

II. LITERATURE SURVEY

In India, as in many other countries throughout the world, managing real estate is an extremely expensive and risky business. The buyer must first pay the seller under the existing system before paying the government the stamp duty. This procedure can be carried out both offline and online. Then they both need to schedule a meeting with a local individual. They have to show up with all of their paperwork and proof of payment to the sub-registry office on a specific day and time. It takes a very long time to verify their paperwork, and there are several ways for thieves to profit.

In order to update the owner information in the municipal records, the customer must then visit the municipal offices. The lack of real data records for real estate buyers and the lack of transparency in the system have led to an increase in the number of fraud cases. All of this is due to the lack of public access to data, which also prevents us from knowing how many properties an individual owns because records are still being distributed. The government has intervened in this situation.

However, the issue of a lack of current data in the public domain has existed in the past and must still be solved. This can be regarded as a system limitation or flaw. This lengthy process is carried out by middleclass and outside parties who charge unauthorised fees for their services. Many innocent people who are unaware of what is happening are robbed by them. In the quick-paced digital era, this process takes more than 10 to 15 days and needs to be finished as soon as feasible. The government is currently working to digital records and make them accessible online. However, the main webpage contains mistakes. Data security and fraudulent data modifications are two concerns that must be addressed because they are both very concerning. The loss of records in any crisis situation, whether they are in conventional offices or in the central system, is another problem. In our digital age, where everything can be done automatically with the aid of technology, this program is incredibly expensive and employs a large number of superfluous employees. In addition to all of these problems, there is additional problem with the passing of property through inheritance or inheritance. To relocate the location in this situation, one must visit the sub-registry office of the death certificate and follow a number of steps, which takes time.

III. THEORY AND FORMULA

Current Work:

In a paper published (2020) entitled Real Estate Management System based on Blockchain A. Mittal: You have proposed a centralized system with a distributed blockchain network to store secure and consistent data. For detailed rental property details we can measure the existing system. The transfer of the property will be cryptographically encrypted with a private key and will be a secure blockchain to unaltered data records.

Blockchain technology allows you to achieve the goal of security and data compatibility. The limit of this system was the centralization of the entire network which could lead to failure if the central node failed. The network may be affected if the privacy of one node receives bristles.

Proposed system:

In terms of speed and security, blockchain systems linked to the real estate industry have provided a new solution that can significantly reduce technological fraud.

This new technology undermines data sharing and reduces the time between signing an initial real estate agreement and closing (i.e. a smart contract).

In each transaction, the system adheres strictly to the Mongrel Blockchain segments as a means of a real deal.

Only blockchain members will be able to access the data stored in the system. Invisible members will only be able to view trading packages at the cost of blockchain registration, ensuring that the blockchain does not interact with unauthorized people in restricted areas.

The accreditation process redefines the requirements of a trusted data center. The basic concept of access control.

Members can only join Blockchain and access trading packages once their information has been verified. We also focused on building 4 blocks to improve the security of blockchain technology, so that any broken block will automatically detect the error and get real legitimate work after performing new tasks.

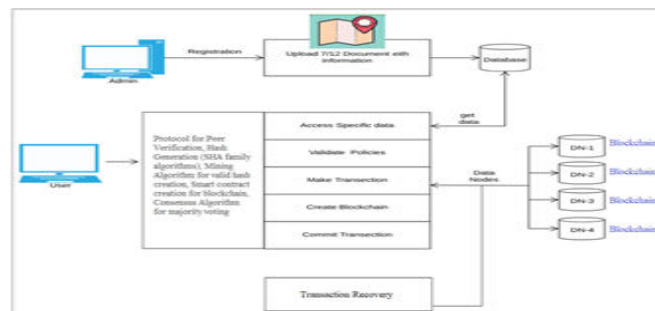


Fig. System Architecture

We create multiple global transaction and its data and store all data in multiple data nodes. Each node can hold a specific block of information for each task. The same block of information has been replaced by all nodes, and produces a valid information block chain.

The operation must be of any DDL type, DML transaction query, and the system must retrieve data from all data nodes. If blockchain is invalid during data server verification, the system will automatically reinstall the entire blockchain using most of the servers.

We will deal with termination of the runtime server and restore you using your own blockchain.

The system will provide authentication for each transaction, across all servers.

We've built a multi-world data transaction database and stored it in multiple data centers. Each node will keep a unique block of activity.

The same block replaces all nodes, leading to a correct block series. The system is capable of performing operations and obtaining data from all data nodes. This can be any purchase question for DDL, DML, or DCL. If a block chain is found to be invalid during data server verification, the device will automatically restore the entire blockchain using multiple servers.

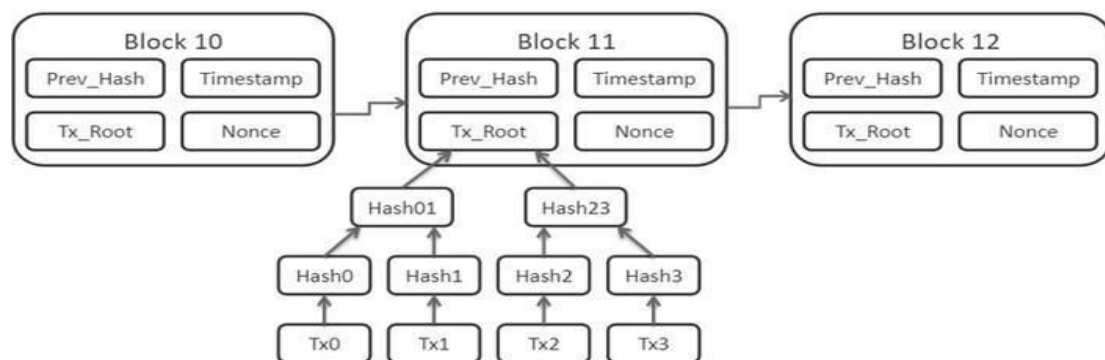
IV. EXPERIMENTAL SETUP

Algorithms

1. Smart Contracts Algorithm:

Smart contracts are simply programs that work where certain conditions are met and stored in a blockchain. They are usually used to automatically execute a contract so that all participants can be sure of the immediate result, without the mediator's involvement or loss of time. They can also change the function automatically by opening the next action when certain conditions are encountered.

Wise contracts work by making simple statements "when / when ... then ..." written in a blockchain code. When predetermined conditions are met and verified, the computer network performs actions. These actions may involve transferring funds to the appropriate companies, registering a vehicle, sending notices, or issuing tickets. When the task is complete, the blockchain is updated. This means that the action cannot be changed, and the results are only visible to authorized groups.



2. Algorithm to sell and split land

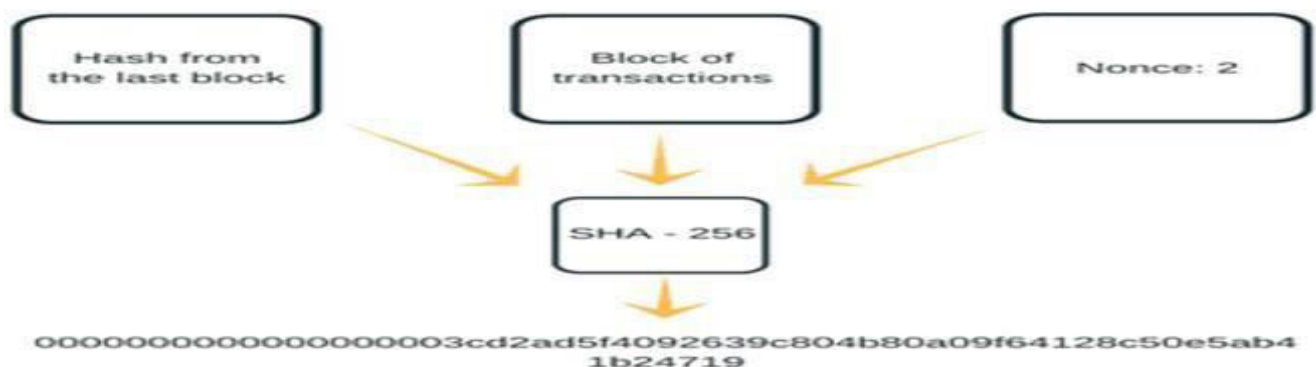
Transfers and subdivisions are done by signing the land by the sender and distributing it to all blocks using the Edward-curve Digital Signature algorithm. To ensure that the work is signed by the owner himself, the public key is distributed across the network that verifies its authenticity.

In order to divide the land, the location is assessed by the user involved. If available, based on PoW, a new block will be created for work by dragging the required land on the old Land variable.

3. Algorithm for Proof of Work

The second algorithm indicates the PoW used in the land registry system. It takes a block and counts its hash until it fits a particular situation. Here the condition described earlier is that the hash should start with three zeros. PoW is like a math puzzle trying to solve a situation based on a factor. A nonce value is a random value that will change constantly. The more complex the aspect, the more secure the network.

The algorithm checks if the hash block has a similarity. If not, the value of the nonce will be added to each multiplication and the value of the calculated nonce will be returned.



4. Algorithm to add new peer

The third algorithm is concerned with adding peers and creating relationships. The network will make an effort to bind to a specific port mode. The connection will be added to the peer list if it is reliable. False communications will be reported if not. A message that instructs each block to obtain a copy of the most recent series is processed by two additional algorithms.

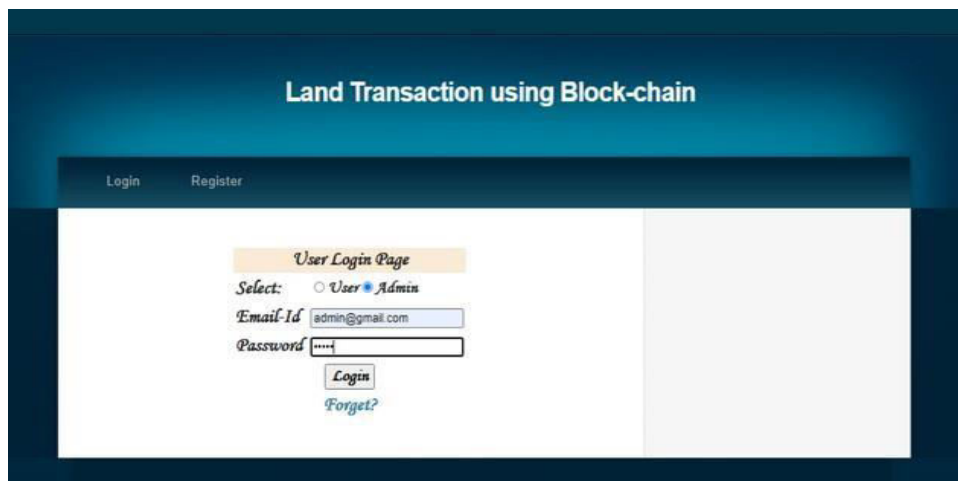
5. Blockchain

Blockchain is a distributed led system that records all previous transactions via a peer-to-peer network. The use of a blockchain using a global register helps eliminate fraudulent activity, making the system more secure.

The method is more secure thanks to the adoption of a blockchain that uses a global record to assist stop fraud. Using a blockchain to create a land register helps to prevent unlawful land transactions because that is challenging to replicate one.

Contracts and patents are kept separate from countries.

IV. RESULT DISCUSSION

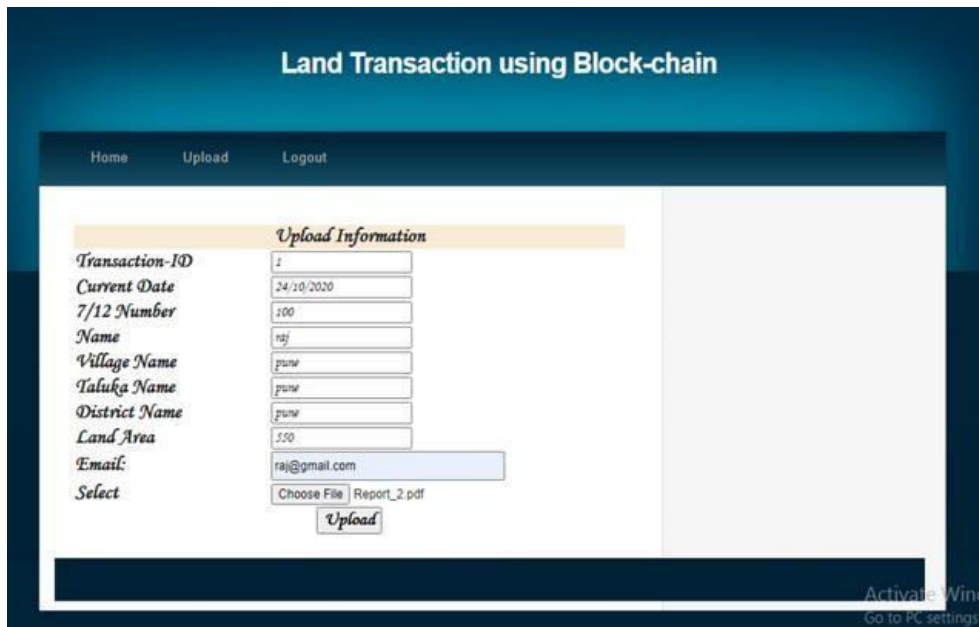


This page user can log as admin or login as normal user. Login purpose MySQL database used and for user land information blockchain are used.



T-ID	7/12_Number	Owner_Name	Village_name	Taluka_name	Dist_name	Land_area	View	Transaction
1	100	abc	pune	pune	pune	410.0	View	Transaction

Load transaction page: This page you can see all transaction which is happen in blockchain you can view id, number, all owner, area



Land Transaction using Block-chain

Home Upload Logout

Upload Information

Transaction-ID:

Current Date:

7/12 Number:

Name:

Village Name:

Taluka Name:

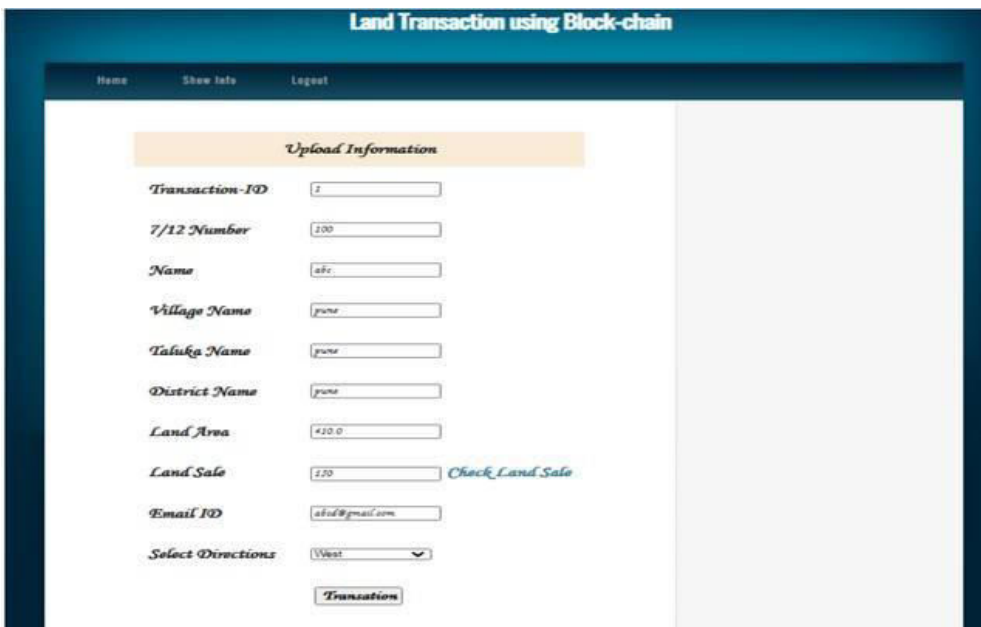
District Name:

Land Area:

Email:

Select:

This page you can upload land information in the blockchain there several fields are Given date, 7/12, Name, Village Name, Area. This page for land owner.



Land Transaction using Block-chain

Home Show Info Logout

Upload Information

Transaction-ID:

7/12 Number:

Name:

Village Name:

Taluka Name:

District Name:

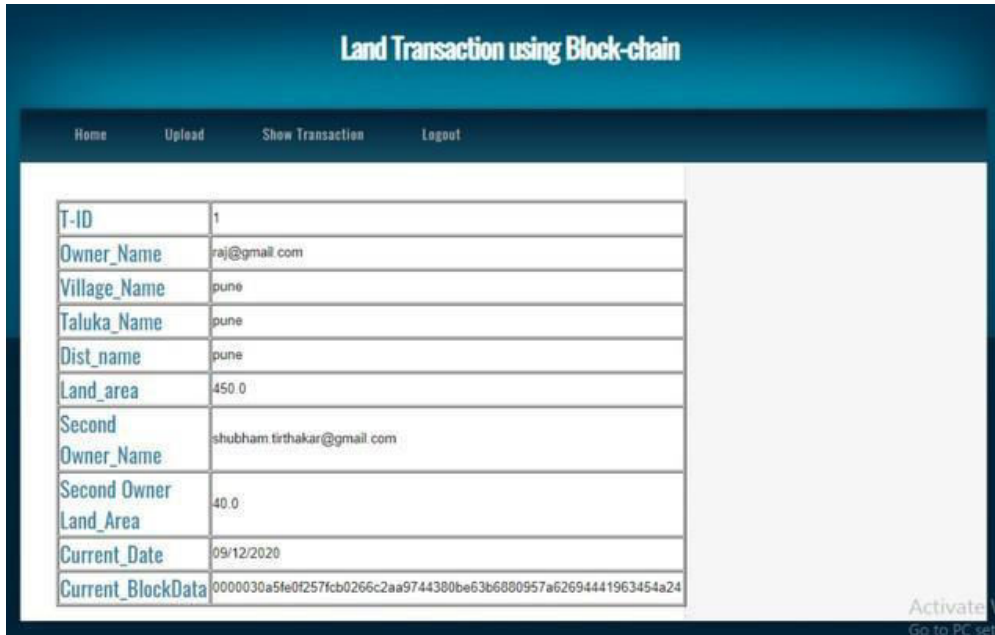
Land Area:

Land Sale: [Check Land Sale](#)

Email ID:

Select Directions:

User transaction page this page for normal user there several fields are given Like transaction id, name, 7/12, Village name, area.



The screenshot shows a web application titled "Land Transaction using Block-chain". It has a navigation bar with "Home", "Upload", "Show Transaction", and "Logout". The main content area displays a form with the following fields:

T-ID	1
Owner_Name	raj@gmail.com
Village_Name	pune
Taluka_Name	pune
Dist_name	pune
Land_area	450.0
Second Owner_Name	shubham.tirthakar@gmail.com
Second Owner Land_Area	40.0
Current_Date	09/12/2020
Current_BlockData	0000030a5fe0f257fcb0266c2aa9744380be63b6880957a62694441963454a24

At the bottom right, there is a button labeled "Activate V" and a link "Go to Pc get".

This Page available for admin where you can view single block information in blockchain In this you can view block id, owner name, village name.

Village Sample Seven
Official records
Maharashtra Land Revenue Officer Record

Original Owner Name:	abc	Land Area Total:	450
Village Name:	pune	Taluka:	pune
District:	pune	7/12 Number:	100
Date:	08/03/2021		

First Owner Name	Area Sale:Directions Data	Current Date
shubham	150.0:West	08/03/2021

This final report which is generated by system where you can view some Area details. You can use this as proof of work.

V. CONCLUSION

The blockchain-based system demonstrates its suitability for handling all cases of land ownership transfer at the value of the participating entities of every transaction within the network because, by addressing the system's current shortcomings, it has the potential to promote accountability, competence, and profitability within the crucial real estate sector.



Traditional land ownership transfers require a significant investment of both time and money. Many A corrupt system can even produce cases of fraud and duplicate papers for one piece of land. The Blockchain idea has been implemented into the suggested solution to address such circumstances and issues.

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