FINAL YEAR PROJECT PROPOSAL

Land Record Management System Using Blockchain

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1 Problem Statement (Why?)

There are several major problems with Pakistan's present system for managing land records, including the need for middlemen and brokers, an increase in fraud cases, lengthy delays, and the reliance on human contact. There is still a single individual, known as a Patwari, in charge of maintaining land records on a centralized computer or on paper Registers. Despite the government's best efforts to digitize land records, a great deal of land data still must be saved on a computer acting as a central server, which presents the risk of becoming a vulnerable single point of failure due to causes such as natural disasters or malicious hacking. More worryingly, the person in charge of supervising and administering the system may make up information. Until the land registry made random inspections, many examples of fraud were not discovered by the sellers or the buyers. People still suffer from the effects of feudalism in many rural regions. The feudal are forcibly taking their land. Title registrations take a very lengthy period at Land Registry. The time between finishing a project and having it officially registered might be somewhat long. Additionally, several legal issues might emerge during this lengthy pause. Buyers may be forced to wait for a very long period if such problems arise. Those are the major problems with our current land management system.

2 Objective (What?)

Blockchain technology has the potential to improve upon the present land record management system by eliminating many of the problems that have arisen. Data (such records, events, or transactions) sent over the Blockchain is encrypted and transferred in a way that cannot be hacked. After being uploaded to a Blockchain, data cannot be altered in any way, making it nearly impossible to modify the value of information stored there. Since Blockchain operates without a central authority, it has altered the old business paradigm. Blockchain may be thought of as a digital ledger with the same functionalities. Besides knowing when a particular number of transactions took place and who their owners are, the Blockchain may also identify the assets' owners. We will provide a Blockchain-based answer to the problems plaguing Pakistan's present centralized land record management system, which are in turn a result of the limitations of the country's current centralized server-based data storage systems. Our goal is to improve upon the present centralized land management system using distributed and decentralized Blockchain technology.

3 Approach (How?)

We will use the hybrid in nature Blockchain approach that can be achieved using Hyper-Ledger Fabric Framework.

3.1 Proposed Solution

In this section, the proposed approach to the land management system in Pakistan is discussed in detail using Blockchain.

- The proposed system for Blockchain-based Land Record Management in Pakistan is highly conceptual, with a clear description of its components.
- We finally settled on a document that described a three-tiered system design in which the Registrar, the Revenue Department, NADRA, and Blockchain all had a say in the outcome.

3.1.1 Registrar department

The Registrar Department, which also maintains data locally and on the Blockchain network, issues sales and entry (FORM-II) certifications. The information in this department's ledger is available to every node in the network.

3.1.2 Revenue department

The Revenue Department, which also has all prior documents as well as those of the new owner in local storage and on the Blockchain, must issue a challan.

3.1.3 NADRA department

NADRA is responsible for responding to inquiries from the Revenue and Registrar departments once it has confirmed the accuracy of biodata for consumers and merchants. Blockchain technology's many advantages stem from its immutable ledger and smart contracts. Property titles are recorded in an immutable ledger. Using smart contracts, you may control the maximum number of new certificate issuances at once.

3.1.4 End Product

The completed product will be an intuitive web-based application. Elements of the proposed app include the Revenue Department's plans to implement a system for generating and storing challan data on local storage in the owner's name in response to owner requests for such data. After a bank challan is issued, agents from the Revenue Department will use NADRA to verify the information provided by the challan's owner. After all checks are complete, a sales certificate will be provided in the owner's name that will be good for a certain period. Information from both the certificate of sale and the paid challan are stored in both the local database and the Blockchain network. The Registrar's office will have hardware and software that communicates with NADRA, allowing them to verify the purchaser's identity and the authenticity of the sale certificate.

Once the verification process is complete, a property record is created and stored both locally and on the Blockchain. As per the established protocol, after the property registration process is finalized, the Revenue Office will provide a FORM-II certificate to the new owner (purchaser). Property ownership has been officially transferred.

3.2 Proposed Technologies

3.2.1 Tools Technologies

- Hyper Ledger Fabric (Blockchain)
- React Js (FrontEnd)
- Node Js (BackEnd)
- CouchDB
- Git and GitHub

4 Timeline (When?)