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LBA using Blockchain

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ABSTRACT

As we all know about recent demolition happened in Kerala – The Marad flat case and also the Muthoot resort case. Buildings that are constructed by violating the conservation of paddy land and wetland act are demolished by controlled explosion. The residents of the building are unaware of this fact that those buildings are constructed by violating the rule. There is no means to find out the properties of the land whether it is legal or illegal. And also, there is a chance of getting cheated by the mediator. In order to avoid this scenario, we are going to introduce THE SECURE LANDBANK ANALYSIS using Blockchain. This website consists of information regarding land details like type of land, survey number, Ownership, etc. And also, provision for showing the property to sell. By using Blockchain we are securing the data regarding it because nowadays all this information is stored in pen and paper format so there is no assurance for the data, it can be edited by officials connected to the government bodies. So, in order to avoid this, we are keeping the data as separate blocks and placing each governing officials like Village Officer, Tahsildar, District Collector, Revenue Secretary, Minister and so on as separate nodes. If any updating or editing is made in the data it will be informed by all other nodes, and thereby we can cross-check whether it is legal or illegal. Thus, we can avoid corruption happening in various revenue offices to an extent.

KEYWORDS: *Blockchain; Land registry; Smart Contract; Ethereum;*

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1. INTRODUCTION

Nowadays all the documents in the government offices are written in pen and paper format. It is the practice that has been following years ago. There is no validity for the data stored in it. Because there is no guarantee for the data stored there as it is written in the pen and paper format when it is damaged we can't restore it. And it can be edited by anyone. Many land mediators are cheating people by showing illegal properties or properties that are not ready to sell. Many people are losing their money just because of this fraud. The main problem is that as it is written in pen and paper format, it can be edited by anyone. The format of land can be changed by any person inside the office for any purpose. This may lead to big problems as we have seen in Maradu flat case. By knowingly or unknowingly many other people become a part of this. When any of the officials changed the data or information regarding it the other people don't know about it. No other can cross check or reverify whether any change has happened to it. It can't be found out by anyone. If we want to find any particular data it will consume much time to find out that particular information. The officials have to go through many register books to pick this particular one. In case it is lost we don't have any recovery mechanism. Nowadays we know that there is a great violation of the conservation paddy field and wetland act. As a part of this, huge buildings are constructed by filling the paddy fields, wetlands and water bodies. Many people are selling their property by converting the paddy fields wetlands all these kinds of places into a human habitable format. People unknowingly buy such property and may get into trouble after some time.

The manual system poses a number of challenges which include: 1. It wastes a lot of time 2. Loss of data 3. Nobody can't retrieve data 4. It is not easy to find the required data from the existing data set 5. A lot of paperwork is involved.6. Common people can't easily access the information[6]. Here we are introducing THE SECURE LANDBANK ANALYZER using Blockchain. This is a website consisting of information regarding the land like the type of land, survey number, Ownership, etc. And also, a provision for showing the property to sell. By using Blockchain we are securing the data regarding the land. Because nowadays all this information is stored in a pen and paper format. So there is no assurance for the data, it can be edited by any officials connected to the government bodies. So in order to avoid this, we are keeping the data as separate blocks and placing each governing officials like Village Officer, Tahsildar, District Collector, Revenue Secretary, Minister and so on. If any updates or editing is made in the data it will be informed by all other nodes, and thereby we can cross-check whether it is legal or illegal. Thus, we can avoid corruption happening in various revenue offices to an extent. LBA helps to analyze the data set, it also helps the common people to access the required data on fingertips. It reduces corruption in the revenue sector. It provides a secure format of data, by storing it for future use. The Land Bank Analyzer has been developed with the aim of improving services delivered to its users.

2. OVERVIEW OF THE BASICS

2.1. Blockchain

It is a structure that stores transactional records, also known as the block, of the public in several databases, known as the "chain", in a network connected through peer-to-peer nodes. Typically, this storage is referred to as a 'digital ledger'.The blockchain is a distributed database of records of all transactions or digital events that have been executed and shared among participating parties. Each transaction is verified by the majority of participants of the system[2]. It contains every single record of each transaction.There is no Central Server or System which keeps the data of blockchain. The data is distributed over Millions of Computers around the world which are connected with the blockchain. This system allows the Notarization of Data as it is present on every Node and is publicly verifiable.

A Blockchain is a kind of journal or spreadsheet containing data about exchanges. Every exchange produces a hash. On the off chance that an exchange is affirmed by a greater part of d cash. the hubs, at that point it is composed into a square. Each square alludes to the past square and together make the Blockchain It is notable that blockchain innovation can be utilized to manufacture cryptographic forms of money; Bitcoin is a working case of this. Blockchain innovation empowers electronic exchanges that are versatile in any event, when a lot of cash is in question[12]. Blockchain owes its name to how it functions and the way in which it stores information, in particular that the data is bundled into squares, which connect to frame a chain with different squares of comparable data. It is this demonstration of connecting obstructs into a chain that makes the data put away on a blockchain so reliable. Blockchain is the Future. Digital currencies of different types utilize circulated record innovation known as blockchain[4]. Blockchains go about as decentralized frameworks for recording and reporting exchanges that occur including a specific computerize.

Three types of blockchain are there[11]:

1. Public blockchain
2. Private blockchain
3. Hybrid blockchain

2.1.1. Public Blockchain

These are the blockchains which run between two parties over a large distributed database with the help of cryptocurrencies.

2.1.2. Private Blockchain

The blockchain which uses distributed ledger technology with a few trusted members over a small network to transfer very confidential information.

2.1.3. Hybrid Blockchain

While using a hybrid blockchain, only a few users are a part of blockchain.

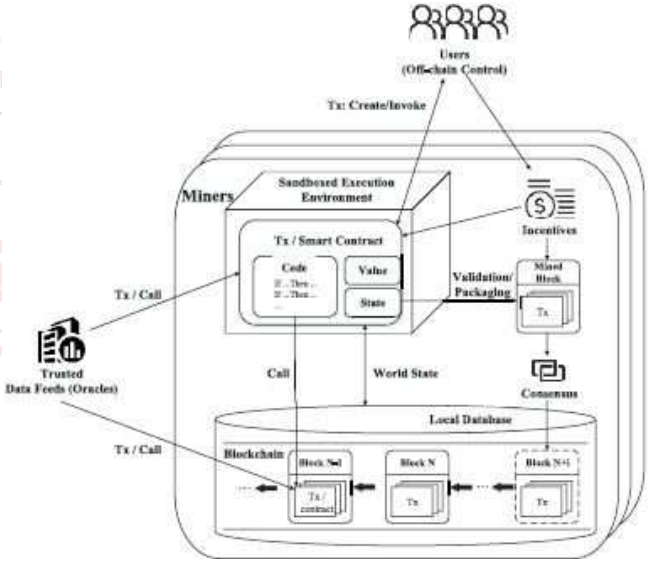
2.2. Smart Contract

In this section, we will give an overview of smart contracts. First, we make a brief introduction to blockchain, and then present the operational mechanism of smart contracts based on mainstream platforms Ethereum We also propose a basic research framework of smart contracts [1].

2.2.1. Brief Introduction To Blockchain

The operational system of brilliant agreements appears in Fig. 1. Keen agreements for the most part have two qualities: 1) esteem furthermore, 2) state. The activating conditions and the comparing reaction activities of the agreement terms are preset utilizing activating condition explanations, for example, "Assuming Then" proclamations. Keen agreements are settled upon and marked by all gatherings furthermore, submitted in exchanges to the blockchain organization, at that point exchanges are communicated by means of the P2P arrangement, confirmed by the excavators and put away in the particular square of the blockchain. The makers of the agreements get the returned parameters (e.g., contract address), at that point clients can conjure an agreement by sending an exchange. Excavators are roused by the framework's motivation system and will contribute their processing assets to check the exchange. All the more exceptionally, after the excavators get the agreement creation or summoning exchange, they make contract or execute contract code in their nearby Sandboxed Execution Environment [(SEE), e.g., EVM]. In view of the contribution of believed information takes care of (otherwise called, Oracles) and the framework express, the agreement decides if the present situation meets the activating conditions. On the off chance that the conditions are met, the reaction activities are carefully executed. After an exchange is approved, it is bundled into another square. The new square is affixed into the blockchain once the entire system comes toan agreement.

Fig.1. Operational mechanism of smart contract



Next, we take Ethereum Fabric as models to present the operational procedure of shrewd agreements.

2.2.2. Ethereum

Ethereum is as of now the most generally utilized shrewd agreements improvement stage that can be seen as an exchange based state machine: it starts with a beginning states and gradually executes exchanges to transform it into some last states. It is the last state which we acknowledge as the accepted "rendition" in the realm of Ethereum. Not at all like the UTXO model of Bitcoin, Ethereum presents the idea of accounts. There are two kinds of records: 1) remotely possessed accounts (EOAs) and 2) contract accounts[9]. The thing that matters is that the previous is constrained by private keys without code related with them, while the last is

constrained by their agreement code with related code. Clients can just start an exchange through an EOA. The exchange can incorporate paired information (payload) and Ether. On the off chance that the beneficiary of an exchange is the zero-account Ø, a keen contract is made. Or then again if the beneficiary is an agreement account, the record will be actuated and its related code is executed in the nearby EVM (the payload is given as information)[7]. The exchange is then communicated to the blockchain arrange where excavators will check it, as appeared in Fig. 2. So as to keep away from issues of system misuse and to evade the unavoidable issues coming from Turing culmination, every programmable calculation (e.g., making contracts, making message calls, using and getting to account stockpiling, what's more, executing tasks in the virtual machine) in Ethereum is liable to expenses—a prize for diggers who contribute their processing assets. The unit used to gauge the expenses required for the calculations is called gas.

2.2.3. Transactions

Blockchain is nothing but an endless inundation of blocks which are knit together like a chain, and that too in a specific order of cryptography. When it comes to storing transactional information in a safe manner, there is hardly anything that pops up in our thought terrains other than blockchain. Thanks to the security, decentralization, and transparency blockchain tag along with themselves, we can envisage that the new dawn of a secure organizational environment is not far from reach. Whenever a blockchain is introduced to a new blockchain transaction or any new block is to be added to the blockchain, in general, numerous nodes within the same blockchain implementation are required to execute algorithms to evaluate, verify and process the history of the blockchain block. If most of the nodes authenticate the history and signature of the block, the new block of blockchain transaction is accepted into the ledger and the new block containing data is added to the blockchain[3]. If a consensus is not achieved, the block is denied being added to the blockchain. This distributed consensus model allows blockchains to function as a distributed ledger without requiring any central or unifying authority to validate the blockchain transactions[8]. Thus, the blockchain transaction is extremely secure. The transaction is broadcast to all participating computers in the specific blockchain network. Every computer in the network validates the transaction against some validation rules set by the creators of the specific blockchain network. Validated transactions are stored into a block and are dealt with a lock (hash).

3. INTO THE SYSTEM

3.1. Existing System

In the normal case, we don't have any method to check the nature of the land that we are going to purchase. To know about the required data we have to go to the Government offices and we have to wait for a long time. All the details in the village offices are documented using pen and paper format. So there is a chance of losing the data. Retrieving the land details is also very difficult. Any staff in the village office can update the land details. So any malpractices may happen in the village or Government offices.

Nowadays, village offices are using ReLIS software which is used for storing the data. But there is no option for the user to search the land details. And also any alterations to the land details can be made by staff in village offices. Thus illegal activities may happen through this system.

3.2. Proposed System

We are introducing THE SECURE LANDBANK ANALYSIS using Blockchain. This is a website consisting of information regarding the land like type of land, survey number, Ownership etc. And also, a provision for showing the property to sell. By using blockchain we are securing the data regarding the land. Because nowadays all these information is stored in pen and paper format. So there is no assurance for the data, it can be edited by any of cials connected to the government bodies. So in order to avoid this, we are keeping the data as separate blocks and placing each governing official's like Village officer, Tahsildar, District Collector, Revenue Secretary, Minister and soon. If any updates or editing is made in the data it will be informed by all other nodes, and thereby we can cross check whether it is legal or illegal. Thus, we can avoid corruption happening in various revenue offices to a extend. Land Bank Analyzer is separated into a number of modules. Each module has an interface, Within which a number of functions are enabled. The system has access rights to control access to the modules. The main modules in the land bank analyzer are:

1. Admin
2. User
3. Land Registration
4. Search
5. Intend to sale

3.2.1. Admin Module

This module is controlled by the village of□cer. There will be a village ID and password For each village. All the updates are done by village officers. And also the land registration process is controlled by village officers.

3.2.2. User Module

In this section, we can see two aspects. First one is that a user can search the details of a property without logging into the system. Second one is the advanced version in which the user has to create their own account through which they can perform tasks like searching, marking their property for sale. The user can check the details regarding their properties through this account.

3.2.3. Land Registration Module

This task is carried out by the village officer in which details regarding a newly purchased land is changed from its old status. All the data in the logbook is converted into a soft copy.

3.2.4. Search Module

In this we can find out the information regarding a property by just entering a single information about the place.

3.2.5. Intend for sale Module

This facility is exclusively for the user who logged in to our system. In this the user can mark their property which is going to be sold.

4. FUTURE TRENDS

Blockchain is probably going to be received by nations with no, or constrained, incorporated land recording hoping to draw in the outer venture by making property proprietorship increasingly solid and secure[10]. Be that as

it may, in any event, for those nations with settled land libraries, the potential cost reserve funds and improved speed of exchange is probably going to be sufficient to connect with the important specialists. As indicated by an ongoing overview done by IBM, nine of every ten governments state they intend to put resources into blockchain innovation to oversee money related exchanges, resources and agreements by one year from now. With the advantages on offer, it is difficult to look past blockchain as the eventual fate of recording land exchanges. In any case, it is still prone to be various years before blockchain is broadly embraced via land vaults given the different complexities which should be survived. The inquiry, accordingly, is by all accounts not if, yet when. Transaction Speeds With increased usage of blockchain and escalation of data uploads, transaction speeds must increase without compromising data security. Identity solutions development of legal and accepted digital identity solutions are needed as one of the first steps for individuals to participate in blockchain based transactions[5].

Interoperability blockchains, software programs and related technologies do not interconnect or communicate. Interoperability needs to be built into systems to avoid siloed operations and to increase system efficiencies. Education the lack of global education and outreach to government institutions impedes blockchain understanding and potential adoption. Establish official registries and cadasters in developing countries especially, an acceptable, official cadaster and land registry needs to be established-whether it's paper, digital or blockchain. Competition for land registry contracts there are numerous established and startup blockchain companies competing for land registry contracts without a uniform product or approach.

5. CONCLUSION

With the increasing popularization and depend applications of blockchain technology, emerging smart contracts have become a hot research topic in both academic and industrial communities. The decentralization, enforceability, and verifiability characteristics of smart contracts enable contract terms to be executed between untrusted parties without the involvement of a trusted authority or a central server. Thus, smart contracts are expected to revolutionize many traditional industries, such as financial, management, land registry etc. The existing system is an editable data set, where the data is insecure which leads to many malpractices. As we all know about the recent case that happened in Kerala Maradu flat case and muthoot resort case. In this system we are trying to avoid the corruption in this sector and providing security to the land detail.

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