

Solution for Land Registration and Land Record Management based on Blockchain

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Abstract - In the Existing Land Administration system in India, a middleman known as a "dealer" would help to streamline the transaction by creating and gathering all the physical documents required to support a settlement as proof of ownership. Before the contract is signed, the broker will document the property with a reputable federal agency and list all of its features in a book. Since anyone with access can read or edit the documents, files could be lost or altered in this scenario, which would compromise the physical proof of land ownership. Contrary to the existing approach, the smart contract-based approach significantly reduces the processing time and enhances security by leveraging blockchain technology. This approach is synchronized, as each transaction is validated by the network of nodes, and is less complex.

Key Words: Blockchain, Smart Contract, Decentralized, Ownership.

1. INTRODUCTION

It takes a lot of time and is inconvenient to register land. The current land registration and verification systems are seeing an increase in fraud cases, as well as the loss of documents and court proceedings, because there are millions of property records to maintain. It was intended to strengthen the land registration process and decrease the incidence of property fraud. With this system, validating lands is also possible because immutable transactions are recorded on the public ledger. As a result, the distributed system known as the blockchain-based Land Registration system will store all of the transactions made during the buying of land. Blockchain technology is an innovative network that keeps track of transactions that can be used to establish unbiased apps and file storage among some of the connected users.

Healthcare, supply chain management, and market monitoring are just a few of the industries where blockchain technology is finding use. As new blocks of data are generated, they are protected using cryptographic hashing techniques. Thus, it is impossible to alter the data once it has been provided without consulting a legal representative. The decentralized digital ledger, which is open, shareable, traceable, and extremely secure, ensures that transfers and records executed are both unchangeable and provable. A block of data is expanded when additional blocks are added to it.

Users would register for this system and then adopt the role of a vendor or a buyer. Before a buyer can make a purchase on the portal, the seller must give all required information. As soon as new deeds are obtained digitally by other users, a data

update in the chain will be published. Under the current proposal, all negotiations between purchasers will be properly managed by removing the middleman. Since payments are timestamped now, they can be audited more easily because they are stored on servers owned by all parties involved in a secure cryptographic format.

2. METHODOLOGY

To overcome multiple problems discussed earlier, blockchain implemented by Ethereum was proposed to replace the existing system.

Using the Ethereum blockchain platform one has to follow the following steps to register a land to their name. The platform is handled by an officer peer who acts as a Land Registrar Officer and manages all transactions and records.

2.1 Registering User: The Land Registrar Officer adds users to the platform by filling in a form with their details that include their name, email, phone number, their unique identification (like Aadhar and Pan card) details, their occupation, their account balance, their electricity bill to verify the address entry and the criminal history details of the user (if any).

2.2 Registering Land: The Land Registrar Officer then adds the land asset record by filling a form that contains the land identity number, the location of the land, the type of land, the price of land in units, the size of the land in acres, the 7/12 contract details to verify the land, the corresponding contract number and finally the identity number of previous owner and the current owner of the land.

2.3 Put a land for Sale: When requested by the User (owner) to put his land for sale, the Land Registrar Officer invokes the PutForSale transaction that in turn invoke the smart contract that contains the business logic for putting his land for sale.

2.4 Government officer Verification: The land asset will be verified by the government if the price of the land is in the given lower and upper ranges of the acceptable price of the land as mentioned by the Maharashtra government. The values of the price range vary from time to time and city to city.

2.5 Changing owner: When a User (buyer) requests to buy a land asset, there needs to be a change of owner of the land. Prior to this change, some conditions are to be cross checked. The buyer is not supposed to have any criminal record. The buyer should have an account balance that must be greater than the amount that the land registration is going to cost him. The land must have been put to sale by the seller.

2.6 Money Transfer: The seller gets the amount he quoted on the land into his account, while the buyer has to pay the quoted price along with some additional charges like the stamp duty and registration fee (to the registrar). The value of the fees vary from time to time and city to city.

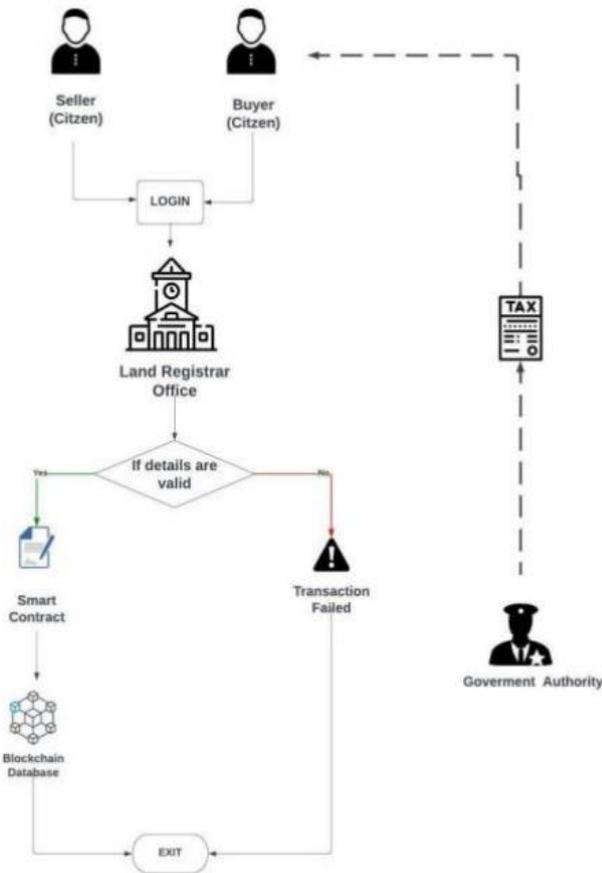


Fig -1: Workflow of System

2.7 Land records retrieval (by officer): When requested by a government officer for supervision of land, parameters of land assets owned by a particular user will be retrieved from blockchain in read only access. According to land assets, officers will be able to determine property TAX.

3. RESULTS

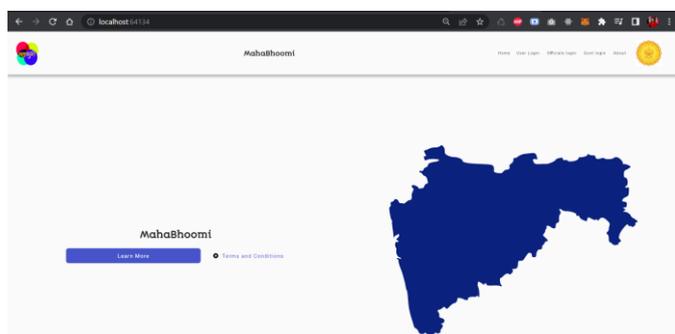


Fig -2: Home Page

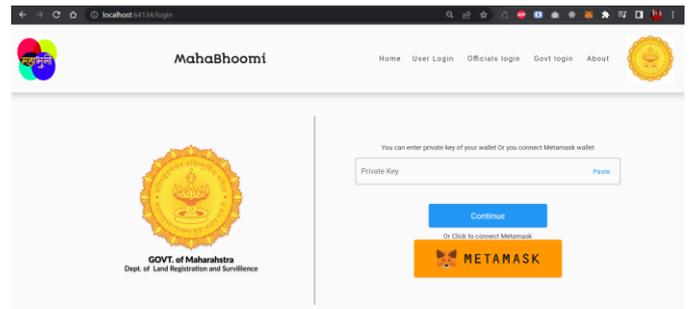


Fig -3: Login Page

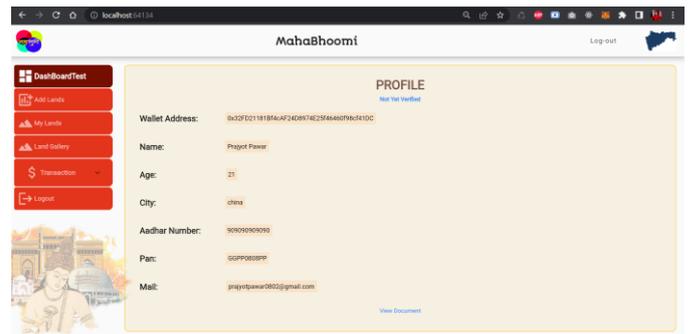


Fig -4: User Dashboard

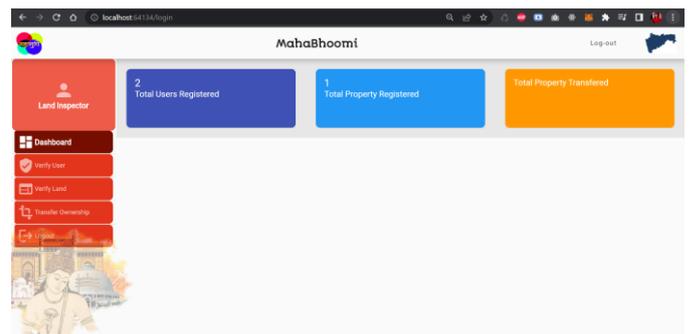


Fig -5: Officials Dashboard

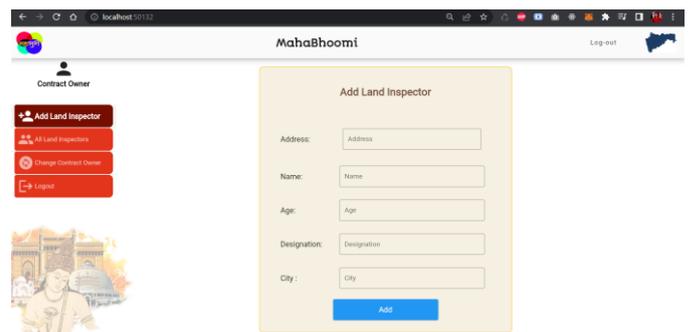


Fig -6: Government Dashboard

4. CONCLUSIONS

In implemented system, used block chain technology to combat the Customary Land Scenario in India, which is one of the most fraudulent processes in the nation.

Block-chain is a public digital database that is unchangeable once data has been entered.

A novel system is produced once all transactions, including buying and selling, are carried out in a more rational and reliable way. Smart contracts have made this mechanism

better and secure than existing systems. If this mechanism is developed further, faster operations can be attained.

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