Cloud based portal for land and flat booking

Najumuddin Hussain Z
Dept of InformationTechnology
Panimalar EngineeringCollege
Chennai,India
najumuddinhussain69@gmail.com

Ashwin Shanker
Dept of InformationTechnology
Panimalar EngineeringCollege
Chennai,India
ashwinpersonal2002@gmail.com

Harish Raj V
Dept of InformationTechnology
Panimalar EngineeringCollege
Chennai,India
hashv273@gmail.com

Abstract—**Throughout the world the systems existing related to land and flat trades, buying and selling are mostly of the standard structure involving a third-party intermediate agent to facilitate contact and take care of all transactions between buyer and seller. The agent gets access to all the documents and uses his ability and influence to make a trade between the stakeholders and register the documents with the government as per the rules . In recent times this system is getting replaced with online sites for better accessibility and lesser investment, also to overcome potential frauds and threats that have a higher possibility to occur when involving a middle-man to take care of all the processes. Possible threats include title deception, hurried sales, zero returns, possession delay , fake promises, forced cancellations, selling without authorization and selling the same unit to multiple buyers and wasting of time and money .Though the trend of websites has overcome some of it there are still some underlying issues that aren't addressed . This is where we propose a system, an upgraded portal that overcomes all the possible issues faced while dealing with land and flat trades. Using the concept of Innovative Resistance and the durability of Blockchain techniques (hyper ledger) we can ensure to give customers a fearless, trustable, transparent and a curated experience that has the potential to revolutionize the existing market.**

Keywords—Land Registration,Document Handling,Smart Contract, Security,Transparency,Decentralization,Hyperledger

I. INTRODUCTION

Decentralized applications using Blockchain Technologies and concepts are emerging in the recent market. The advantages it provides in the real world include decentralization of applications, sharing of data storage and mechanisms between shared stakeholders, keeping record of all executed transactions in every part of the process. This assures that each transaction recorded in the public ledger is always verified by the major share of the participants with the help of consensus protocols curated for ensuring the stability in the product. Blocks are created as new data emerges and hashing algorithms are used to encrypt them to avoid possible data breach. This ensures that the data created has restricted access to modification unless consulted with a legal administrator personnel who verifies the details of the requestor before any changes are to be made in the data. These concepts and functionalities of Blockchain allows for creation of ledger to store transaction data , events and many other objects generated by selected IT methods with a solid cryptographically secured promise that the stored properties are distributed for decentralization through replication throughout the network for promoting immutability, verifiability and to prevent data loss. The blocks of data are allowed to develop as new blocks are added to it where every block contains the transaction data stored in data storages that are specially designed for

optimized experience. Introduction of personal choice driven restriction of personal data through innovative resistance concepts help in great customer experience. This helps in ensuring privacy by implementing validating processes to allow access to data such as booking details, personal details like mobile number, address, document number, etc.. Slot allocation based transactions help in dealing with isolated trade requests that enhance the possibility to close a deal and avoid confusion. By giving functionalities to restrict certain interested buyers who delay the process of selling,due to suspicion, misuse of the platform or book slots to just pass time without any action taken towards trades etc.. we can further improve the experience. In this proposed system, the stakeholders are classified into 3 - the administrator, the seller and the buyer. Every seller and buyer are only allowed to use the platform after admin authorization after proper registration in the platform. The seller can propose a deal by providing the details required on the Land / Flat in discussion and make a request to post the same to the admin, who then verifies the details of the property through smart contracts. Every bit of information that is submitted is all stored in new blocks by ledgering the blockchain. After admin verifies the property sale proposal is posted in the platform and made available for the buyers view. The interested buyers can view the details of the property and seller (details allowed by the seller), if interested can book their slot for the interaction period where the negotiation for the property can take place. This slot period restricts other buyers to interact with the seller to avoid confusion and bargaining. After a deal is made then the transactions of money and documentation can be directly taken care between the buyer and seller. All the transactions are stored and backed up across all the associate servers in an encrypted format with respective timestamps for easy indexing and access.

II. LITERATURE SURVEY

The primary objective of the survey is to find a way to overcome the flaws and problems occurring in an traditional Land booking System by incorporating blockchain technology specifically Hyperledger.

According to Lina Ge and Guifen Zhang's research,the consensus algorithm has a critical role in blockchain technology,also emphasizing their impact on security decentralization and other essential characteristic,this research also emphasize the obstacle of selecting an appropriate consensus algorithm for multiple circumstances in the implementation of blockchain technology,this research also categorize improvement schemes for proof of stake(pos) into three primary types PoS-based consensus algorithms, PoS- and PoW-based consensus algorithms, and PoS- and BFT-based consensus algorithms.it begins by introducing these Pos modifications and gave a in-depth overview of the core concepts effects advantage and

disadvantage also it compares the performance of these improved algorithm,in the end this research sum up the key enhancement methods and look into prevalent network attacks.it focus on laying a groundwork for future evolution of pos improvement,also it aims to contribute to the future evolution of consensus algorithm,this research offers a valuable reference for researchers to aid them in choosing and designing appropriate consensus algorithms for different application.

In the research of Xiaohui Zhang,Mingying Xue,and Xianghua Miao they where discussed about the characteristics of blockchain technology and it's importance for enhancing trustworthiness across various domain,it talks about permissionless and permissioned blockchain,in permissionless blockchain such as bitcoin,where the participants were actually anonymous and a special mechanism such as cryptocurrency mining are used to improve trustworthiness,However permissionless blockchain face face problems in transaction throughput,hindering broader real-world applications.permissioned blockchain on the other hand will involve verified participants and can attain high transaction throughput and low latency without compromising security,thanks to traditional consensus protocols.The challenge addressed in this research are revolves around balancing the security and consensus efficiency in blockchain technology,here the consensus algorithm emerges as a critical component affecting blockchain performance.In answer to that this research propose a novel consensus algorithm named the Risk Assessment-based Consensus (RAC) protocol.This protocol combines decentralized design principles with a risk-node assessment mechanism.this research paper contributes to the ongoing evolution of blockchain technology by proposing a new consensus algorithm tailored for permissioned blockchains. By Utilizing risk assessment and decentralized design principles

The importance of the land registry system within governance frameworks is highlighted as essential for establishing ownership records accurately. This research, conducted by Mohammed Shuaib, Noor Hafizah Hassan, and Sahnius Usman, adopts a structured approach, consist of three stages aligned with specific research questions(RQs) to assist a systematic evaluation and analysis,they first select 48 primary articles from 477 sources extracted from diverse Scientific database,Following predetermined standards and RQs outlined in the research methodology section.Notably a significant focus was set to literature center associated with land registry System and appraising existing model to identify optimal solution for solving the identified challenges,Additionally, this research conducts a comprehensive analysis of the existing land registry model and its shortcomings, accompanied by an exploration of the different types and features of blockchain technologies.It evaluates the possible uses of blockchain technology across different facets of land registry operations, with particular emphasis on identity management, which represents a notable weakness in blockchain-based land registry models. The scrutiny of identity issues within these models adheres to predetermined standards, resulting in an investigation of potential identity frameworks and their comparative analysis to pinpoint the most suitable approach for addressing identity-related obstacles within land registry systems.

III. Scope of Project

By using industry leading platform for Blockchain implementation - Hyperledger Fabric, the concepts of ledgering transactions to make records of every event that occurs, embedding the concepts and functionalities that promote innovative resistance to the stakeholders of the product . This industry leading technology and very thoroughly curated user experience and interface with the leading security through data structuring and backing contributes towards the possible impact that it will create in the society. With the need for privacy and security in the rising age of technical advancements this product is one of a kind and aims at reforming the products that already exist in the market. With this portal we aim at creating a system that can be accessible to people of all standings of the society irrespective of the financial tiers.. There is also clearly room for improvement as the day goes to promote updating of the product with the new age requirements. With the advantages that this product clearly expresses, the adaptability of the public will be very quick and the scope of marketability and usability is vast and towards exploration. Further it is evident that the product has the potential to revolutionize the market, improving the transparency and integrity throughout the registration processes.

IV. OBJECTIVE

The objective of creating such a precisely curated and modeled portal finds its roots in the two major factors that are i) the need for privacy and security ii)the optimisation of existing products in the market through upgrading with the peak industrial technologies and IT processes. The increasing fraudulent activities and scams regarding property registration on a record increase, there is also a higher possibility of potential attack from skilled hackers of private organizations that aim at data theft, data breach and possible defunctioning of the system and failure due to human errors or destruction of bases of server due to natural or technical calamities. This teases the possible loss of all transactions in existing systems that put the seller and property at potential risk. By introducing the ledgering of event and transaction we overcome the disadvantage of a centralized application and promote the verifiability by using digital deeds to record the ownership of properties before and after the main transaction takes place. Privacy and security through leading handpicked encryption techniques and giving the user power to self-curate their interactions are all made possible seamlessly through Innovative resistance concept. The product also aims at improving the accountability of the stakeholders involved through recorded events stored securely in new blocks and distributed to all inclusive servers ensures that any legal action can be taken and evidence can be submitted easily in case of breaking of transaction vows, or any case of fraudulent activity taking place. In summary the product we propose will pave a way for a highly transparent , efficient and seamlessly secure approach towards property trades in real time.

V.Existing System

Existing practices and systems in Property registration includes mainly of two branches :
i) Broker / Agent centered system. ii) First-generation applications. Agent centered system involves a third party association as a medium of communication between buyer

and seller, this in turn reduces transparency and promotes the possibility of potential frauds, compromisation and damage of documents and possible scamming. This also is a tiresome work to travel and see each available property even before interest. This system is also very time consuming and can face many illegal threats as well and there will be no records of any transaction for future reference. Although the First-generation applications overcome certain issues of the Agent system, it still lacks in keeping details private and out of breach danger. It also has a centralized storage and if by any event like system failure, physical damage to the server base, technical faults the data that is lost is non recoverable and hence risky and inconsistent. Also the growing technical advancements has provided ample options to favor and integrate for a better experience. On the other hand there is a huge privacy risk on details being compromised and misused that needs to be addressed too. In conclusion the first generation applications were good to overcome traditional systems but still needs work to be enhanced and user friendly.

Disadvantage:
• Lack of transparency in the broker-centered System,leading to potential fraud
• Increased Risk of document damage and scam since third party involvement
• Centralized storage of data in first-generation applications, posing risks of data loss in case of system failures or technical faults.

VI.Propose System

The commercialized real estate business and property registration systems are subjected to numerous challenges . These challenges are rooted in the people's mind in the form of distrust and exposure to potential fraud. Even in this era of digitized storing of data and information there is a lack of transparency, trustability and efficient yet uncompromised user experience. To overcome all the issues of the existing system and to address the needs of the ever changing trend between people we propose our highly amplified portal which is built under researched ideas through pioneering technological methodologies and platforms of blockchain to make the storage of every bit of data accumulated throughout the entire process of registration starting from posting the property to the registration of property to buyer's name, decentralized and backed up while being verified by various admin personnel.
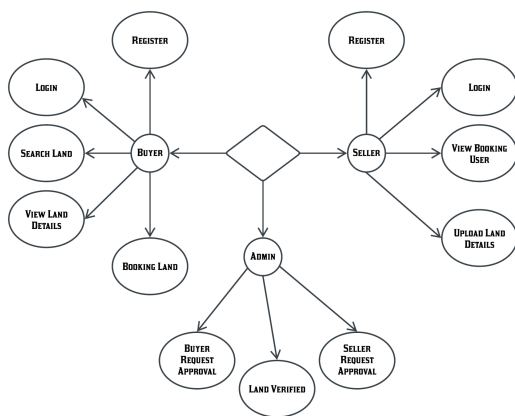
 The proposed system also gives the functionality for recording every transaction while isolating them to assure atomicity and consistency in the database. Through decentralization we neglect the probability of data loss in

case of cyber attacks, technical faults, system failure or physical damage to any of the servers . The advantages of innovative resistance provides the user with control over disclosing personal data with other stakeholders and improves the security of data stored through encryption and hashing.
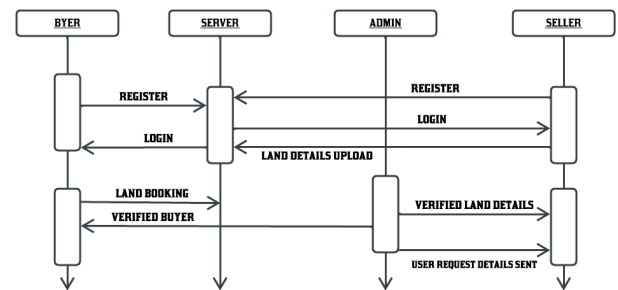
The slot system we propose also provides assigned time windows between seller and buyer to discuss and finalize the trade providing a fair chance to all interested buyers and reduced confusions to the seller. This overall greatly overcomes all the issues that demote the existing systems and provide futuristic advancements contributing to improve and revolutionize the real-estate market and registration systems

advantage:
• Overcomes the middle-man involvement and paves way for direct interaction between buyer and seller.
•Provides a convenient way of browsing through property and finding their details from anywhere with internet access.
• Verification of buyer and seller and property before posting increases trustability and minimizes the risk of frauds.

VII.Modules

 1. Seller:
This module allow sellers to list their propertie by providing appropriate documents,information and images to attract potential buyers

2. Buyer:
This module allows buyer to book a land/flat which hides the listing to other buyers for a period of time preventing multiple buyers interacting with seller simultaneously

3. Database:
Stores all essential data such as buyer,seller and admin login,land/flat details etc.

4.Admin:
the administrator takes care of approving the property listing by verifying the given information and also has the authority to block the seller/buyer based on their behavior

5. Hashing:
The embedded file hashing functionalities ensure encryption of file data and prevents fraud by not allowing document re-uploaded duplication through unique hash code
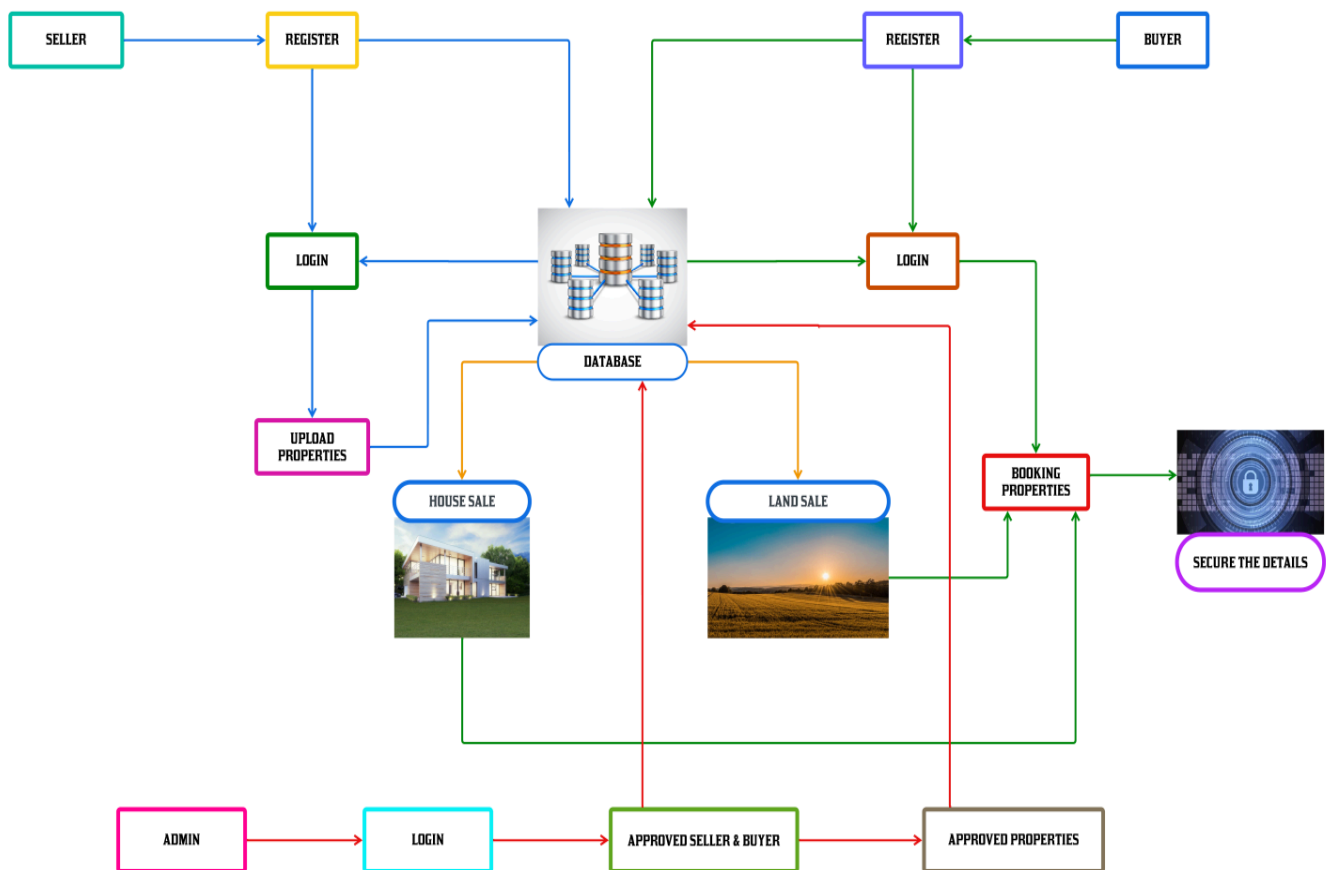
6. Hyper-ledger:

Hyperledger records every transaction and event that occurs in a system. hyper-ledger fabric ensure transparency,traceability,immutability and accountability.

7. Access-Control:

When the buyer has to look up the details about his bookings, it requires an OTP to decrypt the encrypted details, making it secure from others intruding into our privacy.

VII.System Configuration

a)HARDWARE REQUIREMENTS:

• Processor - Intel

• RAM - 4 GB

• Hard Disk - 260 GB

b) SOFTWARE REQUIREMENTS:

• Operating System - windows 7/8/10

• Front End - Java

• Back End - Mysql

• Tools - NetBeans 7.3.1

IX.Conclusion

To summarize, our proposed System will provide users a user-friendly,trustworthy and secure platform for selling/buying flats and lands which are problems that are faced by first-generation applications and Broker / Agent centered system by utilizing blockchain technology specifically hyperledger Fabric,which provides unparalleled transparency and efficiency.The slot based system promotes fair and ordered dealing between buyers and sellers,also the Decentralized part of this proposed system will prevent from risk of data loss and cyber thread.Blockchain has the potential to evolve real estate and improve transparency in registration process.our proposed system is a step forward in the improvement of Property registration

REFERENCES

[1] N.S.Tinu(2018), A Survey on Innovative Resistance Technology Taxonomy, Consensus Algorithms and Applications.

[2] J. Michael Graglia, Christopher Mellon, Innovative Resistance and Property in 2018 : At end of the Beginning.

[3] Raquel Benbunan-Fich, Arturo Castellanos(2018) Digitalization of Land Records: From Paper to Innovative Resistance.

[4] IBM, State Street Corp. Hyper ledger Fabric: A Distributed Operating System for Permissioned Innovative Resistance.

[5] Miroslav Stefanovic, Dorde Przulj, Darko Stefanovic(2018) Blockchain and Land Administration : Possible applications and limitation.

[6] Tsung-Ting Kuo, Hugo Zavaleta Rojas and Lucila OhnoMachado(2019) Comparison of blockchain platforms: a systematic revie and healthcare examples.

[7] Yacov Manevich, Artem Barger, and Yoav Toc, Service Discovery for Hyperledger Fabric .

[8] Yashwanth Madaka, Building a blockchain application using Hyperledger Fabric with Angular Frontend: Part-2 https://medium.com/coinmonks/building-a-blockchain-applicationusing-hyperledger-fabric-with-angular-frontend-part-2-22ef7c77f53

[9] M.-H. Guo, Z.-N. Liu, T.-J. Mu, and S.-M. Hu, "Beyond self-attention: External attention using two linear layers for visual tasks," 2023, arXiv:2105.02358.

[10] Madakam, S., & Kollu, S. Blockchain Technologies Fundamentals Perceptions, Principles, Procedures and Practices. Journal ofˆ Social and Management Sciences, 34.