LAND REGISTRATION USING BLOCKCHAIN

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Abstract - *Blockchain enables supporting technologies to overcome the obstacles inherent within the real estate investment market. This system will solve the problems faced by all the three parties during the land registration and will also remove the intermediaries like property dealers These technologies include smart contracts, immutable record management and time-stamped storage. We utilize these key properties of blockchain technology in our work by proposing a system that has the power to record land transactions during a private blockchain. The immutability of the blockchain ledger and transactions can provide a secure space for the important estate business. Blockchain technology can also assist the authentication process by hastening background checks. Personal digital keys are provided to parties that are involved during a contract, thus minimizing the danger of fraud.*

Key Words: Blockchain, Hyperledger, hash function, block, Distributed.

1. INTRODUCTION

Blockchain is an emerging technology that has changed many aspects of modern finance; however, its use cases are not limited to financial systems. In the past, blockchains have been used in healthcare, the Internet of Things, smart cities and many other domains. In addition, blockchains are likely to transform foundations of society by overhauling outdated mechanisms with updated infrastructures befitting a virtualized world. Blockchains can offer smart contracts that assist in removal of any third party involvement in real estate dealings. We utilize this key property of blockchain technology in our research by proposing a system that will record real estate transactions on a private blockchain, with the support of smart contracts. Furthermore, the immutability of the blockchain ledger can provide a safe space for the real estate business. Blockchain can also help in the authentication process by speeding up background checks and providing personal digital keys to concerned parties, thereby reducing the risk of fraud. A blockchain is a network that shares all data among its peers, storing this data chronologically in blocks. This means that once something occurs in a blockchain network (for example A transaction or a data exchange),its shared with all members of the network and everyone has a record of this action on

their own devices. These blocks of data are stored in a chain, and once data is added to the chain, it can't be changed. The main objective of this work is to identify how blockchain technology and the real estate industry can interact to find a mechanism which records all important transactions. The transparent nature of the blockchain can make it possible to trace how property changes hands. Block chain is immutable, auditable and traceable features are enticing governments around the world to implement the decentralized technology in the land registry process. Efficient property markets need land registries that are secure, transparent, easy to access and hard to dispute and blockchain is well suited to fulfilling all of these functions.

1.1 Challenges in Existing System

Middlemen and brokers are an integral a part of every business as they know more about market offerings. Buyers and Sellers usually like better to call them to create a full support team. As a result, buyers acquire a deeper understanding of the market and identify lower or higher prices for the transaction. Middlemen gather required information from traders, identify errors, interpret and facilitate the implementation of land transactions. Since real estate is big business, It involves a huge number of players, including brokers, lenders, intermediaries and local governments. It leads to additional costs, making the entire ecosystem expensive.

There has been several cases of imposters posing because the seller of a property. If an imposter successfully pretends as a landowner, they may receive the complete amount of after completion and escape with the funds. In many of the cases, both sellers and buyers were unaware of the fraud until discovered by the land registry as a part of a check exercise. Currently, updates to the land registry records are made manually and the accuracy of those changes depends on a specific individual.

1.2 Benifits of using blockchain

a)Public verification

Any user can check if the system is working correctly. Each transaction is confirmed by the verifies who are peer users of a blockchain.

b) Bringing Transperancy

All updates to the data and transactions must be verified by other network users. While not every participant has access to data a replica is stored on each device of the network in the least times.

c)Privacy

Despite blockchain being a decentralized system with a high level of transperancy, all transactions and interactions between network members are anonymous.

d)Reducing Fraud Cases

There are several cases of impersonators posing because the seller of a property. If an impersonator successfully pretends as a landowner they will receive the complete amount of after completion and escape with the funds. In many of the cases, both sellers and buyers were unaware of the fraud until discovered by the land registry as a part of a check exercise.

2. Methodology

The Proposed system uses decentralized and distributed network where the real estate data is stored in form of blocks. These blocks are connected to one another forming chain of records. We implement this system using Hyperledger fabric network because this is a type of system that belongs to organization so that data should be in private mode. There is network such as Ethereum, but they are used to implement systems which are related to public data. Land registration systems record property rights and provide evidence in relation to property title holders. In that stakeholder involved Buyer, Seller and Land Inspector. Buyer will buy land and uses platform to search property, request access and interact with seller and get land title ownership. second is seller a person who sells the land and uses the platform to manage properties and transfer land title to buyers. and third one is land inspector person who uses the platform to manage property requests, view reports, confirm and initiate the transfer.

A. Hyperledger

The Hyperledger is huge exploratory improvement regarding open and standard blockchain innovation. With the assistance of the Linux Foundation, Hyperledger has pulled within the cooperation of various specialized and money related organizations. In March 2016, under the sponsorship of the Linux Foundation, the Hyperledger venture formally joined the ASCII text file contributed by individuals from Block stream, Digital Asset Holdings and IBM into another code base to border another undertaking level blockchain base. This code accumulation is named Hyperledger Fabric. This is expected to exchange, keep up, and recover data on explicit resources inside an agreement organize. Hyperledger allows the usage of plugin modules, which may additionally advance the use of Smart Contracts for various business situations. The blockchain in Hyperledger Fabric are often comprehended within the model of state-machine replication, where an administration keeps up some state and customers conjure tasks that change the state and produce yields.

B. Block

A block is that the one which contains data of the transaction and prepared to hitch the network. A block contains information like block id, current hash, previous block hash, message, date etc. depending upon the appliance. The initial block in a blockchain is known as Genesis block where the previous hash value of this block will be 0 since it doesn't have any previous blocks. The hash value of this block will be previous hash value of the next block and it continuous. Blockchain : A chain formed by linkage of the blocks based upon their current and previous hash value.

Table -1: Block and its content
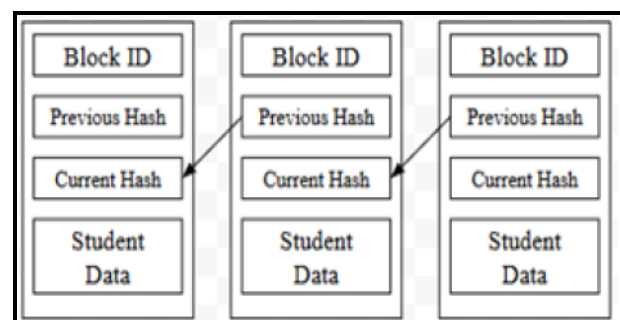
C. Hash Function

SHA – 256 algorithm is employed in blockchain to urge constant hash of 256 bits whenever Blockchain keeps the information permanently in uniformly sized blocks, where each block stores the hashed information from previous block to provide cryptographic security. The blockchain hashing uses SHA256 hashing algorithm, which

may be a one-way hash function. The hashed information is that the data and a digital signature from the previous block. The hashes of previous blocks that return to the very first block produced within the blockchain are referred to as the genesis block.

D. Data store

The ledger is the data store in Blockchain, in which a set of transactions from the unconfirmed pool are bound in block using the consensus algorithm, and the generated block is chained to the chain of previous blocks. Each block includes hash output of the previous block in the blockchain.

3. CONCLUSIONS

Blockchain is Distributed Ledger Technology (DLT) that provides trustless decentralized data management in a transparent, auditable and immutable manner. Currently, there are many problems related to the management of land systems and therefore the most vital among them is fraud, a lengthy administrative processes and access/verification problems. In this study, we propose a system that securely stores transactions associated with the ownership and transfer of properties on a personal blockchain. The study shows that there is huge potential in the use of Blockchain for government services since it can deliver government services in a distributed and voluntary way

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REFERENCES

[1] A. Tapscott and T. Don, "How blockchain is changing finance," Harvard Business Review, vol. 1, no. 9, pp. 2–5, 2017.

[2] Q. I. Xia, E. B. Sifah, K. O. Asamoah, J. Gao, X. Du et al., "MeDShare: Trust-less medical data sharing among cloud service providers via blockchain," IEEE Access, vol. 5, pp. 14757–14767, 2017.

[3] O. Novo, "Blockchain meets IoT: An Architecture for scalable access management in IoT," IEEE Internet of Things Journal, vol. 5, no. 2, pp. 1184–1195, 2018.

[4] J. Sun, Y. Yan and K. Z. Zhang, "Blockchain-based sharing services: What blockchain technology can contribute

to smart cities," Financial Innovation, vol. 2, no. 1, pp. 1–9, 2016.

[5] S. Ølnes and A. Jansen, "Blockchain technology as support infrastructure in e-government," in Lecture Notes in Computer Science, vol. 10428. Cham: Springer, 2017.