International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 04 | April - 2023 Impact Factor: 8.176 ISSN: 2582-3930

E-GOVERNANCE SYSTEM FOR PROPERTY REGISTRATION AND TAXATION USING BLOCKCHAIN

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Abstract - In the traditional Land Registration system practiced in India, there exists a middle man (broker) who establishes a contact between the buyer and seller, for instance if an individual wants to buy or sell a property, the broker will create and assemble all the obligatory physical documents with regards to an agreement as a proof of property. Brokers will ensure that the land/property would be registered by an authorized government office where all the attributes are noted down in a ledger and thereafter the whole transaction and purchasement between the two parties takes place. In this scenario, there are chances of losing or tampering of the documents as anyone with certain powers can access or alter the papers easily which in turn threatens this concrete proof of land. Thus, this type of system as compared to our proposed system in which we make use of a smart contract to deal with the assets and transactions among the participants, is relatively time consuming, less secure and unsynchronized where activities including corruption and fraudulence might be associated during the execution of the required process. With an amalgam of inspection and analysis regarding the old accustomed way and considering that Blockchain has an increased transparency and integrity maintenance along with the portability factor, we put 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.

Key Words: Transaction, Property registration, Taxation, Blockchain, Transparent.

I. INTRODUCTION

Block-chain is an emerging platform for developing decentralized applications and data storage among the shared parties with all recorded transactions that have been executed through-out the process. Each and every transaction in the public ledger is verified using consensus protocols involving majority of the participants of the system. As the new data is emerging, blocks are created and encrypted using hashing algorithms. Thus, the information entered once cannot be modified without consulting a legal administrator.

Blockchain is a collection of records that are organized into blocks, with each block containing a growing number of entries. These blockchain records are held on a distributed ledger system, or DLT. Every record in DLT is kept in several locations, making it difficult to alter which results in making blockchain extremely secure and difficult to attack.

'E-Governance system for property registration and taxation using blockchain' is a secured and transparent transaction system for property registration and taxation where the users register their properties and the property transactions are maintained on the blockchain servers. It is free form brokerage since no third party is involved in the process of property registration. The properties can include lands, houses, shops, apartments, farms etc.

The application provides the taxation module which will automatically generate the tax based of the property type. It will help the government officers to find out the defaulters' list which will help them to have a record of the tax payers.

Thus, we put forward a blockchain based property registration and taxation system which provides a transparent, secured and decentralized method for execution of transactions between the participants by employing the concept of hyper ledger.

II. LITERATURE SURVEY

e-Governance in India emerged from computerization to service orientation, citizen focus and transparency of government departments. The National e-Governance Plan (NeGP) intends to bring public services closer to citizens. Its vision states, "To make all government services accessible to the common man in his locality, through common service delivery outlets, and to ensure the efficiency, transparency and reliability of such services at an affordable cost to meet the basic needs of the common man." The Networked Readiness Index (NRI) measures countries' progress in creating basic requirements for a shift towards a digitized economy and society.

World Economic Forum (WEF) releases this index and India takes 91st position out of 139 countries in 2016 with score 3.8 out of 7. This low score indicates that India needs growth towards digitalization.

The use of Blockchain technology in the smart city enables devices to have secure data communication in a distributed environment. It provides some unique features such as reliability, fault tolerance, and scalability. Tourism in the Republic of Moldova makes use of Blockchain and Bitcoin as a means to lift the country out of poverty. The travel companies could adopt Blockchain technology to improve accounting process, that involves complex ledgers to track and settle payments in multiple countries and currencies.
Land registration is a topic that hardly crosses the mind of most people outside of the real estate sector, except for when they're involved in a real estate transaction themselves. Even then, it's generally considered one of the mundane administrative matters, a rubberstamping exercise that's far less tangibly exciting than collecting the keys to a new home.

Historically, land registries were based on paper documents, which can be lost, destroyed, falsified, or otherwise manipulated. Putting Land Registries on the Blockchain provides a potential solution for many of the challenges of land registration. The simplest implementation of a blockchain-based land registry could enable the ownership documents to be recorded and assigned to the owner's user account.

III. SYSTEM DESIGN

System design is the most important and vital part of any framework as it is used for the development of the system from its theory. This section includes the modules, architecture and various elements that are combined together to form the whole systems framework

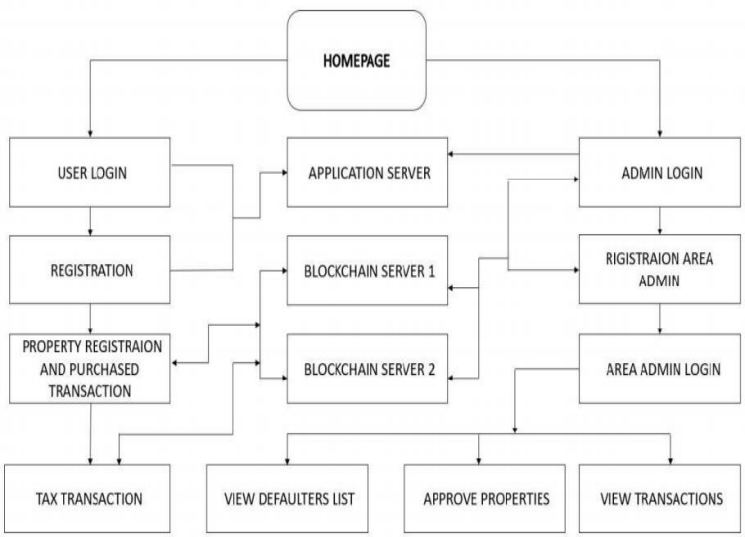

Fig.1 Flowchart of proposed system

The proposed system is a block-chain based solution which offers a way to eliminate the fraud regarding the property transactions by providing data security, immutability, transparency in the application. For providing the data security, immutability, transparency here we apply SHA-256 algorithm for the storage of transactional data in the database.
The application provides exact location of the user property for which we have used Google Maps API. The application maintains the history of property owners including the previous owner's name, date of purchase of the property, property type, etc.
The taxation module automatically generates the tax by taking property size and applicable tax rate based on the property type as input. The user can view the pending tax and thereby pay the tax by scanning the QR code provided or by using any online payment mode. Once the payment is done, the receipt needs to be uploaded and after the payment receipt gets verified by area admin, the taxation status will be updated. Thus, it provides the efficient way of tax payment for the property owners.
It also helps government employee to keep the record of tax payers and find out the defaulters' list making the traditional tax payment method paperless and a way more secured and transparent.

IV.OBJECTIVES

- To provide property ownership to the authenticated and verified person.
- Because of the enormous number of intermediaries involved in this procedure of property registration making it costly. The first step is to ensure that no other parties are involved in the process.
- To verify all the necessary documents before transferring the property ownership.

- To maintain property transactions on blockchain servers.
- To develop taxation module for property owners.

V. ADVANTAGES & DISADVANTAGES

ADVANTAGES

- The application provides security, reliability and transparency to the users regarding the property transactions.
- It generates the tax based on the property type making it easier for the government officers to keep the record of the tax payers.
- It reduces the paper work of government officers and make them easier to find out defaulters' list.
- It gives flexibility in tax payment mode. (Users can pay their taxes through any online payment app like GPay, PhonePe, etc).
- Stores all the history of property related transactions and tax transactions.

DISADVANTAGES

- Blockchain is costlier as compared to a traditional database because of that the application becomes little bit costly.
- The website does not allow easy modification of data, and it requires rewriting the codes in all of the blocks, which is time consuming and expensive.

VI. CONCLUSION AND FUTURE SCOPE

CONCLUSION

We have presented a smooth, user-Friendly platform that may be utilized to make land registration simple. Problems such as third party Participation, timing delays, and so on are all overcome. Making the land registration procedure paperless would not only make it easier, but it will also protect the paperwork of property ownership from numerous calamities.

It Improves security and transparency regarding the property ownership. It Reduces brokerage so there is no need of brokers. Helps in Reducing the work of government officers to find out defaulters list and all taxation related reports. Allow users to have a record of the calculated tax on their properties. Enable users to search for the properties they are interested in and search for the past history as well. As a result, utilizing blockchain to retain and transactions is the best option to generate immutable records that can't be changed by anyone else.

FUTURE SCOPE

Currently, the application enables users to pay the tax from different online payment platforms but in future the application can itself has its own payment gateway. It stores the real-world data of users and all the property related transactions. This application will be helpful for the government in making the property registration process a way more efficient and paperless.

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