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Literature Survey on Assets Security and Transfer Using Blockchain

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Abstract—

Currently holding assets and maintaining them is a tedious task but keeping them secure is a herculean task. We hear cases of land frauds as well as other frauds regarding assets quite usually. The problem is paperwork involved in the process and people take advantage of loopholes in the system to commit frauds and scams. In this project we try to address this problem by harnessing the power of Blockchain. Blockchain is a decentralized, distributed, and immutable ledger. Transactions once performed on the blockchain can be tampered with and remain secured on the blockchain. Once the land records are uploaded on the blockchain can be tracked and kept secured. Also, this project encompasses the solution regarding crypto idle assets which facilitates the automatic transfer of assets to the nominee in case there is no activity found in the wallet or when the person dies. In this way the person can be assured that their will shall be executed without any tampering and according to their wish.

Index Terms—Blockchain, Will Transfer, Smart Contract, Land Registry, Assets Security

I. INTRODUCTION

A. What is Blockchain ?

Blockchain is defined as a distributed, decentralized and immutable ledger which is used to store transactions which cannot be tampered with due to the security of cryptographic algorithms. The consensus algorithms ensure that no single entity would have the control of the data and ensure a trustless environment. It fosters an environment of trust in the network as the participants trust the algorithms rather than a single entity. [1]

The organisation of data in a blockchain is very different from how it is typically set up. A blockchain collects data in units called blocks, each of which contains sets of data. When a block is filled, it is sealed and linked to the block before it to form the data chain known as the blockchain. Blocks have predefined storage capacities. When the chain is complete, a new block is created from each piece of information that follows that just-added block and added to the chain.

Blockchain creates new cost-saving efficiencies while en-hancing the traceability, security, reliability, and transparency of data shared throughout a business network.

B. Smart Contract

A smart contract, usually referred to as a crypto-contract, is a piece of software that, under specific conditions, controls directly and automatically how digital assets are transferred between the parties. A smart contract runs with automatic con-tract enforcement, just like a regular contract. Smart contracts are computer code that behave exactly as intended by their creators. Similar to how a traditional contract is enforced by law, smart contracts are enforceable by code.

Blockchain is decentralised platform, so there is no central organisation is there to control the asset transfer and manage-ment. So what will happen to the assets of user when, user will loose his crypto wallet credentials. So, to avoid such issues we proposed a new system that is transfering assets as per users will.
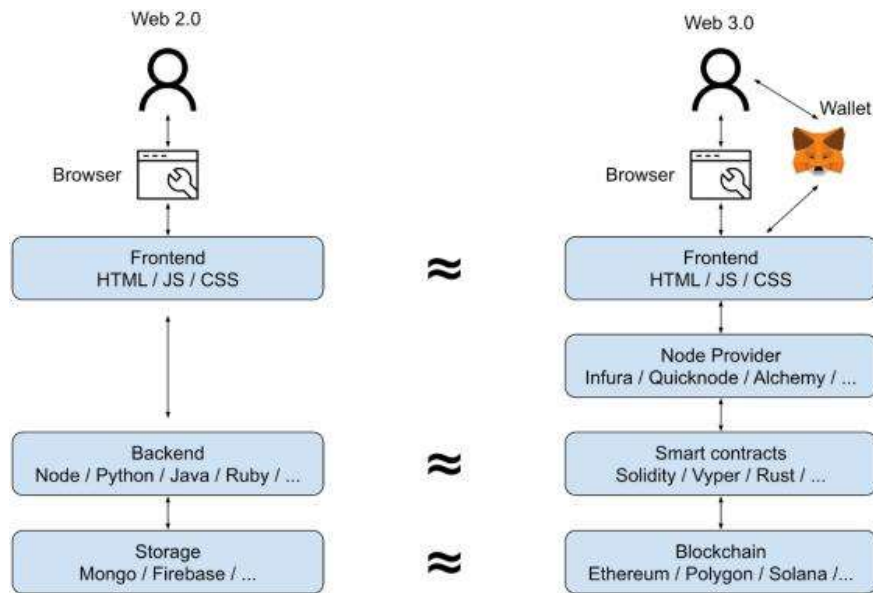
Fig. 1. [1] Architecture.

So, using our proposed system user can write smart contract mentioning some conditions in it so that, after fulfilling that conditions, assets will automatically get transferred to the another mentions user. Mainly there are 3 conditions for contract to satisfy:

- Asset may get transfer when certain amount of time passes as mention by user.

- Contract will check the account activity of user in some time interval, and asset will get to the mentioned user when no activity is found in the account, as declaring the user dead.

- Ominee will request to authorised person for his assets.

II. RELATED WORK

One of the most divisive issues in India is land. It requires a suitable alternative, plan for preserving property records and delivering the results of a rare legal dispute to an individual with titles that conclude. Land titles in India nowadays do not guarantee its entire ownership rights. Additionally, real estate deals are performed on paper and not updated very regularly, resulting in Numerous disputes over property. Land titles are The sub-office registrar's in India is where all records are collected and kept. It The possibility of the record being changed or tampered exists as well. If Given that these records are kept on a distributed ledger, It won't be possible to change or influence them, thus an uprising will occur when the land registration adopts blockchain technology.

Sonja Ristic [2] cites a number of shortcomings in tradi-tional land record systems that can be resolved by applying Blockchain technology. It's still unclear whether Blockchain technology will be used to build a complete land record. Nu-merous pieces of information, including legal and geographic data, are stored in land registration. The hash codes of the documents we want to store in the Blockchain would be the only constraints if permission-less Blockchain technology were employed to construct the application.

Examining a range of test cases Raquel Benbunan-Fich

[3] And Arturo Castellanos suggested digitizing land records. They discovered that internal processes are capable of con-tributing to the blockchain-based digitization of land records. The procedure will move more quickly and with less delay thanks to the digitization of land records. According to a Georgian assessment, the use of Blockchain in land records has decreased the rate of fraud.

The architecture of Disha is depicted in Figure 1. They provided a three stakeholder solution to the challenges of bottlenecks, single points of failure, and risks of fraud and forgery.
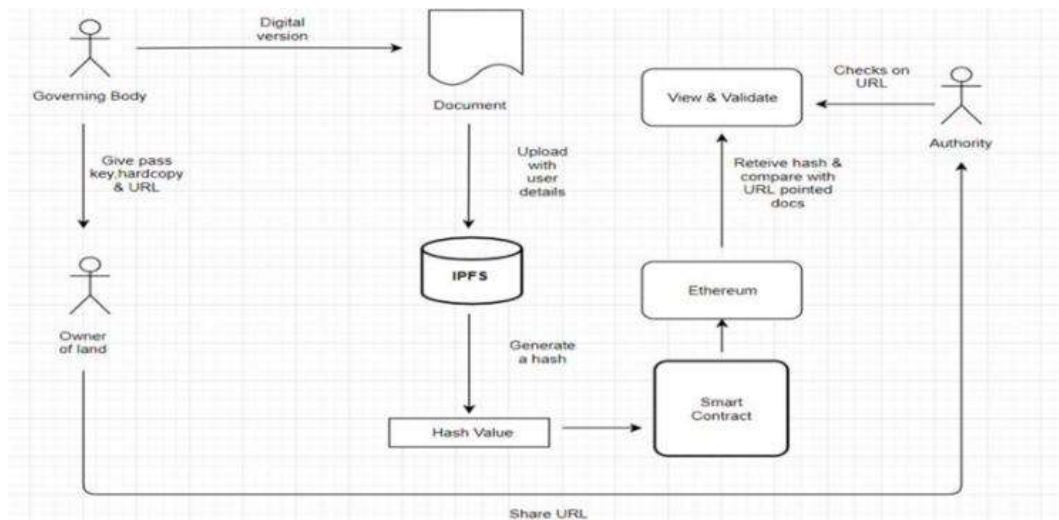
Fig. 2. [4] Architecture.

They suggested that the land registry system should include a management portion. To log into the system, the adminis-trator must enter the necessary data. Using a users Aadhaar number, the administrator can search for lands. Administrator will enter the Aadhaar and then click the search button. On the screen, all matching entries from the database are displayed as URLs. As a result, we will get a list of everything the owner owns. [4]

Advantages Over Current System:

1. Data can be stored securely in immutable format.

2. Registry process become fast.

3. It makes transaction histories visible everywhere since every node in the network has a copy of each transaction. The other nodes can see any changes that are made to the transaction.

But apart from this what will happen to the land, or to the asset when user dies is not mentioned in this paper. We can modify this system to automatically transfer the assets to the nominee or add functionality to request for users will transfer contract information.

The proposed system by R.C. Suganthe [5] attempts to provide precise information on ownership and land records. Knowing such information about a property allows one to be certain of the precise specifics of the ownership of the land. These details are currently provided in the typical paper-based registration process, but those data are readily manipulated. By using blockchain technology and preserving these details in a block, it will be possible to prevent fraud and guarantee that the data is not altered.

They proposed how we can store the data on blockchain to secure them. First they created metamask wallet which was connected to web3 frontend environment. Then User will enter his information and then encrypted information is stored in block in form of blockchain. As shown in figure 2.

In healthcare work, [6] the authors concentrate on applying blockchain-federated learning to protect individual medical records. Particularly in the case of imaging data, privacy is of utmost importance. In light of the current popularity of AI-based models, particularly in the field of medical imaging, it is essential to protect sensitive data before using them in real-time settings. All of this data are therefore stored on a blockchain for security reasons. Blockchain enables secure data exchange between many service providers.

A decentralised app potentially have a front-end that inter-faces with its back-end via the web3.js API. Web3.js is a set of technologies that enables us to communicate with nearby or distant Ethereum nodes and carry out actions like sending cryptocurrency from one account to another and using smart contracts to read and write data. These connections can be HTTP. Web3.js communicates with the Ethereum Blockchain using JSON RPC. To read and write data to every Ethereum node, we can use Web3.js to send JSON RPC queries. [7] However, the author offers no solutions for what would happen to assets in the event that the user passes away or forgets his wallet credentials.

So, most of the research papers suggests storing of our digital records on blockchain for security purposes. Those approaches can be used to store the data securely.

In suggested land registry system, author mainly have two functionalities, registration and transaction. In transaction there are 2 steps i.e. making land available to people and selling/buying the land asset. [10]
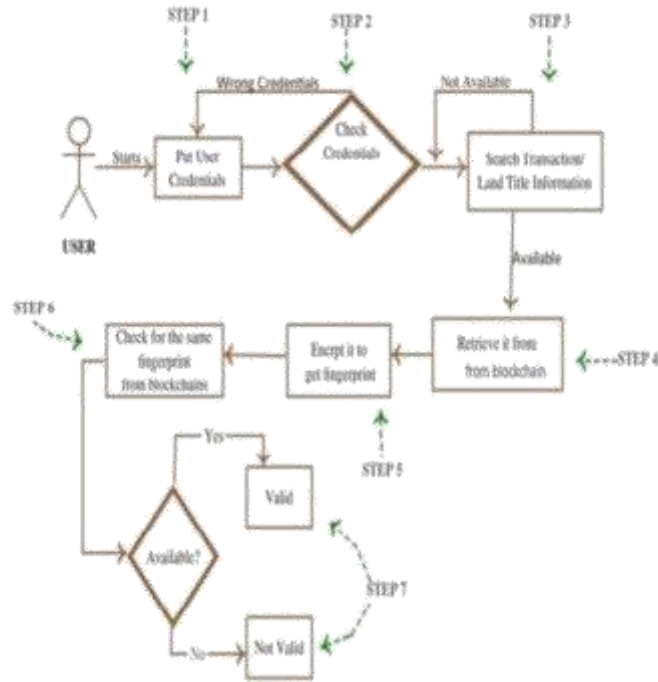
Fig. 3. [5] Flowchart.

CONCLUSION

This work conducts an extensive literature review analysis and comparison of previous asset security and transfer research papers, with a focus on land registry. We also offered our method for automatically transferring assets from one person to another in accordance with consumer wishes. This method allows us to transfer assets in accordance with the user's wishes even after his death. In the future, our suggested framework will be used, tested, and evaluated in a real-world setting, and the usefulness of the framework will be thoroughly investigated.

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