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DATA SECURITY FOR REGISTERED PROPERTY AND TRANSCTIONS USING BLOCK CHAIN TECHNOLOGY

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ABSTRACT

There is a lot of business done these days, especially business involving land. For the great majority of these transactions, conventional database systems are the basis. A centralised system like the database makes it vulnerable. The records can be updated because database systems' data is modifiable. Building a property record using block chain technology may be a preferable solution. Immutable data can only be found in the block chain. After it has been completed, a block chain transaction cannot be altered. The transactions are more secure thanks to a block chain network's immutability. A block chain provides the security and accuracy of a data record without the need of a trustworthy third party.

Key Words: Block chain, Property, Immutable, Secure and Transaction.

1. INTRODUCTION

This paper's subtitle, "Property registry and transaction utilising Block chain," describes its contents. Various pieces of information, such as ownership, property specifics, property size, etc., are needed for property registration. The traditional database approaches are now used to conduct property transactions. Traditional database systems are vulnerable as a result of the data's changeability. It causes dishonest behaviour, illegal behaviour, etc.[4]. Since block chain networks' records are immutable, they are the best option for resolving this problem. We are limited to reading and writing data, unlike databases where data can be altered or deleted. Because the block chain is a decentralised, peer-to-peer network, there cannot be any involvement of trustworthy third parties. This project's goal is to provide a platform where anyone may use block chain technology to conduct property-related transactions.

The goal of the current article is to examine the potential of the block chain technology for real estate transactions. It aims to investigate immutability, record security, and how a block chain system functions in this area. To reduce the process of maintaining paper records or bookish records, several attempts have been undertaken to automate the management of property register data. First, databases

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are used to store this enormous amount of data. But because the contents of the data can be easily compromised and because poorly maintained data bases can result in data tampering, it is ineffective in terms of data security.

2. LITERATURE SURVEY

2.1 EXISTING PROPERTY TRANSACTIONS SYSTEMS.

The sale of properties like land and other types of entities now takes place through the use of traditional database systems, where all the records are kept on a single administrative entity's single central server[1]. The payments involved in the transaction may be made using conventional paper money or electronically through internet banking. The payment transaction may also involve other businesses like Paypal, Amazon, Google, etc., however the commission these businesses charge for each large transaction is high[2].

2.2 BLOCKCHAIN AND CRYPTOCURRENCIES

Since the emergence of cryptocurrencies, the Blockchain has developed into a hub for electronic payments over time[3]. This has produced a system in which decisions are made without the involvement of any governing authority or third party. The goal of blockchain, a relatively new technology, is to accomplish real-time peer-to-peer operation, decentralisation, transparency, anonymity, integrity, and irreversibility in a broadly used way. However, there are still issues, risks, and weaknesses with this technology that must not be disregarded. Performance is one of its potential limitations. Every node in the network must recognise each transaction before it can be verified, which will take far longer than in a centralised system.

3. PROPOSED METHODOLOGY

3.1 PROPOSED SYSTEM

We built a software platform where anyone can register themselves and can sell or buy their lands, which are connected by a blockchain network, in the Proposed System to tackle the challenges and problems with the current system. User registration is a feature of the proposed system, and it can be completed by giving the public key of the user's wallet for blockchain transactions. Aadhaar, social security, or another form of identity verification must be presented together with the user's information. Users can submit their land and any necessary paperwork to start the selling process. They can purchase land by looking through the gallery of different lands. Through blockchain, the transactions take place.

ARCHITECTURE

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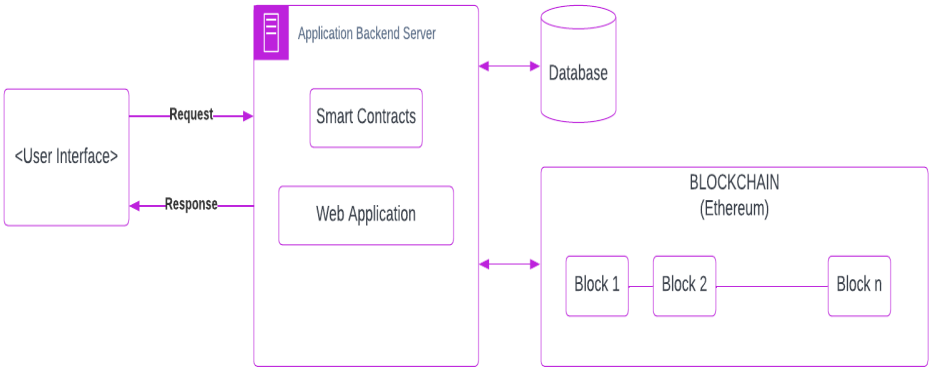

The proposed system architecture has the following components.

User interface: This is where the user interacts with the platform. This is where users add, sell and buy properties on the platform. They will use their metamask wallet or their wallets private key to login to platform.

Smart Contracts: These are conditions for a transaction to occur in a blockchain. These are written in solidity and deployed in Ethereum network.

Web Application: This component handles the server side logic that acts as an mediator between user interface, blockchain and database.

Database: Database is used to store metadata and other required data.

Blockchain: The blockchain here is ethereum and we will make API calls to blockchain to make a transaction happen or to get transaction details.

3.2 TECHNOLOGY AND TOOLS USED TO BUILD PROPOSED SYSTEM

Technologies used for Development : HTML5, CSS3, Java Script ES6, Flutter 3.0.1, Node.js 12, Solidity 0.6.0 or above.

HTML: It is standard mark up language used to design document and display in web. HTML stands for Hyper Text Markup Language

CSS: Its a styling language used to describe the style of the documents that were written in mark up languages like HTML.

Java Script: Java Script is a programming language used to develop webpages, servers. Majority of the client side websites are written in javascript.

Flutter: It is an opensource UI software. Flutter uses to hybrid model to design UI for android, IOS, websites, etc using a single codebase.

Node js: Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.

Solidity: Solidity is an object-oriented programming language for implementing smart contracts on various blockchain platforms, most notably, Ethereum.Programs in Solidity run on Ethereum Virtual Machine.

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Tools used for Development : Truffle 5.5, Ganache 7.2, Metamask 10.12 .

Truffle: Truffle is a development environment, testing framework and asset pipeline for Ethereum. With Truffle, you get: Built-in smart contract compilation, linking, deployment and binary management.

Ganache: Ganache is a personal blockchain for rapid Ethereum and Corda distributed application development. You can use Ganache across the entire development cycle; enabling you to develop, deploy, and test your dApps in a safe and deterministic environment.

Metamask: MetaMask is a software cryptocurrency wallet used to interact with the Ethereum blockchain. It allows users to access their Ethereum wallet through a browser extension or mobile app, which can then be used to interact with decentralized applications.

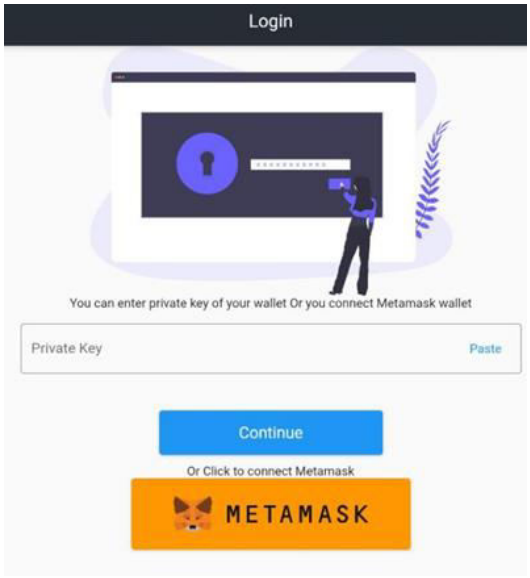
3.2.1 ETHEREUM BLOCKCHAIN AND WEB3

The suggested solution is built on the open-source Ethereum blockchain, which is used to create enterprise-level applications. The necessary APIs to communicate with the Ethereum blockchain are provided by the Web3 framework for connecting to it. We introduce solidity-written smart contracts into the Ethereum blockchain network.

4. RESULT

The following screenshots are the results of the platform tthat are built to serve the purpose of making land transaction using ethereum blockchain as a proof of concept to the proposed system.

4.1 Login



4.2 User Registration

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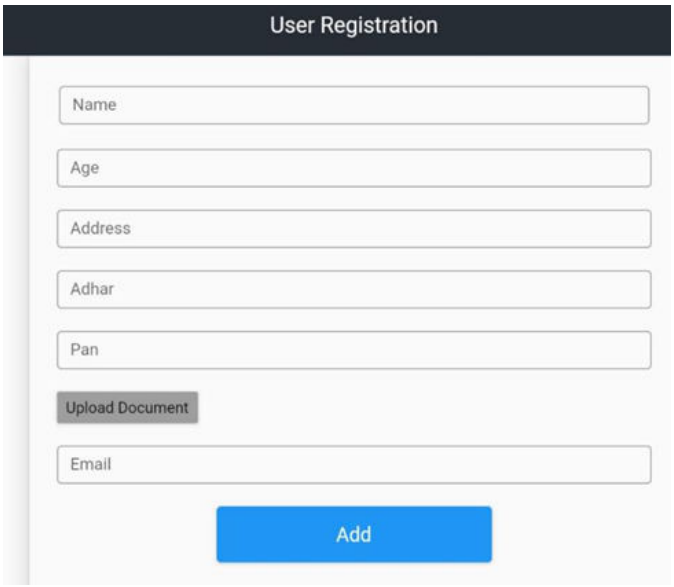
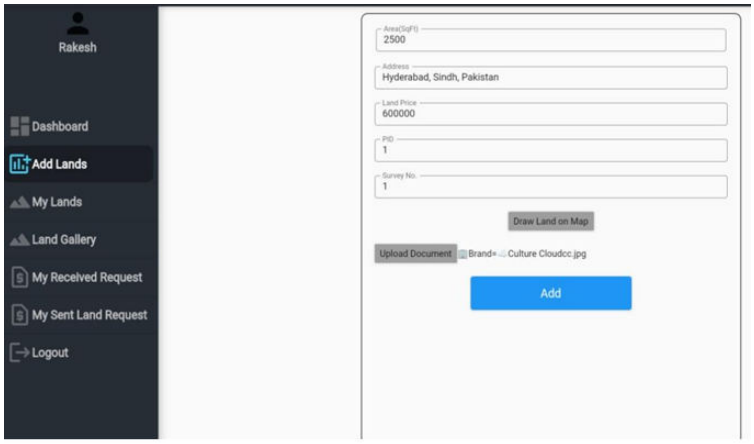
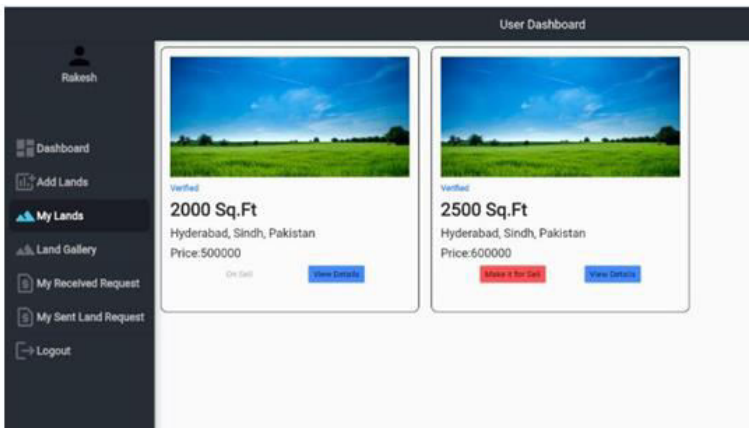


4.3 Adding Lands



4.4 Land Gallery



4.5 Payment

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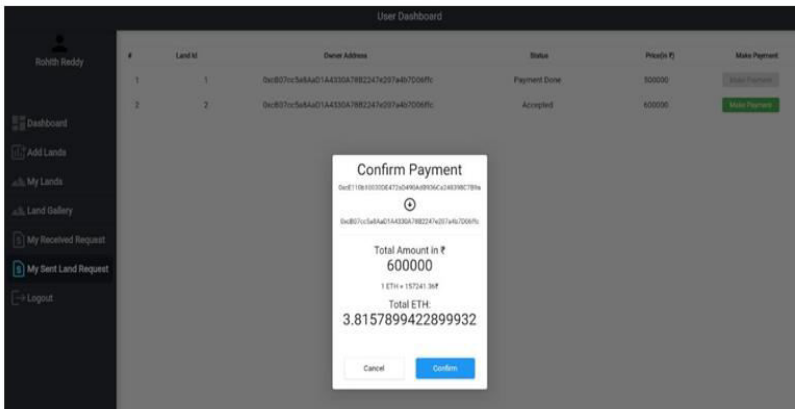

CONCLUSION

Users will be able to submit details about the land they desire to sell or buy from other users who have contributed it to the site after the proposed project is finished. The Ethereum Blockchain was utilised for the goals of this project and is where all land purchases, sales, uploads, and other transactions take place. The initial proprietors of the properties are still in possession of them.

FUTURE ENHANCEMENTS

The platform was created as a proof-of-concept to show how land can be used as property and how it can be traded on a block chain network. For any additional property-related transactions, this can be upgraded and improved. The main disadvantage of using a block chain is that it processes transactions far more slowly than databases do. The block chain idea is still in its embryonic stage. Future growth will be tremendous, and this potential can be applied to this project.

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