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A Survey on Blockchain Based Documentation Verification

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Abstract: ***Secure Doc verifier is a document verifier, a model that is used to verify educational certificates and organizational documents. The Prime factor of this model is to give a possible solution to the duplication of certificates in the educational system. And also, time consumption in the verification process and money used to spend on the third-parties services for the verification process. the proposed model achieves the security in the verification process and gives the transparent in the verification process.to achieve these all factors this model is implemented on blockchain network. blockchain is one of the secure and transparent networks.***
Apart from blockchain, IPFS is used in this model to store documents on a decentralized storage space. IPFS is a decentralized storage network, that stores any type of data on decentralized file storage. with decentralization this model achieves more secure and kept private. Not like centralized system that takes ownership on users' data.

I. INTRODUCTION

A. Blockchain

As the title proposes, blockchain may be a developing chain of pieces (records) that holds information of transaction taking put over the web. Each block (record) contains information within the frame of coding that's organized in a chronological manner. A blockchain is basically an advanced ledger (database) of transactions that's duplicated and distributed over the complete network of computer systems on the blockchain. Each block within the chain contains a number of transactions, and each time a new transaction happens on the blockchain, a record of that transaction is included to each participant's ledger. The primary reason of the blockchain is to permit fast, secure and transparent peer to peer transactions. It could be a trusted, decentralized network that allows for the transfer of digital values such as currency and data.
This model using blockchain to achieve the transparency and security over the documents (certificate) distribution and verification. This proposed model needs to give a clear view to the verifier that the document is issued by the legitimate distributor (organization) and to validate the legitimate user this model records every transaction happens by the organization and stores the transactions on the blockchain. In this way this model can rid of intermediation in the distribution and verification .and achieves the transparency and take over the duplication in certificate distribution and a secure verification process.

B. IPFS

IPFS is a pee-to-peer network. this is a protocol that is used to store the documents, images, ant type of documents that's store as well as sharing the data on distributed file system. before blockchain no one doesn't no what is distributed storage and after that distributed storage comes in to web and now ruling the entire web. The purpose of the IPFS is to give a censor free data to anyone on the web that no one has control over the data, the has been shared over two individual users.

Prime factors to pick ipfs for this model:

1) Higher bandwidth
2) Free of cost
3) Censorship-free
4) Safety and secure
5) Resilient internet

Apart from blockchain and IPFS this model is implemented by using few more technologies that are surfing over the web. For front end this model builds by reactjs a framework built-in by JavaScript, and solidity to transmit the data to the blockchain and a encryption model used in this model, that is cryptojs a client side encryption model used to encrypt the documents uploaded by the issuer(organization).

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C. Proposed Model

the model main focus on the meta data transfers between the verifier and the distributor(organization). This model build on reactJs framework and backend on solidity is to migrate the data to the blockchain that has been passed by user. The IPFS will store the document uploaded by the distributor and pass a hash to identify the uploaded document.as IPFS is globally available storage anyone who has the hash (CID) can able to access the document for this issue this model encrypts the document before upload to the IPFS. For that purpose, a client-side encryption model is used in this model. JavaScript has a library called CryptoJS. This library is used to encrypt the document by adopting the AES encryption mechanism. When it comes to encryption AES sits at the top. till now there's no cracking methos has found for AES so encryption is safe in hands. with this if the uploaded IPFS hash in evil hands they can't do nothing with it since the document is in encrypted format.

II. RELATED WORK

S.No	Research	Date	*Authors*
1	Blockchain Technology: Emerging Applications and Use Cases for Secure and Trustworthy Smart Systems	August 2020	*Danda B. Rawat * , Vijay Chaudhary and Ronald Doku*
2	An Overview of Smart Contract and Use Cases in Blockchain Technology	June 2017	*Bhabendu Kumar Mohanta , Soumyashree S Panda, Debasish Jena*
3	A Review of Usability and Security Evaluation Model of Blockchain Technologies	April 2020	*PallabBanerjee ,Biresh kumar , Amarnath Singh ,Harsh Prasad4 , Bittu Raj5*

1) Research 1: Danda B. Rawat et.al proposed model "Blockchain Technology: Emerging Applications and Use Cases for Secure and Trustworthy Smart Systems "

Overview: Blockchain, also known as a distributed ledger technology, stores different transactions/operations in a chain of blocks in a distributed manner without needing a trusted third-party. Blockchain is proven to be immutable, which helps with integrity and accountability, and, to some extent, confidentiality through a pair of public and private keys. Blockchain has been in the spotlight after the successful boom of Bitcoin. There have been efforts to leverage salient features of Blockchain for different applications and use cases. This paper presents a comprehensive survey of applications and use cases of Blockchain technology for making smart systems secure and trustworthy. Specifically, readers of this paper can have a thorough understanding of applications and use cases of Blockchain technology

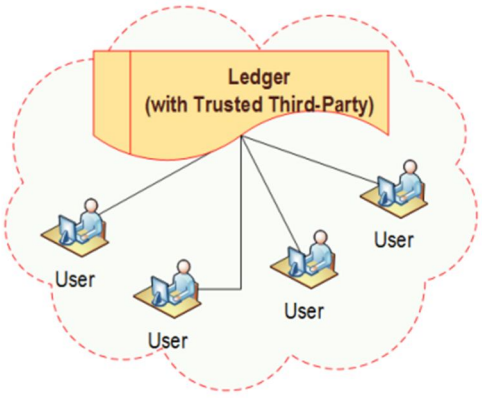
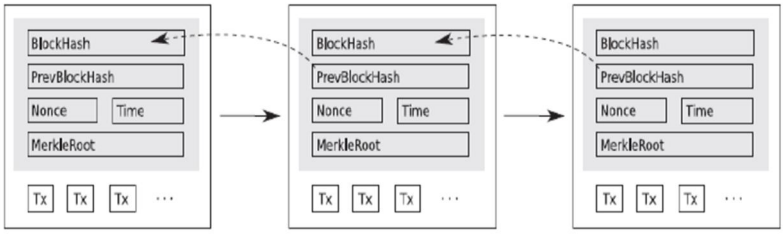


Figure 1. Traditional centralized ledger technology with a trusted third-party.

2) *Research 2:* Bhabendu Kumar Mohanta El.al Proposed Model " An Overview of Smart Contract and Use Cases in Blockchain Technology "

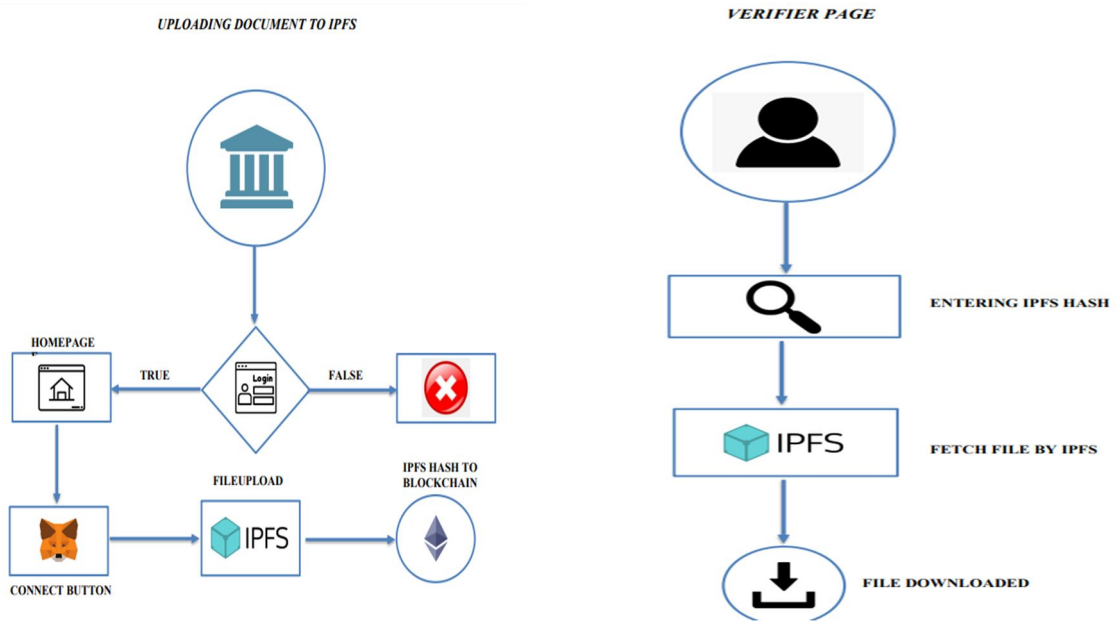
Overview: In the last decade blockchain technology become mainstream research topic because of its decentralized, peer to peer transaction, distributed consensus, and anonymity properties. The blockchain technology overshadows regulatory problem and technical challenges. A smart contract is a set of programs which are self-verifying, self-executing, and tamper-resistant. Smart contract with the integration of blockchain technology is capable of doing a task in real-time with low cost and provide a greater degree of security. This paper firstly, explains the various components and working principles of the smart contract. Secondly, identify and analyze the various use cases of the smart contracts along with the advantage of using smart contracts in blockchain applications. Lastly, the paper concludes with challenges that lie in implementing smart contracts the future real-life scenarios.



3) *Research 3:* PallabBanerjee ,Biresh kumar Proposed model " A Review of Usability and Security Evaluation Model of Blockchain Technologies "

Overview: In the modern trends of evolution Blockchain has received extensive attention recently. In the race of digitalization, the world is looking on the technology that can fuel financial transaction significantly, Thus Blockchain provide such types of facilities. As we know, Blockchain is a decentralized peer-to-peer network that was designed in order to remove the involvement of a third party in transactions. But due to its extensive use on a large scale, there is a huge problem with security and scalability. This paper aims to provide a review of the Usability and Security of some of the blockchain Technology in different categories: Public, Consortium, and Private on different application Models such as Smart Contracts, the Internet of Things, and Cryptocurrency considering different parameters. This paper basically provides a comparative study and coordination between them. We also expand to provide a typical consensus algorithm comparison that governs the blockchain.

III. SYSTEM DESIGN

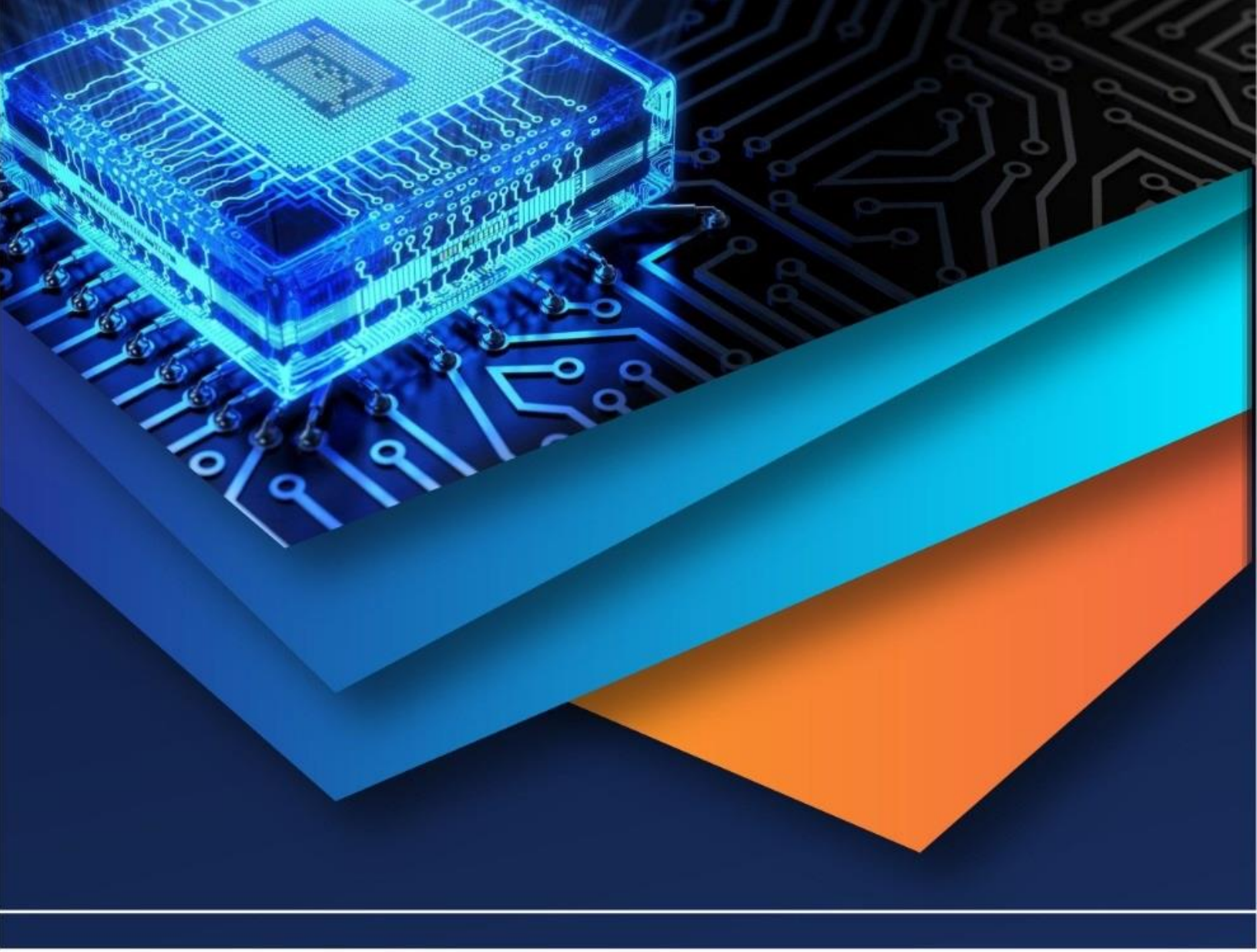


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IV. CONCLUSION AND FUTURE ENHANCEMENT

To conclude the paper by giving that this model has achieve the purpose, that the documents verification in educational system. And with this model educational or organizational will able to eradicate the fraud in document verification process. This paper proposed a secure and well encrypted model that used to encrypt the educational certificates and upload those certificates to the decentralized file storage. With decentralization user no need panic regarding the server issues or stolen data and endless security. Despite all of that our future plan with this model is to implement access management to organization and a private blockchain that only invited used will able to access those transactions made by the organizations and access management for the registered organizations.

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