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Blockchain-based Land Will Creation System

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ABSTRACT: The land is a rigid asset that is exceedingly difficult to maintain. An enormous quantity of paperwork is involved in maintaining and registering these assets. The traditional land will system is often complex, time-consuming, and susceptible to errors and disputes, making it difficult to ensure a fair and efficient distribution of land assets. These flaws enable fraudsters to use a variety of methods to take advantage of them. Also, if the owner of such assets passes away unexpectedly, the asset may remain static and no one may be able to claim it if there is no heir. Blockchain is an unchangeable distributed and decentralized ledger. Therefore, our suggested solution aims to address these issues by developing an application that offers efficient storage and transfer of ownership. The system utilizes a decentralized network of nodes to ensure the integrity of the records and uses cryptography to protect the confidentiality of the data. The proposed blockchain-based system enables users to create, modify, and transfer land wills securely and efficiently, without the need for intermediaries such as lawyers or notaries.

KEYWORDS: Blockchain Will Transfer, Crypto, Smart Con- tracts, Assets Security

I. INTRODUCTION

Land inheritance is a complex and contentious issue in many parts of the world, often fraught with legal and cultural challenges. Traditional land will systems are often inefficient and prone to errors and disputes, making it difficult to ensure a fair and timely distribution of land assets to rightful heirs. However, recent advances in blockchain technology offer a promising solution to this problem. By leveraging the security and immutability of blockchain-based systems, it is possible to create a more efficient and transparent process for managing land inheritance. Smart contracts can be used with blockchain to address these issues. Blockchain cannot be altered because it is an immutable ledger. Assets like land and insurance can be placed on the blockchain. In certain sad circumstances, such as untimely death, illness, or for legal purposes

Using smart contracts, it is possible to transfer assets to the designated beneficiary quickly, safely, and without incident. The lengthy days and paperwork involved with the will transfer procedure might be eliminated by automating it. Many farmers must pledge their land as security against bank loans. However, a large number of them lack the necessary documentation, and they might not get the benefits of the various government schemes.

The scope of the project is limited to securely storing land records and facilitating the efficient transfer of such assets. The future scope of the project includes the will transfer can be fully automated by automatically transferring assets after cremation as opposed to the current system of claiming by nominees.

II. PROPOSED SYSTEM

In this, we proposed an asset management system based on Ethereum and IPFS using Blockchain technology. In this, we stored the user's data securely on the IPFS. In this, we have created a system where users can register in the system using their personal details. Users can add different types of assets in their account. Different digital assests like crypto, land digital art forms like NFT etc assests can be added in the user account. In our system user have facility to add nominee to their assest. The user can add anyone as nominee to the assests. The nominee is informed about the

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person who added him/her as nominee and all other related information via mail. After cremation of person or if person forgot their password of crpyto wallets their cryptocurrency goes unused or wasted. So, to avoid this we have added nominee facility. Using this facility user can add nominee to their assest and the time period or certain condition after completing that time period or after fullfillment of certain condition assests are automatically transfered to the nominee. In some cases nominee need to claim the assests then assests are transfered to the nominee account.

In case of the land assests, their is lots of paper work is needed in order buy or sell land. And incase of this land transfer transaction both buyer and seller must need to be present infront of the land officer during the land transactions. So, for the person living far away, it's very hectic to do land transactions. And also land records might be tampered by government entity or other entity. In our system while registering user need to add land records in the system. This added records are stored on the blockchain, which are can't be tamperd. And added records in the system are verified by the Goverenment officer. The user is able to sell their land on our system and other can buy this land . All the land related transaction are verified and carried out by the goverenment officer. Our system provides platform where user can buy and sell any land online from anywhere in the world.

A. Module Description

1) *Web Platform:* Assest management web platform where user can login in the system and add the different assests in

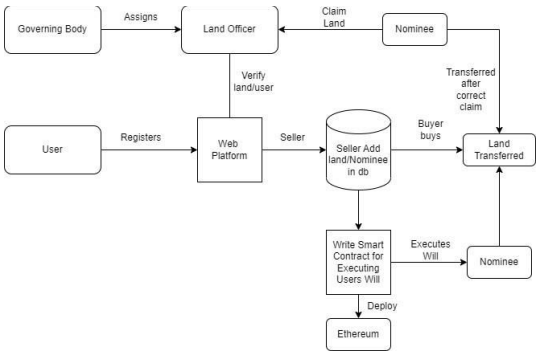

Fig. 1. Architecture Diagram

the account. Different digital assests like crypto, land , NFT etc cam be added in the user account. User can also sell and buy land assests on this platform.

2) *Assests Details:* On web portal of Assests management user can login using credentials and user will list out different digital assests. Also user can add nominee to their assests.

3) *Deployement:* Executing user actions like send and retrieve hash functions, deploying it using smart contracts, and storing hash values in the etherum block chain.

4) *Validation:* To verify the validity of the documents, the IPFS hash and the transaction hash from Ethereum are compared.

B. Setting up ether wallet for executing smart contracts in Ethereum blockchain network

We will create the account for the Metamask Ethereum wallet. The wallet will start out empty of ethers. Ethers are required to carry out ether transactions. There are test networks like Rinkeby Test Network and Ropsten Test Network for testing purposes. You can obtain free ether for testing purposes by using ether faucets. Many languages can be used to create smart contracts. Solidity language is employed here. Remix IDE, an online compiler for solidity programming, is used to compile and deploy these contracts. During compiling, the option to inject the Web3 environment is chosen in order to produce the Application Binary Interface (ABI) codes needed to link our web app to the Ethereum network

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using web3.js.

C. Creating blocks using smart contracts

Business logic is applied in smart contracts and includes rules and regulations that are provided by the government for compliance during land registrations. The ether transactions will be carried out by these contracts. When a transaction is successfully completed, a block is successfully formed. showsthe ether wallet's before and after pictures. Here, a portion of the user's ether is taken out of their wallet for the transaction.

D. STEPS

1) Install MetaMask
2) Install the browser plugin by visiting https://metamask.io.

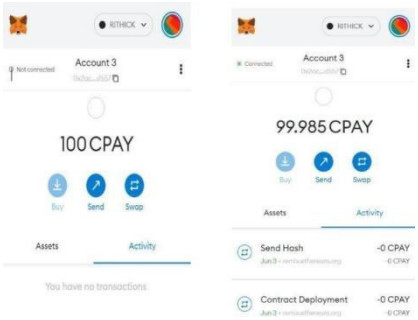

Fig. 2. Before and after Transaction

3. Establish a password and launch the wallet. the CREATEACCOUNT button open a fresh wallet account.
4) unlock Ganache to import the account, select the ether account, click on the private key, copy the address, and pasteit into the metamask window.
5) Get free test ether from https://www.infura.io/ to your account. Verify the balance of your Metamask account.
6) To create more accounts, repeat steps 3 and 4.
7) Deploying contract.
8)Upload your contract file (reg.sol) and IPFS file to remix.ethereum.org to deploy the contract.

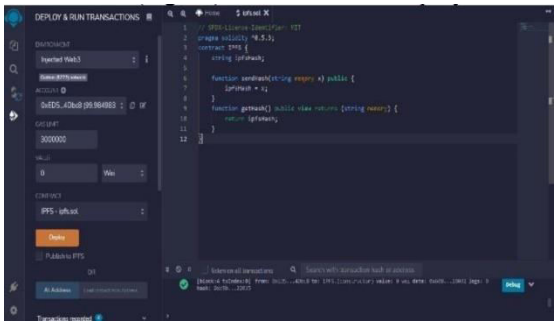

Fig. 3. Remix IDE Deployement

9)Blocks will be created in Ganache and transactions will be completed. A list of transactions will be created in metamask.

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III. RESULTS AND DISCUSSION

In this section we are dicussing the results obtained. For various scenarios, Ethereum is a multinational open source architecture. As a running device, it can implement intelligent protocols and enable the development of decentralized appli- cations (DApps).

Ethereum miners are struggling to acquire Ether, the crypto asset used to power the network. These ethers are used to pay for network transactions and quotes. At the heart of Ethereum is the brilliant protocol. The Solidity programming language is used to create smart contracts. As a result, weno longer want to buy. Friends can use the eth.getBalance command to check the account balance. The peer node gets the ability to use the admin.nodeinfo.enode command. To display advertisements for full nodes, use min.peers'. [14] We did an overall performance evaluation of on the Ethereum testnet. One is Ropsten, which uses proof-of-work (POW), andthe other is Rinkeby, which uses proof-of-authority (POA). , we continue with Ropsten's evaluation, which uses POW for the Ethereum mainnet, as we intend to evaluate the overall performance of in a near-real environment for real-world use cases. To perform an overall performance assessment on the Ethereum testnet, it is important to create a hyperlink betweenthe testnet and the smart contract, creating a testnet accountfor installing and running the smart contract. We manage this with Infura and MetaMask Infura, Infura provides anAPI to facilitate access to the 46 Ethereum network. The enterprise created by Infura provides an endpoint that allows to access the Ethereum mainnet and Ethereum testnet using the HTTP method and the web socket method. Infura also offers encryption capabilities, including JSON Web Token (JWT).

IV. FUTURE SCOPE

The blockchain-based land will creation system holds great potential for future advancements and innovations in the field of property ownership and inheritance. As the technology continues to evolve and become more widely adopted, there are several potential areas of future development and improve-ment.

The further research could be conducted to enhance thescalability of the system to accommodate larger volumes of data and transactions. This could involve the use of advanced consensus mechanisms and smart contract protocols to optimize the performance of the blockchain network.

The interoperability of the system with existing legal frame-works could be improved to ensure that the technology is fullycompatible with established legal procedures and regulations. This could involve working closely with legal experts and regulators to develop standardized protocols and guidelines for the use of blockchain technology in the legal industry.

V. CONCLUSION

We talked about the planning and implementation of a Blockchain-based land will creation and management system. Assets are added to the user account, and the smart contract stores their hash. The execution of this smart contract and the automatic transfer of assets to the nominee depend on specific conditions. Land records are saved on the IPFS in the case of real estate assets. IPFS transmits and saves the record's hashin Ethereum. To verify the authenticity of a document, the hashed input from the transaction hash and the hash provided by IPFS are compared. The development of a blockchain-based land will creation system presents a promising solution to the challenges associated with traditional will creation processes. The use of blockchain technology provides a secure,transparent, and immutable platform that can store important information about land ownership and wills. The system can also eliminate the need for intermediaries and reduce the risk of fraud and errors.

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