Decentralised Land Agreement Registration using Blockchain

Abstract:

Land registration authorities are frequently held accountable for the alleged mismanagement and manipulation of land records in various countries. Property records are especially vulnerable to falsification and corruption because of the country's poverty. Different parties therefore claim varying degrees of authority over a specific piece of land. Given the fact that this data has been consolidated, it has become significantly more vulnerable to security threats. The goal of decentralized system research has been to increase the reliability of these systems. In order to fix the flaws of centralized systems, blockchain-based decentralized systems are currently in development. By using significant land record registration models as the basis for this research, we hope to create a proof-of-concept system or framework for future use. Land registration agency will benefit from our proposed conceptual framework. For the government to implement a decentralized land record registry system, we propose a conceptual framework that outlines the essential components.

Existing System:

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 decentralized 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.

Proposed System:

Blockchain technology offers decentralized environment that is reliable and secure. 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. Since these records are sensitive, land management and title cataloguing systems must be robust in order to prevent falsification, make these records available at all times, and, most importantly, complete these operations in a timely manner. Blockchain is no longer limited to simple principles; it has evolved into a hybrid of several replicas, including mathematics, networking, cryptography, and a distributed consensus algorithm.

Blockchain was developed from 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 bordered by other network applicants. Instead of relying on the single authority such as administrators that can forge the database, blockchain technology offers decentralized 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 database are abused, it is catastrophic.

Software Tools:

1. Ganache
2. Metamask
3. NodeJS
4. NPM
5. Solidity
6. Web3.js
7. Truffle Suite

Hardware Tools:

1. Laptop
2. Operating System: Windows 11
3. RAM: 16GB
4. ROM: 8GB
5. Fast Internet connectivity

Applications:

1. This can also be applied or used in Vehicle Registration System
2. Blockchain based registrations are always open up the tamper free governance.