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Land Registry using Blockchain

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Abstract: The Land Registry system is an essential department for any government system, who maintains the crucial information about the land like ownership, transaction history and many more. There are numerous loopholes in existing system that raise the chances of deceit and disputes. To address this issue, we have come with a solution of implementing blockchain in the land registry system. A secure platform for land registry system using Blockchain has been projected. Blockchain here is used as associate electronic ledger of digital records and transactions that are encrypted using cryptography. This system aims at coming up with a model for secure and steady land registration system supported blockchain technology, which can make easy to get rid of the loopholes in the current land registry system. Our system provides unique identity for each land, registered and verified for the land owner which cannot be tampered or replicated so, this provides secure trading of land. The land owner will be provided with the ID when the land is registered in our system and will be transferred to the other user once he sells his land. So no one can impersonate as other user and there will no chances for fraudulent or scam.

Keywords: Include at least 4 keywords or phrases.

I. INTRODUCTION

a. Overview

Land registry is a system that homes the essential information of land possession. Currently the entire process of land registry maintenance is to complicated since it involves safe keeping of large volumes of registers in written form.

b. Purpose

Existing system in not safe since many ways as majority of the process is not transparent, system is slow, and the trade of property more than once needs to be recorded accurately. To solve this issue, we are implementing blockchain technology, to overcome these issues and encounter the problems connected with land registry system as mentioned above. Blockchain is the distributed ledger technology that keeps historical record of all transactions that have taken place across a peer-to-peer network. Implementing land registry using blockchain helps inn avoiding fraudulent activities thereby making the system more secure

c. Background

Implementation of application using blockchain guarantees the quality of digital data that is being used. Privacy issues like data security breach and identity theft in digital domain are well addressed. Present day technology uses password-based authentication for accessing confidential information. Our system uses this blockchain technology and eradicate the problems in the existing system. We provide a way for secure trading of land and the privacy is not compromised at any point. Documents provided by each user are verified directly by land survey department and on successful verification of documents, the land owner will provide with the unique ID which is attached with the land ownership document and which will passed on to the next user after selling that land. This avoids reselling of same land. And by this being the online platform removes the need for a middleman or broker to sell or buy the land. This also records all the transaction history of each particular land and is secure.

II. PROBLEM IDENTIFICATION

a. Current System

The current system has many flaws in it. There is no transparency between the transactions. There is a lack of security in the existing model and the time taken to complete the transaction process is really slow, so this makes the users to get frustrated on this system. Due to lack of awareness of this system fraudulent activities like document duplication, there is a fear of loss of documents. It requires a large storage space and maintenance as they are physical records hence, more man power is required and the cost is really high.

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b. Study of Problem

A lot of Energy and resources are wasted in maintaining physical records which can lead to difficulty in maintaining the history of land ownership and is a really slow process. According to study, many real estate scams, corruption, duplication of records takes place and it is really tedious and delayed process which can lead to users getting frustrated.

III. GOALS AND OBJECTIVES

- THE GOAL IS TO PROVIDE A SECURE PLATFORM FOR LAND TRADING.
- To digitalize the traditional way of land registry process.
- To provide the land registry at minimum cost.
- To eradicate the long waiting period of traditional process of land registry.
- To prevent document from loss by digitalizing documents.
- To make the land registry process faster.
- To make the land registry process easy.
- To avoid the need of middleman or broker.
- To reduce the manpower.
- To make trading of land easier.
- To avoid fraudulent activities.
- To reduce the paper work.
- To make the selling and buying process transparent.
- Ensure the ownership of land.

IV. METHODOLOGY

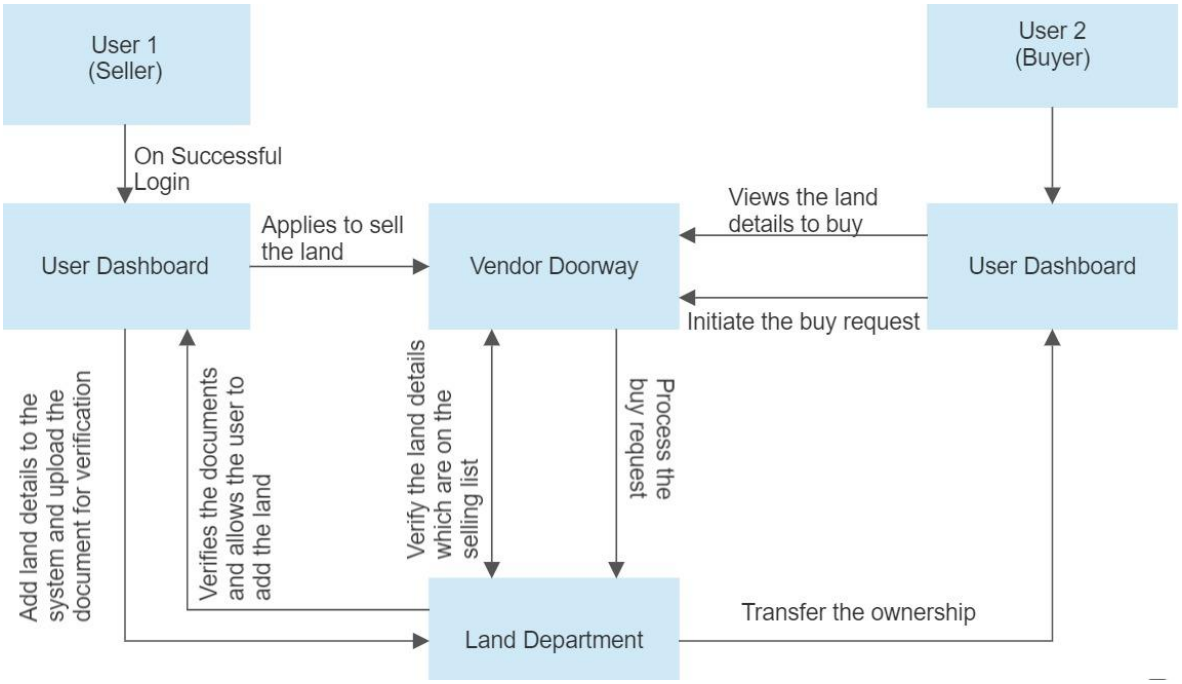

Fig. 1 Basic Function of system

User registers themselves to the system/website, on successful registration the user is directed to the dashboard. Here on dashboard the user can add, sell, or buy the land and also view their previous history of transactions made, if user owns property, then they have to add their land details and get the land verified from the land department. Land department initially verifies the documents provided by the user. And on successful verification they will provide each user the unique ID which will be attached to that land document and whenever this property is sold this unique ID along with ownership will be passed to the buyer. When a user initiates a buy request this request will be notified to both the seller and the land department and will be further processed by land department. After verification of the land and payment medium the land ownership along with unique ID will be transferred to the buyer with consent of both buyer and seller.

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a. Proposed solution for the system

1. Blockchain and Web3 Blockchain technology works by using a peer-to-peer net- work to create an immutable ledger of transactions. These transactions are then verified and stored by an ever-growing network of computers. Each node (computer) in the network stores a copy of the ledger, and the ledger is updated when- ever a transaction is made. This makes it virtually impossible for hackers to tamper with the data. Furthermore, the technology is also used to create smart contracts, self-executing agreements between two parties that are enforced without needing a third party. This makes the technology ideal for a variety of applications, such as in the financial services, healthcare, government, and supply chain industries. Web 3.0: It is a World Wide Web feature for public blockchain, it incorporates blockchain terminologies. It can also be stated as a decentralized online ecosystem based on blockchain. It provides features like scale-ability, security and other functionalities.

b. Implementation details

Initially, the end users of the land registry system i.e., Land owners, Land Buyers use our web platform in order to buy or sell a land. We use blockchain to safely handle the transactions involved in this process. The Land Department inspects the requests raised by the sellers and buyers, verifies the users and approves the valid transactions. If the user wants to add the land in their dashboard the user sends a add request to the land department by sharing the documents and on successful verification from the land department the land department issues an Unique token which uniquely identifies each land and avoid document tampering and duplication.

V. APPLICATIONS

- There will be transparency in the transaction.
- Provides security.
- To provide quick processing.
- No middleman
- Detailed documentation of system will be provided.
- To prevent frauds and scams.
- Documents are digitalized and free from fear of loss.
- To avoid large storage space for physical records.
- To reduce manpower.
- To eradicate paper work.
- To reduce land registry cost and make it cost efficient.
- Mindful usage of resources.
- To prevent public from real estate frauds.
- To make the process of land registration easy and simple.
- Securely maintains the land ownership history.

VI. LITERATURE SURVEY

TABLE I

Projects	Proposed Work	Review
A Novel Framework for implementation land registration and ownership management by Md Sakibul Islam, Fahmid Shahriar Iqbal	framework developed for land registration ownership and management using blockchain	Easy to use
Chain of Ownership by Hannah Natasha Hariharan, Abarnah Kirupananda	A Solution to reduce land forgery through a transparent land ownership portal	Helps to avoid the tampering of documents
Blockchain enabled digitization of land registration by RC Suganthe, N Shanthi, RS Latha	Digitalization of the present registry system	Makes the registration process faster

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In current well-functioning Land registry systems transactions are physical in natures. The normal system indirectly affects the cost, paper resources, storage for huge record keeping, security problems with the records. Land ownership one of the most controversial and combative issues in India today. India has many regional and territorial disputes. There are many disputes going on based on the ownership of the land.

The revenue department of Haryana made some progress in digitalizing the land registration by developing HARIS for registering property and HALRIS for managing the land records. Despite these advances, land registry process is still complex. For registration of documents, the authorized signatories of sellers and buyers must be present, along with two witnesses.

Blockchain provides transparency of the records, transactions. Over past five years, governments have deployed blockchain internationally to improve service and ensure the integrity of public records. The United Nations development program was particularly interested in developing a solution that would improve land registry in India. Block scale solutions worked in collaboration with the state government to working prototype of a blockchain enabled registry.

Our project mainly aims at providing the secure transactions, transparency of records. Digitalizing of documents prevent the loss of records. We are mainly focusing on digital service delivery and to invest in re-engineering processes to boost efficiency. Our system is incredibly economical, as it involves fewer human resources. This system is more reliable as compared to the traditional system.

VII. CONTRIBUTION TO SOCIETY AND ENVIRONMENT

- To make the process land registry quick, easy and simple
- To prevent people from fraud and scam.
- Mindful use of resource like paper, manpower by digitalizing the process.
- Reduce the work of land department by digitalizing it and reducing the cost of maintenance of record.
- To maintain the previous history of land in digitalized form so that document is free from fear of loss.
- To make the process of land registry transparent.
- To make the process of land registry available to everyone at their fingertip.
- To provide secure transaction to user.
- Efficient use of energy and resources.
- Reduce the waiting time of the user by digitizing the process

VIII. CONCLUSION

Our Proposed System achieves specification regarding the details of land records and the ownership details in a digitized format and provides security audit and privacy features. For further enhancements, we aim to provide a public repository for land registry system where the users can a raise the query in case of any inconsistency.

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