Land Registration System Using Blockchain

Divyesh Burande, Harsh Chandak, Aditya Chandanshive, Apoorv Damale

Guided by: Prof. Pramod Kanjalkar

Instrumentation and Control Engineering

Abstract — The present Land Registration System is a time-consuming process for the transfer of property ownership related to a land transaction. The data of the land is stored in a single place leading to security issues also. In some cases, the incomplete/improper registration leads to dispute of ownership and litigations of the land. In this work, a land registration system using block chain is proposed to overcome the above-mentioned limitations of the land registration system. The decentralized storage of data in block chain provides security and landowner data can be stored safely to avoid conflicts of land ownership. Land being an important asset, the use of bock chain technology can help improve this sector in its work implementation as well as its characteristics significantly for a seamless and hassle-free workflow to achieve a reliable system.

Keywords — land registration, property, ownership, litigations, block chain, asset.

I. INTRODUCTION

Blockchain is a way of passing data (such as records, events, or transactions) from one party to another in a very secure way. It is an electronic record of information that requires digital security. All data stored in the blockchain is immutable; once a piece of data enters into a blockchain, it is practically impossible to alter its value (because it supports append only Feature). The Blockchain in the land registry is used for secure transfer of land property. The transparent nature of Blockchain enables to track the changes made in land documents. Advent of Blockchain technology in the land registry is playing a very beneficial role in this developing era. It is helping in uplifting the poor, and marginalized section of the society in fighting illegal authorization of land. The current system for land registration is full of duplicity and inefficiencies, due to which the land records are not protected, and citizens are the one those have to bear the most of it. Land Registry Records term can be express as it is the legal records maintained and controlled by the govt. authorities, containing all the relevant information about the property, and one of the essential data is the current legal owner of the asset or the property. It helps to get details back-dated history of ownership of that land with all the information about the past owners of the property.

The Legal Rights of property gets changed from one hand to another hand. The information stored as the legal records that can always get tampered. It becomes challenging to understand who the legal owner of the asset or the property is. The land dispute between the legal owner and the claiming owner; the claiming owner can file a case against the legal owner to win the ownership of that property. In that case, the judiciary declared the property as disputed land or disputed property. That cannot be bought or sold by anyone who claims to be an actual owner. In this case, the judiciary takes a hold on the property and decide who is the legal owner of the property which makes the inter-process difficult. Almost 66% court cases in the

country are related to land disputes costing a whopping Rs.58,000 crore in litigation.

Existing System:
Buying a piece of land in India is very crucial and you need to pay due diligence to the entire process. Especially, you must make sure all the papers are clear from title defects and other legal issues. [It is best to register your land with the help of reputed legal professionals and lawyers as they scrutinize each document and offer the advice on whether to proceed further or not. Procedure for land registration: Document verification: As the first step, all the documents related to the land should be verified.

a)Drafting of the deed: Irrespective of the way you have obtained the land, it is important you have the correct deed. For instance, if it is a gift, a gift deed is required. If it is a purchased one, a sale deed mentioning the contract, payment, terms, and conditions agreed by the seller and the purchaser, tenure of the payment, etc. Encumbrance certificate: This document confirms that the land has no legal liabilities like loans and mortgages.

b)Preparing stamp paper: To execute property transaction and related documents like conveyance deed, sale deed and sale agreement, a fee must be paid to the government. It is called stamp duty. You need to get the stamp paper from authorized vendors.

c)Execution of the deed: The deed must be executed at the Registrar's office and both the parties must be presented to duly sign the documents. If anyone of the parties either seller or purchaser is not available, then a Power of Attorney can be given to proceed with the execution.

d)Registration: As a final step, once all the documents are reviewed and found to be perfect, the land will be registered. Personal documents like PAN, Aadhar, etc. Unlike residential and commercial buildings, for land, there is no field inspection by the authorities.

There are following challenges involved in current land registration process:

• The Involvement of middlemen and brokers Middlemen and brokers are the crucial part of every big business as they know more about market offerings. Buyers and Sellers usually prefer to take help from these to get reliable support as a result, buyers acquire a deeper understanding of the market and identify lower/higher prices for the transaction. Middlemen gather required information from traders, identify errors, interpret, and facilitate the implementation of real estate 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.

• The increasing number of fraud cases: There have been several cases of impersonators posing as the seller of a property. If an impersonator successfully pretends as a property owner, they may receive the full 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 part of a spot check exercise.

• Time Delays: There have been several cases of imposters posing as the seller of a property. If an imposter successfully pretends as a property owner, they may receive the full 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 part of a spot check exercise.

II. LITERATURE REVIEW

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III. METHODOLOGY

Technology:

A. Truffle Suite - Truffle is the development environment, asset pipeline, and testing framework of the Truffle Suite ecosystem. Truffle is a hugely popular development

framework for Ethereum dApp development, and there is a large community behind the tool. Furthermore, Truffle is using the EVM as a basis, and one of its purposes is to make the development of smart contracts more straightforward and more accessible.

B. Ganache - Ganache is a high-end development tool used to run your own local blockchain for both Ethereum and Corda dApp development. Ganache is helpful in all parts of the development process. The local chain allows you to develop, deploy and test your projects and smart contracts in a deterministic and safe environment.

C. Solidity - Solidity is an object-oriented, high-level language for implementing smart contracts. Smart contracts are programs which govern the behavior of accounts within the Ethereum state.

D. Ethereum – Ethereum is a decentralized blockchain platform that establishes a peer-to-peer network that securely executes and verifies application code, called smart contracts. Smart contracts allow participants to transact with each other without a trusted central authority.

E. Web Development – HTML5, CSS3, JavaScript.

Architecture

Fig.1 Architecture of proposed methodology

Objectives
• The land registry in Blockchain, the property owner, can automatically check their own and whether they are eligible to transfer the legal ownership to others or to sell the property.

• The Buyer and the Seller, both parties, are the user in the blockchain channel and can get easy access to each other, as it connects users over the single platform.
• The verification of property and the land records becomes very accessible and very easy to anyone.
• Once the verification gets complete, the users who are buyers and sellers can quickly move to the next process of registration that is the transaction.
• The Purchase of land or asset gets executed by using a smart contract.
• The seller transfers the ownership to the buyer.
• The payment process automatically gets completed by transferring the amount from Buyer's account to the seller's account.
• Everyone, buyer, seller, and the bank can verify the status of the contract over the blockchain smart contract platform.

IV. RESULTS AND DISCUSSIONS

Register Module:
• The seller has to enrolls in both the user and asset enrolment portal.
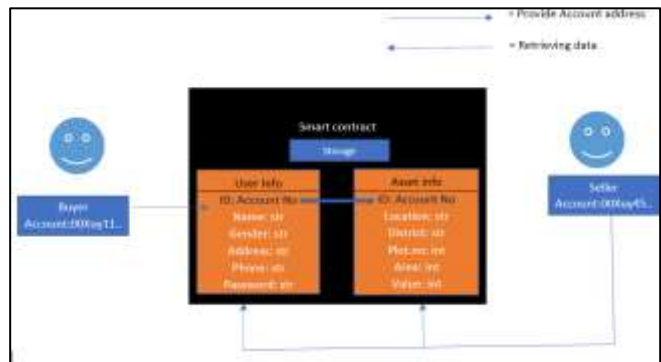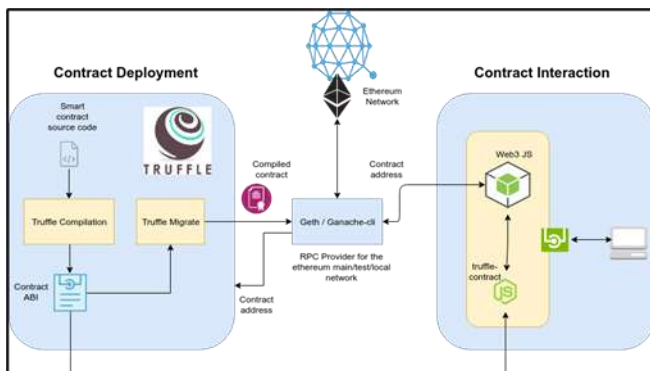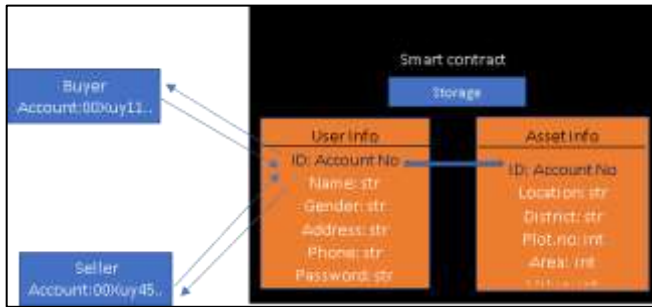• The buyer can only enroll to user enrolment portal.

Fig.2 Register Module

Search Module:
• The seller and Buyer can verify their own and each other data in this module. Before any transaction.

Fig.3 Search Module

Record Module:

• Anyone can see and check the data available for selling an person who are willing to buy land to give propsals this is only a View.
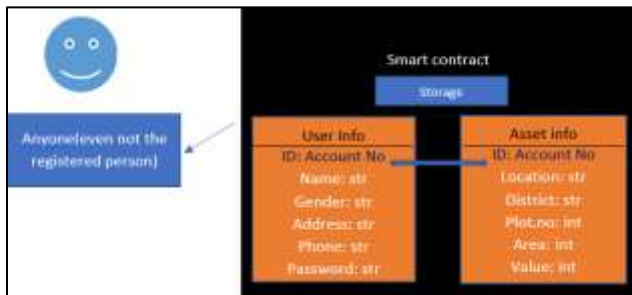

Fig.4 Record Module

Migration Module:

• In seller's side:
   o The seller only wants to know the buyer's address.
   o He enters his account address and password and buyer's account address to initiate the transfer of land power of attorney. (Since it is open to all so anyone can enter the address but the password is not known to anyone that is confidential that's why only authorised person can register the land to the buyer).

• In Buyer's side:
   o The Buyer only wants to know the seller 's address.
   o He enters his account address and password and seller's account address to initiate the transfer of money. Here also same security is maintained as mentioned in above figure.
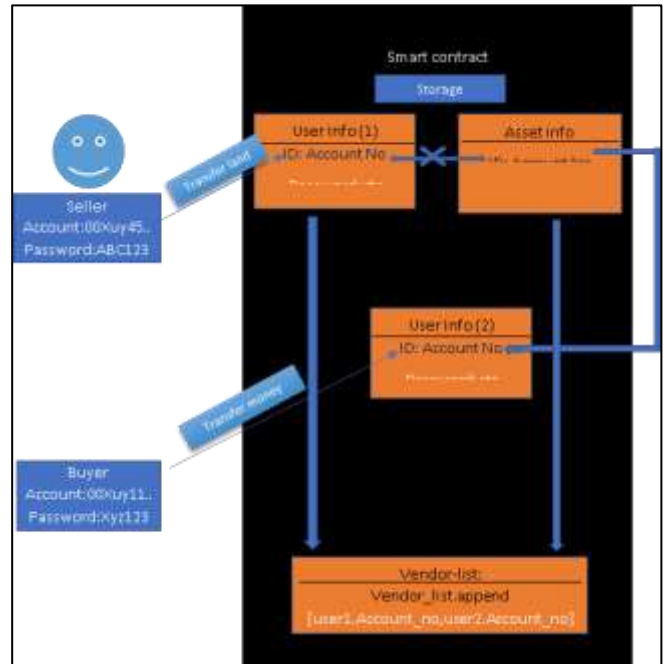

Fig.5 Migration Module

V. CONCLUSION

In this report we proposed a seamless, easy to use and hustle-free platform which can be used for making the land registration easy. There are many problems such as involvement of brokers or middleman, time delays, etc. This platform will eliminate the problems associated with land registration in India as well as in many parts of the world. The steps involved in the process of land registration are discussed in detail in the paper. Making land registration paperless will not only make the process easier but also secure the papers of ownership of land from various man-made and natural disasters. The blockchain technology is emerging very rapidly due to secure features it offers. Hence using blockchain to save the land record transaction is the way to create the immutable records.

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