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Land Registration using Blockchain Technology.

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Abstract: *Land registration authorities face frequently criticism for the alleged mismanagement or manipulation the land records across various nations. Pakistan, out particular, grapples with the heightened susceptibility the falsification and corruption its property records due to economic challenges. This vulnerability results of conflicting claims of authority over specific parcels of land. consolidation of the data further exacerbates this susceptibility to the security threats. A land administration system (LAS) is the structured framework designed to the govern of management of land resources in a specific region or country. However, LAS faces challenges like the inefficiencies, of a lack of transparency, and the susceptibility to fraud. Digitization of land records improved efficiency but failed to address manipulation, centralized databases, and the double-spending issues. Traditional lease and mortgage management systems also suffer from complexity, errors, and a lack of real-time validation. At present, a significant influx of land transactions produces substantial data, classifiable as big data due to the constant minute-to the-minute occurrences like the land transfers, acquisitions, document verification, and leasing/mortgaging transactions. In that context, we present the Blockchain-driven system that not only tackles alteration and double-spending issues in atraditional systems but also a implements distributed data and management. Current state-of-the-art solutions do not fully incorporate crucial features of the Blockchain, such as transparency, prevention of double-spending, auditability, immutability, and user and their participation. To the tackle this problem, this the research introduces a comprehensive Blockchain-powered framework for the lease and the mortgage management, addressing transparency, user and their involvement, and the double-spending the prevention. Unlike existing solutions, ourused framework integrates the key Blockchain characteristics for the holistic approach. Through their practical use cases and involving property owners, banks, and financial institutions, they establish a secure, distributed, transparent method for the property financing*

Keywords: Land registration

I. INTRODUCTION

The Land Administration System (LAS) is defined as the "processes of determining, recording, and the disseminating a information about the ownership, their value, and use of the land when a implementing land management policies". LAS is a used to the register, change the ownership, lease, and mortgage of land property transactions and the keep track them to. It is a involves a variety of the manual and their physical operations at different various levels. As the result, the legacy registration process of the leaves several issues be resolved. It is that takes months to a register of the land property, and the numerous departments carry out transaction for a the land transaction, relying on the inadequate or the fraudulent in documents.

There are no appropriate verification system in the place to their prevent multi-selling or many land record forgery in the legacy systems. Land administration in worldwide of lacks transparency and their user involvement. According to the World Bank statistics, in just 30% of the land is legally entitled and demonstrated, and 20% of landowners are then forced to pay the bribes for their land transfer or the entitlement The digitization of the land records in that last decade has enhanced transaction efficiency but that also fails to the address challenges like the manipulation, centralized databases with a single point of failure, user involvement, transparency, and the prevention of the double-spending. Traditional lease and mortgage management systems have long been plagued by the inefficiencies, a lack of a transparency, and susceptibility to a fraud. The major part of the subunits (departments) in work independently which

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are creates in the issue of the information duplication and data errors. Property may be moved to an excessive number of the parties which is due to the lack of their real-time data confirmation and procedure. Hence, double-spending occurs. A persistent problem is the inherent in many transactions is the legitimacy verification of property ownership and that of the authority is the involved parties in a process that is slow-moving and where each step is vulnerable to the manipulation. Currently, business transactions use the complex paper work to the handle data through their long cycle in periods of the validation and the verification. It is one of the taking longer time for professionals do long mortgage or lease processes hence stimulating fraud business. Once a plot is parselled and the land lease or mortgage registered, in maintaining the record free from the assailants becomes difficult to the context of its centralized digital systems. These are the issues have to be prompted researchers to the search for that a new and intelligent way to a improve the existing of systems. Therefore, most of the researchers are moving towards the adopting Blockchain technology for the LAS. Utilizing Blockchain technology for land management isdue to its decentralized, distributed structure. This technology removes to the need for a third party to the secure each transaction, increasing transaction in that traceability. Moreover, in the Blockchain eliminates the issue of that non-synchronization by integrating all its stakeholders on its single platform, which helps solve their issue of the double spending. Some of those researchers have to be integrated in Blockchain with those land lease and mortgage management applications. However, none research has been expressly provided a clear framework for the land acquisition in the process to encounter those existing limitations. The Existing Blockchain-based state-of-the-art solutions will not incorporate all its characteristics of the Blockchain. They focus one of those characteristics in while they violating the other ones. Therefore, incorporation in this is necessary characteristics of Blockchain lease and their mortgage administration system is still a challenge.

Our research aims to that make in a significant contribution to field of LAS by the emphasizing of a framework integrating in user involvement, transparency, and their efficiency throughout the entire land record process

To showcase in the practical implementation of the user involvement, we present them two important use cases: of the mortgaging a property and their leasing in a property. By using their involving property owners, banks, and the financial institutions in its lease and the mortgage process.

we aim to the establish that of a seamless and the secure method for that needed and a property financing. We implement and then test the proposed framework in the Ethereum blockchain to its needed provide security and cost in the analysis of the proposed system to their confirm in its viability.

We present the comprehensive framework of that harnesses in the capabilities of the Blockchain to its streamline in the management of the vast land administration in datasets. Through their integration of the Blockchain, solution that aims to the revolutionize the way LAS operates, fostering a more than the reliable, scalable, and the secure environment for their land-related transactions. The framework's and their scalability allows also a part it to accommodate the growing volume of the land-related data generated over a time. In the proposed solution, the land transaction data is only way to securely stored across the distributed network of the nodes, eliminating that reliance on the central repository. This is not only a enhances to data redundancy and the fault tolerance is but a also prevents unauthorized data and its tampering of record. This research paper aspires the analysis taken for the research it is synthesized in the tabular presentation, offering a thorough synopsis of the pertinent research in a endeavors. This is the table encapsulates in its essential information, including its that study's title, and authorship.

II. RELATED WORK

Nidhi et al developed a Land Ledger. Introduction to the blockchain. In the2016,They then Introduce to the foundational concepts of the block chain technology. Decentralization, immutability, transparency are the advantages. Scalability to the concerns, energy in consumption are that of its disadvantages. Blockchain is the inspired concept of the bitcoin.

Aquib et al they gave an Overview of Land Registration. In 1858,They decided to Explore traditional way of land registration processes and they faced lot of challenges. Historical way of documentation, and their legal clarity are the advantages solved. Paper-based inefficiencies, and susceptibility to the fraud are the disadvantages. This is new technology that brought into existence.

Nguyen et al Security and their Immutability in the Land Registration. In the year of 2018,Examine how the blockchain is used to enhances security in the land records storage. Immutable set of then records, In its resistance to the tampering

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are advantages. Dependence on its network is way security, potential for the range of the 51% attacks are the disadvantages.

Kaushik has set up a BlockChain in Real Estate and the Land Registration, Investigate gave the potential to their benefits of the blockchain in the real-estate. Enhanced form of the security, they are all reduced from the fraud, increased from transparency are their main advantages. Initially they all implementation the costs of its, regulatory and their uncertainties are disadvantages, in the publication year, the research goals, and their noteworthy merits and the drawbacks identified in the each of its investigation.

A Blockchain-based land registry system is being developed in Ghana as a Decentralization Privacy: Using BlockChain to the Protect Personal Data. In the year 2015, Compare with different block chain- based on the land registration systems. Informed decision-making, in the identification in the best practices that are the based advantages. Limited standardization, varied system performance are the disadvantages.

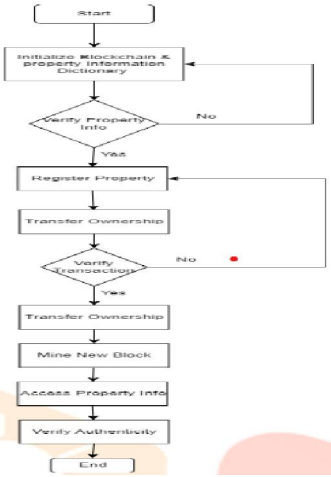
Early riser that was Honduras, which was started in its Blockchain-based on the land registry of the project Smart Contractsin the Land Registration. In the year 2014,Explore its the role of the smart contracts in the automating of the land transactions. The Automation, its efficiency and gains, reduced in the intermediaries are its advantages. Legal and regulatory might uncertainties, complex coding are disadvantages.

Estonia's Electronic Identification and the System has to be sought to the develop secure and in its decentralized digital in its identity solutions for its citizens The Bussiness in BlockChain, Mougayar. W. In 2016, Analyze in the real-world examples as of blockchain inthe land registration. Successful implementations, lessons learned are the advantages. Adoption were challenges, technical hurdles that are the disadvantages. study on the Land Registry, Sweden was Tranforming Your Bussinessand in OurWorld, Tapscott.D, Tapscott.A. In 2017, Examine how blockchain integrates with the current land registration that systems. Improved interoperability, streamlined was seen in the processes are the advantages. Legacy system was more compatibility issues, transition challenges are their disadvantages.

III. PROPOSED WORK

We introduce the decentralized Blockchain-based system in tailored for the efficient lease and the mortgage in management, amplifying in the transparency, its immutability, and the accountability in the land ownership and the possession data. Given the burgeoning volume of the land transactions, which was essentially a constitutes "big data," our its system was offers a great proactive approach to the streamline and its property ownership and possession in the processes. Employing the Ethereum Blockchain using framework, our new system facilitates the secure access for the central government offices to the land records, simultaneously allowing landowners to the monitor property-related transactions. These were the new transactions are meticulously logged in the private using Blockchain, expediting their execution while then upholding the confidentiality of personal and interactions.

Architecture Diagram



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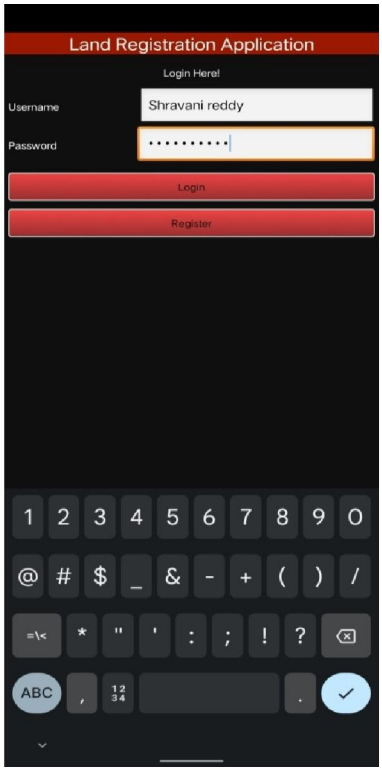
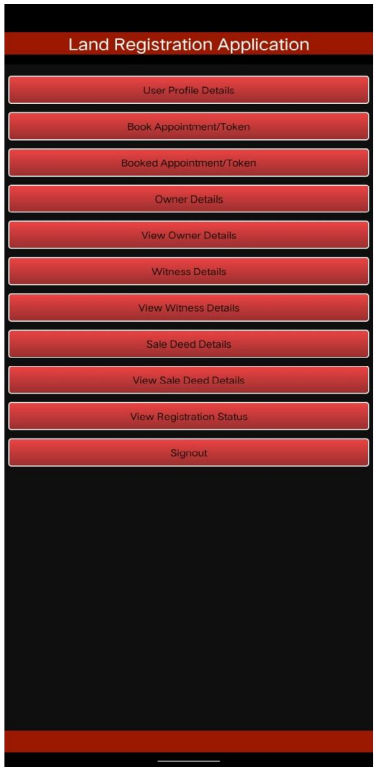
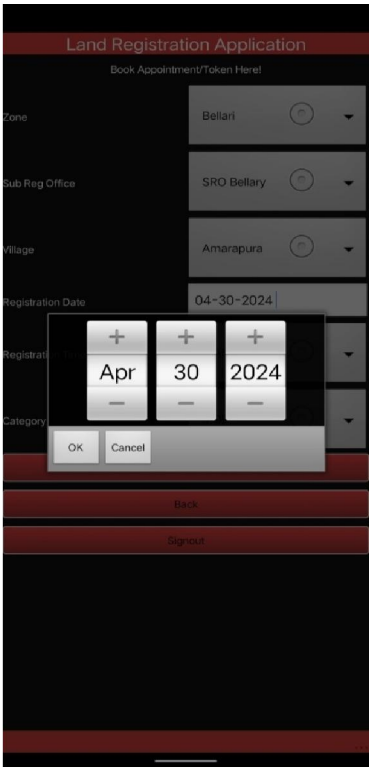
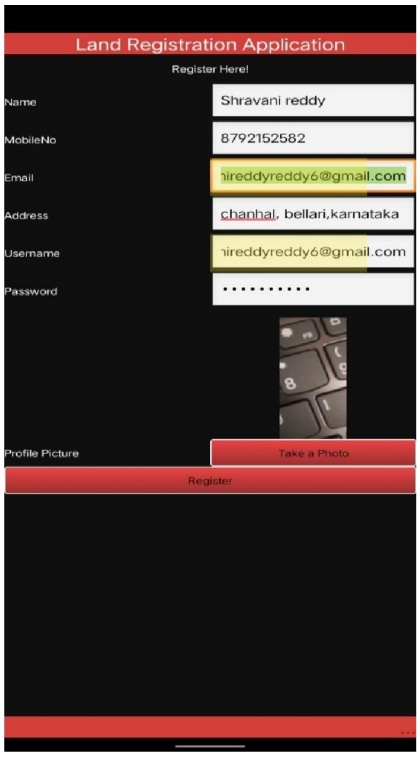
IV. RESULT

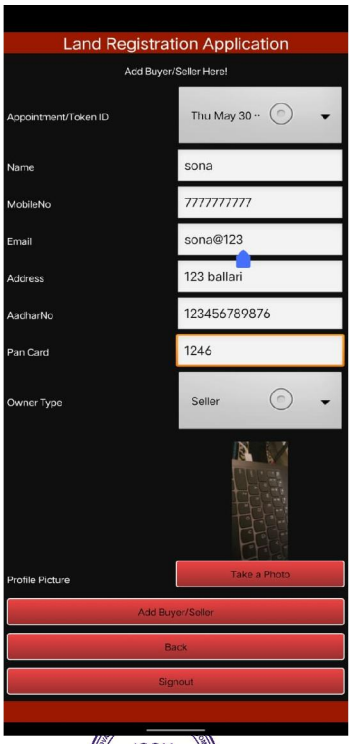
App as the login and register Application and following with interfaces for registration of land property











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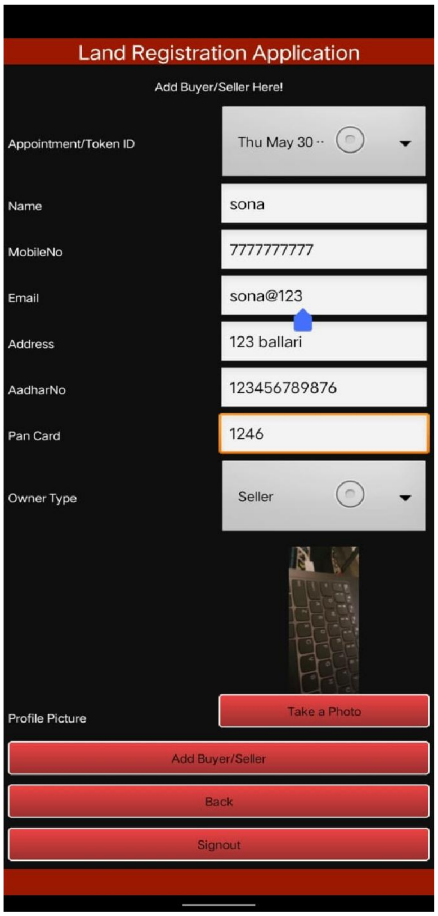

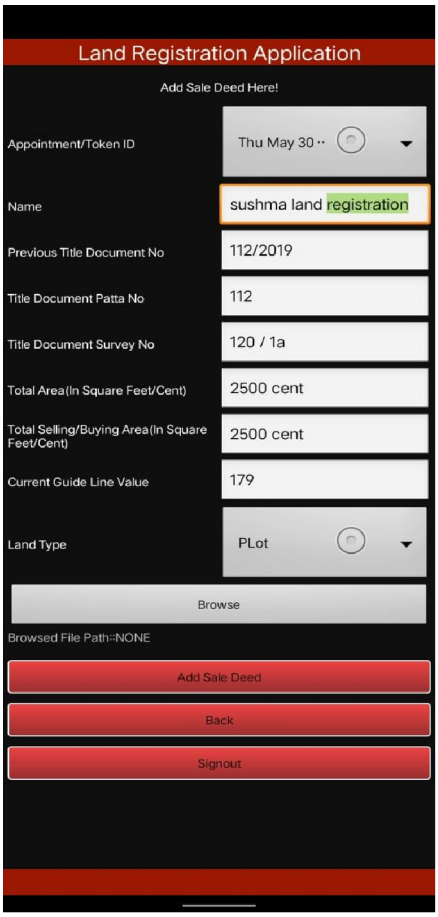

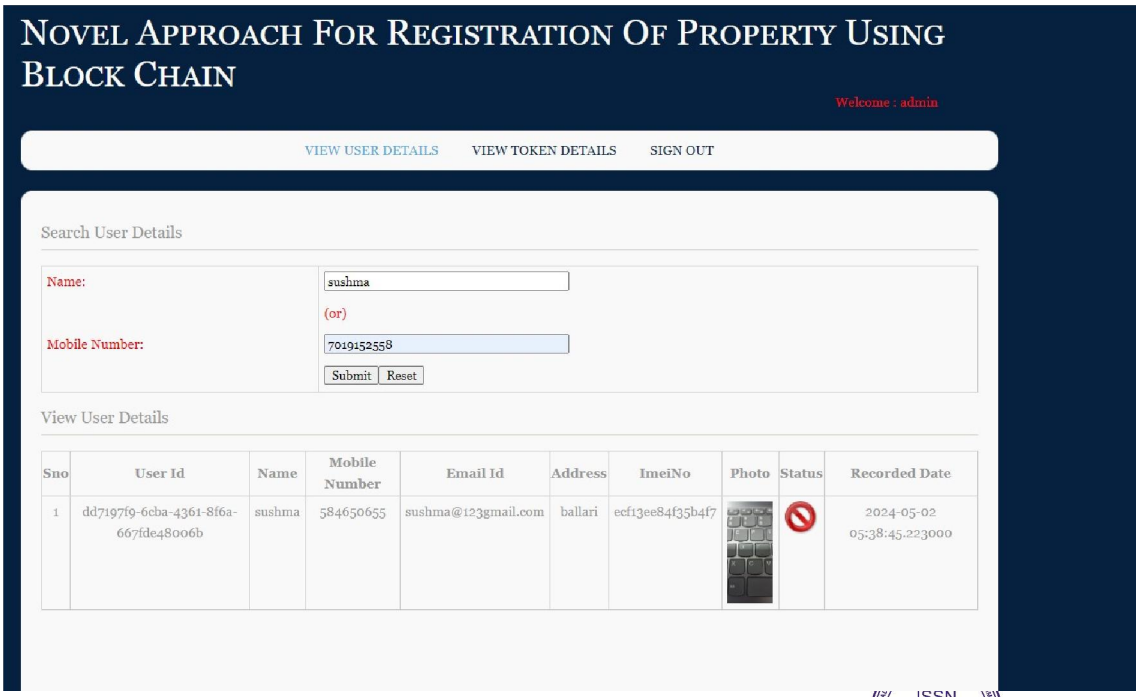

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V. CONCLUSION

In conclusion, The survey of existing research paper in the given Land registration was implemented using the blockchain-based registration was enhances security. It involves many 200 transactions across the 12 nodes, using its SHA256 algorithm for secure its transactions. User info was stored in securely, and the transactions are just verified using the elliptic curve was shown cryptography. The system was made ensures transparency with the registration office page listing user was details and the property transactions. Difficulty levels were just maintain secure in mining, and the Merkle trees was validate and the link that was maintained chain efficiently. This approach was simplifies in the land registration while it was kept ensuring security and transparency.

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