Final Year Project Proposal

Land Record Management System Using BlockChain

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1 Problem Statement (Why?)

The use of intermediaries and brokers, the rise in fraud cases, time delays, and human interaction are a few of the significant faults in Pakistan's current land record management system. Data for land records is still preserved on a centralised computer or on papers called Registers, both of which are under the control of a single person known as a Patwari. Despite the government's efforts in digitising land records, a substantial amount of land data still needs to be stored on a computer that serves as a centralised server.This central server could become a single point of failure as a result of external factors and hacker attacks. Furthermore, the individual in charge of managing and overseeing the entire system could fabricate data. In many of the cases, the fraud wasn't found by either the vendors or the purchasers until the land register conducted a spot check. In most rural areas there are still problem of feudalism, due to which mostly people suffered. Land Registry takes a considerably long time to complete title registrations. There could be a gap of several months between completion and registration. Many legal problems can also arise during this long gap. Such issues can make the entire process delayed and buyers have to wait for a long time. These are the big challenges in our existing land management system.

2 Objective (What?)

The issues with the current land record management system can be lessened using Blockchain. The Blockchain is an extremely secure method of transferring data (such records, events, or transactions) from one party to another. It is very difficult to change the value of any data after it has been added to a blockchain since all data recorded there is unchangeable. The Blockchain has changed the model from a centralized way of traditional business to the decentralized model of the blockchain, that means there it can run without any central authority. The functionality of blockchain also considered a digital register. The Blockchain is also aware of who the owner of assets, as well as when a certain number of transactions occurred. We will develop a blockchain-based solution to address the issues that the current centralised land record management system is experiencing based on the constraints of the central server-based data storage systems for Pakistan's land record data. Our aim and objective are to use distributed and decentralised blockchain technology to address the flaws of the current centralised land management system.

3 Approach (How?)

We will use the hybrid in nature Blockchain approach that can be achieved using Hyber 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 Blockchain-based Land Record Management in Pakistan suggested system features a high-level design and a concise breakdown of its parts.
- After reviewing several research papers on the topic, we chose one that presented a three-part system architecture (as shown in Figure 1), with equal stakes for the Registrar, Revenue, NADRA, and Blockchain.

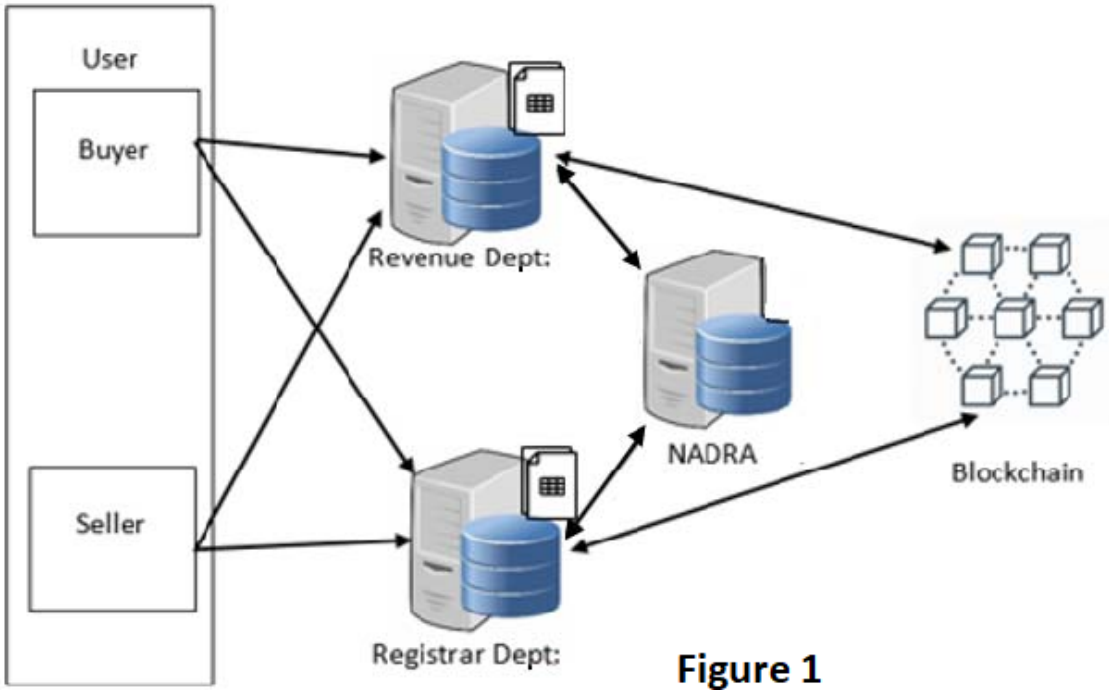

Figure 1

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

The Revenue and Registrar departments' bio-data for customers and vendors must be verified by NADRA, who must then respond to them. The immutable ledger and smart contracts offered by blockchain technology provide a number of benefits. To An immutable ledger is used to maintain track of property ownership. You can limit the number of certificates that can be issued concurrently using smart contracts.

3.1.4 End Product

A user-friendly mobile or web application, or both, will be the final result. The planned app would include elements like the Revenue Department intends to set up a system that will create and store challan data on local storage in the owner's name when an owner requests it. Revenue Department representatives will utilise NADRA to confirm that the information given by the challan's owner is accurate once the bank challan has been submitted. A sales certificate in the owner's name valid for a specific amount of time is issued when verification is complete. Both the local database and the Blockchain network save data from the sale certificate and the paid challan. The Registrar's office will have technology that connects to the NADRA system to check the buyer's biographical information as well as the validity of the sale certificate itself.
After verification is finished, a property record is produced, and information is kept locally as well as on the Blockchain. According to the intended procedure, the Revenue Office will give the new owner a FORM-II certificate after property registration is complete (purchaser). The transfer of ownership of the property is now complete.

3.2 Proposed Technologies

3.2.1 Tools Technologies

- Hyper Ledger Fabric (BlockChain)
- React Js (FrontEnd)
- Node Js (BackEnd)
- Git and Github

4 Timeline (When?)