

DOCUMENT VERIFICATION USING BLOCKCHAIN

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ABSTRACT

In this research, we examine current approaches and then suggest fresh approaches for document verification with blockchain technology. Throughout the course of their studies, students—whether they are in high school, college, or even after receiving their degree—produce numerous certificates, including transcripts, diplomas, and outcomes. Students must present these certificates to universities and employers in order to be admitted. Blockchain technology offers a means to maintain a certificate's authenticity, which can assist combat the huge issue of fake certifications. The project will evaluate some existing strategies from a rigorous scientific perspective and provide a quantitative evaluation of new strategies. The key issues in document verification for institutes and other businesses are in storage, retrieval and access to data. Hence came blockchain technology to solve these problems in storing and accessing of data. Blockchain technology provides a common shared platform from where to store, retrieve and access documents. Once the documents are stored in blockchain then it becomes impossible to change the information and hence it helps from counterfeiting of the documents.

Keywords: Blockchain, Verification, Counterfeiting.

I. INTRODUCTION

In recent years, as information technology has advanced, many tasks have been completed through the network. People are growing more and more concerned about the security of their information as it is transmitted over a network. Government/personal documents must be stored securely, easily accessible, and safeguarded from unauthorized access. This hinders effective operations and drives up expenses for many governments. By offering both public and private proof for the many types of documents or certification, a blockchain-based system can act as a clearinghouse for the verification of these papers. Digital certificates that are unbreakable can also be issued using a blockchain-based document verification system. Document verification using blockchain is a project that is powered by Ethereum Blockchain, that stores and manages student documents. The management process is end-to-end that includes both issuing of documents as well as the verification. The platform allows the issuer that is the institution to issue documents for an entity which can use those documents stored on the network to view and then verify it for authentication and verifying the information. It uses Blockchain technology to cut cost for storage and provide security to documents with real time verification.

II. METHODOLOGY

Here, a system that will function with a higher level of recommendation is suggested.

It is an Ethereum decentralized application. The Smart Contracts, which constitute the back end, are written in the programming language Solidity. React.js is used to create the front end of our web application. The entire User-Data is kept on IPFS. To further security, all data is locally encrypted first before being transferred to IPFS. Every student will receive a multi-Signature wallet where the owner is both the student and his or her institute. To work with Ethereum, we use the MetaMask browser extension. Also, we are testing our project using truffle. The student may see his or her documents or certificates, upload additional documents, or ask for a change of institute by logging into the web application using the student module. When a user logs in to the Institution module, they may verify the accounts that are linked to the web application, provide student users access permissions, and also review requests and approvals. This is a current and hassle-free method of managing and verifying certificates.

III. MODELING AND ANALYSIS

- Student module: The student may see his or her documents or certificates, upload additional documents, or ask for a change of institute by logging into the web application using the student module. When a user logs in to the Institution module, they may verify the accounts that are linked to the web application, provide

student users access permissions, and also review requests and approvals. This is a current and hassle-free method of managing and verifying certificates.

- **University module:** An approved university employee will be able to access the portal using valid login information in this module. The employee would have access to the university dashboard, where he could manage student access, pending approvals, associated accounts, and amend institution approvals. Students will receive the institute address key from the university dashboard, or from the employee who has access to the university dashboard, from which they can add the institute to their accounts. All of the student-uploaded documents are accessible to the institution.

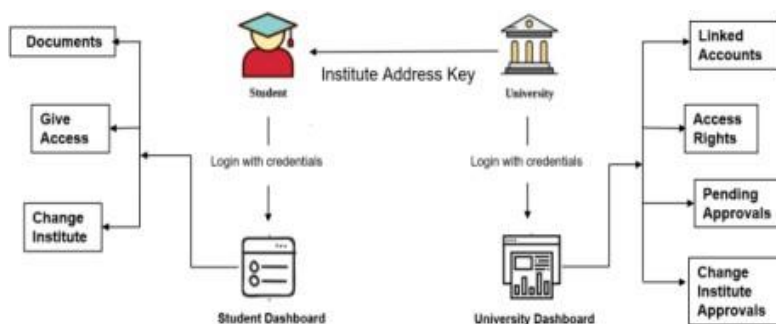


Figure 1: Proposed Methodology.

IV. OTHER SPECIFICATIONS

1. **Open:** One of the major advantages of blockchain technology is that it is accessible to all means anyone can become a participant in the contribution to blockchain technology, one does not require any permission from anybody to join the distributed network.
2. **Verifiable:** Blockchain technology is used to store information in a decentralized manner so, everyone can verify the correctness of the information by using zero knowledge proof through which one party proves the correctness of data to another party without revealing anything about data.
3. **Permanent:** Records or information which is stored using blockchain technology is permanent means one needs not worry about losing the data because duplicate copies are stored at each local node as it is a decentralized network that has a number of trustworthy nodes.
4. **Tighter Security:** Blockchain uses hashing techniques to store each transaction on a block that is connected to each other, so it has tighter security. It uses SHA 256 hashing technique for storing transactions.
5. **Immutability:** Data cannot be tampered with in blockchain technology due to its decentralized structure so any change will be reflected in all the nodes so one cannot do fraud here, hence it can be claimed that transactions are tamper-proof.

V. CONCLUSION

The aim to have a transparent, anti-fraudulent, decentralized platform for managing academic documents has been achieved to a great extent. This project has covered the weak points of general student document management systems to avoid counterfeit academic documents leading to a smooth and efficient process of verification for the employer and/or a higher university. Firstly, provides an efficient and secure way for issuing and verifying academic documents on the blockchain. The use of blockchain technology ensures that academic documents are tamper-proof and immutable, which reduces the incidence of counterfeit certificates. The platform also eliminates the need for manual verification, which can be time-consuming and prone to errors.

Secondly, offers a user-friendly interface for issuing and verifying academic documents. Students can easily access and share their academic documents with potential employers or other stakeholders, while institutions can quickly create and issue academic documents using the platform. The platform's integration with IPFS also ensures that the academic documents are easily accessible and can be shared across different platforms.

VI. REFERENCES

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