IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 6, June 2022

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 6, June 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1006151|

Role of Blockchain Technology in Digitisation of Land Records in Indian Scenario

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ABSTRACT: Blockchain is a method of securely transmitting data (such as records, events, or transactions) from one party to another. It is a digitally secured electronic record of information. All data stored in the blockchain is immutable; once data is entered into a blockchain, it is nearly impossible to change its value. The blockchain has shifted the traditional business model from a centralised to a decentralised model, which means it can operate without any central authority. It operates on a peer-to-peer model rather than a peer-mediator-peer model. Because of its peer-to-peer nature, Blockchain makes dealing with businesses easier, faster, and more trustworthy.It has become the most widely used business model in a variety of industries, including construction, because it is the safest, quickest, most transparent, and easiest to implement. The blockchain's critical features that make it one of today's most promising technologies are: decentralised, self-control, peer-to-peer relationship, fixed record, and time stamping. As a result, this chapter focuses on the critical role and application of BlockChain technology in the digitization of Indian land records.

KEYWORDS: blockchain, solidity, digitization, Ethereum, ganache, remix

I. INTRODUCTION

The Department of Revenue & Land Reforms' Record of Rights (RoR) is wisely investigating the benefits of blockchain technology in land registration due to transparent financial management and transactions. The land registry uses blockchain to ensure the secure transfer of property. The concept of smart contracts allows for automatic updating of the record; otherwise, ownership is transferred to the buyer via an application form. The use of blockchain and smart contracts ensures the certainty of property ownership. As the agreement is implemented and imposed automatically, this technology builds trust between parties in transactions.

It also speeds up and organises business transactions. It ensures the authenticity of land records, increases customer trust in the government, makes life easier for the customer, and improves data security.

Technology has always been at the leading edge of disrupting the status quo and bringing in a fresh new perspective to look at things in relation to global changes. When it comes to public domain-related industries, technological changes are frequently entangled with policy regulations and face significant challenges when scaling up. One example is e-governance, specifically property registration and management of land records.

In this thesis, we delve deeper into the above example while applying it to the Indian context and the associated current issues. The primary goal of this research is to determine whether or not it is a viable solution for incorporating blockchain technology. We will examine the characteristics of blockchain technology that make it a desirable solution to current problems, and then we will present the results of the performance evaluation of the implemented system.

Blockchain definition: - Blockchain is a decentralised electronic ledger based on a peer-to-peer mechanism that allows data to be freely exchanged between users, each time stamped and linked to the previous one to create an immutable transaction record [1]. When a number of transactions are added, the information becomes another block in the chain

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(hence, the name). until new information is entered [2]. It is a write-once, attach-many technology that makes each transaction verifiable and auditable.

Blockchain benefits: [1]Accelerating the process: The intermediaries involved in the land registration process have access to information that others do not have or are not permitted to work in an area for a property transaction. The blockchain land recording platform will create a distributed database to allow everyone to record and access information without the involvement of a centralised authority. You would like to relocate the land. Sign it, have notaries rubber stamp it, and give it to the state to fill out the blanks in the deed.

The method appears sluggish and outdated. It can, however, improve the method by generating a digital title using the Land recording network blockchain.

[2] Reducing Fraud Cases: Impostors can now falsify documents and pretend to own titles in today's digital world, thanks to editing tools. You want to use the Blockchain Land Registry Platform to upload the title documents into the blockchain network, where they can be signed by the signers and checked by other users as needed. The network can also be used for blockchain land registry proof of ownership, lives, trade, and transactions.

[3]Bringing Transparency with smart contract: Many people are there to directly purchase land. The loan or mortgage process is very slow due to administrative issues, but intelligent contracts simplify the mechanism by automating managed transactions. You can create a decentralised digital ID as a seller or buyer. With the help of the blockchain land registry platform. This will make the transfer of ownership easier and faster than the traditional method. After the registrar approves the transfer of land ownership, intelligent contracts trigger an update of replacement buyer ownership, and the resulting transaction is stored in the blockchain.

II. RELATED WORK

1.) Securing Land Records through Blockchain-2021-N.S.SathyaSaiBaba

The blockchain solution integrates with existing department systems via API calls and coexists in a non-intrusive manner. Uses http API calls for integration with systems/GIS systems on various technical platforms. The data from the APCRDA GIS System (Land Information) has been stored in Blockchain using the Geo-json format. Land record modifications/alterations must be done in accordance with the process, and this option is only available to Authenticated Users. GIS System (ArcGISServer) generates Parcel images (Parcel, Block, and Colony level location maps) along with Coordinates and Parcel Centroid for Registration upon user request. The Block Chain Certificate embedded with QRCode is generated as a result of a request API at the Block Chain server (Information of Property).

2.) Role of Blockchain Technology in Digitization of Land Records in Indian Scenario - 2020 - P Singh

The property owner can automatically check their own land registry in Blockchain to see if they are eligible to transfer legal ownership to others or sell the property. Both the Buyer and the Seller are users in the blockchain channel and have easy access to each other because it connects users on a single platform. Banks can also use the blockchain platform to determine the current legal owner of an asset. Property and land record verification becomes very accessible and simple. Once the verification process is complete, users who are buyers and sellers can proceed to the next stage of registration, which is the transaction.A smart contract is used to execute the purchase of land or an asset. The seller assigns ownership to the buyer. The payment process is completed automatically by transferring the funds from the buyer's bank to the seller's bank. Everyone, including the buyer, seller, and bank, can check the status of the contract via the blockchain smart contract platform.

3.) Digital Transformation: Blockchain and Land Titles – 2018 – GEORG EDER

This paper investigates the use of Blockchain Technology in the management of land records in India.
The paper discusses how Blockchain Technology can be used to address issues such as minimal transparency, accountability, incoherent data sets with different Government Departments pertaining to the same piece of land, and delays in the current Land Records Management process. The paper describes the country's current land records maintenance and registration process. The paper also discusses various challenges encountered during Blockchain Technology implementation, such as public key infrastructure and the Internet, privacy rules, and security concerns.In

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order to make land titles tamper-proof and to give legitimate and conclusive rights on ownership, the paper concludes by illuminating system architecture employing Blockchain technology for implementation of the country's land titling system.

4.) BDigitalization of Land Records using Blockchain Technology– 2019 - Ishita Mishra

Blockchain has a thorough strategy for industries that need to be protected from fraud, human mistake, or human intervention. One instance where numerous intermediaries place their faith using the framework is the Land Registry. The current approaches are no longer effective. It is challenging to keep track of who owns certain properties when there are thousands of land documents. Consistencies in the paperwork, such as faked documents, false identities, and completely lost records, are rather common. The parties to the dispute engage in pricey legal fights as a result of these circumstances. It will be easy to track the ownership of the property thanks to the blockchain's transparency.Blockchain's immutable, auditable, and traceable properties entice governments all over the world to implement decentralised technology in the land registration process. The blockchain's ability to demonstrate authenticity will, without the need for third-party verification, legally transfer land ownership to the customer.

III. PROBLEM STATEMENT

The current land registration system is riddled with duplicity and inefficiencies, resulting in unprotected land records, with citizens bearing the brunt of the burden.

The project's goal is to:

1. Using blockchain to keep track of all land records
2. To provide tempered land records

IV. PROPOSED SYSTEM

Because the Blockchain is a tamper-resistant process, it makes it easier for users to buy, sell, or obtain information about land and its purchase history. The use of blockchain technology can simplify the land registry method and make it a secure, fast, and transparent way to operate the system.

1. The property owner can automatically check their own land registry in Blockchain to see if they are eligible to transfer legal ownership to others or sell the property.

2. The Buyer and Seller, both parties, are users in the blockchain channel and can easily communicate with one another because it connects users on a single platform.

3. Banks can also use the blockchain platform to determine the current legal owner of an asset.

4. Property and land record verification becomes very accessible and simple.

5. Once the verification is complete, users who are buyers and sellers can quickly proceed to the next registration process, which is the transaction.

6. A smart contract is used to execute the purchase of land or an asset.

7. The seller relinquishes ownership to the buyer.

8. The payment process is completed automatically by transferring the funds from the buyer's bank to the seller's bank.

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9. Everyone, including the buyer, seller, and bank, can check the status of the contract via the blockchain smart contract platform.

With the help of a smart contract platform, the legal steps can be executed automatically. The smart contract platform verifies all legal checks and transfers the asset from one person to another. It also keeps a record of who owns that asset or property.

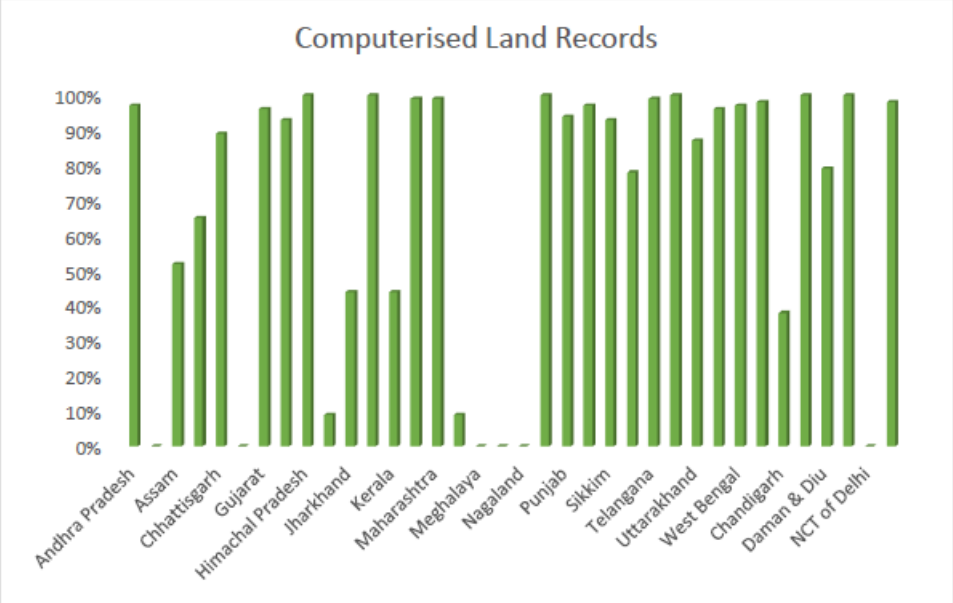

Figure 1. Computerized Land record in all states of India

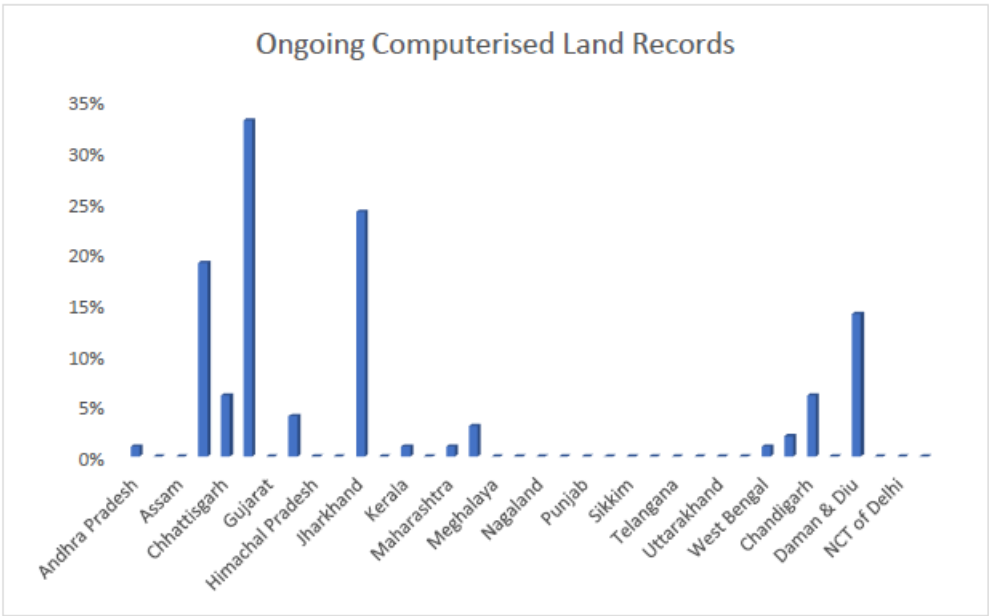

Figure 2. Ongoing computerized land record in all states of India

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V. CONCLUSION AND FUTURE WORK

Land record maintenance and regular updating has been a difficult task in India. Citizens even lack trust in the existing systems in place in the states. Citizens are unsure whether they legally own a plot of land, even if they have a valid sale deed. Others who want to buy land are unsure whether the seller legally owns it. Blockchain Solutions could have been used as an alternative in a situation like Kerala, where the flood destroyed paper records. The Blockchain Technology allows us to solve many of these issues while also providing cascading benefits.Many key benefits of the technology are incorporated into the solutions proposed in this paper, including: an immutable history of transactional records, so no one can ever doubt the authenticity; records are permanently linked to the system, so no one can ever tamper with or forge a record of their own; and these records can be seen by any party, at any time. It's powerful and affirming.

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BIOGRAPHY

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INNO SPACE
SJIF Scientific Journal Impact Factor

Impact Factor: 8.165

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

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