



KYC Using Blockchain in Fintech – Maitri

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ABSTRACT

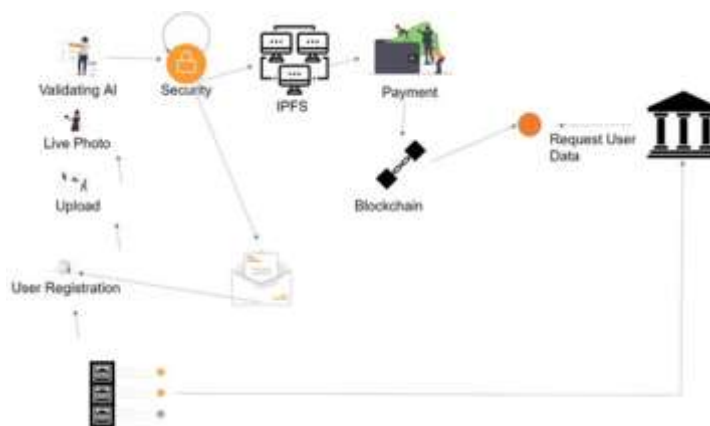
Our project aims to optimize the KYC (Know Your Customer) process by implementing a blockchain-based solution. Instead of repeating the KYC procedure for each bank visit, customers undergo it once and receive a token as proof. This saves time by eliminating redundant procedures. Blockchain's decentralized nature enhances security, as there's no single point vulnerable to attack. KYC protocols ensure that companies know their customers, involving document submission and background checks. By leveraging blockchain, we create a secure, efficient, and cost-effective solution for identity verification across multiple institutions.

Keywords: KYC (Know Your Customer), Optimization, Blockchain, Decentralization, Security, Centralized Database, Decentralized Data Storage, Transactions, Central Administrator, Financial Institutions, Identity Verification, Background Checks, Data Replication

1. Introduction

KYC, or Know Your Customer, is a critical process in the financial and business world. It involves verifying the identity of customers to ensure they are who they claim to be and to assess their risk profile. Traditionally, KYC has been a manual and often time-consuming procedure, involving the submission of physical documents, such as passports, utility bills, and other personal information. Blockchain technology has the potential to revolutionize the KYC process by making it more secure, efficient, and cost-effective. Blockchain technology is becoming increasingly popular in financial domain computing programs due to its potential to enhance security and reduce fraud. The digital economy is becoming a fundamental part of modern life, but it also raises security concerns due to the slow encryption of personal information. Blockchain technology can automate manual processes and protect against hacks, making it an ideal complement to KYC systems. Banks can create a shared non-public blockchain within their premises for document verification, allowing users to control their personal data and enabling banks to obtain necessary compliance documents.

System Architecture



Components :

- Bank
- Customer

- Authorizer

Requirement Analysis

Software requirements :

- Node Js
- Ganache
- Truffle
- React
- Meta mask

Hardware:

- Ram -4GB , Windows 10,11 ,Mac OS ,Linux
- Memory Size : 128gb

3. Future Scope

The future scope of this project extends beyond the financial sector, with potential applications in diverse industries such as healthcare, real estate, and supply chain management. Integration with emerging technologies like artificial intelligence and Internet of Things (IoT) could further enhance the efficiency and security of identity verification processes. Moreover, the implementation of blockchain-based KYC solutions can foster cross- industry collaboration and interoperability, leading to standardized practices and enhanced data sharing capabilities. Continued research and development in this area could uncover new use cases and drive innovation in digital identity management.

4. Market Potential

The market potential for blockchain-based KYC solutions is substantial, fueled by the growing demand for efficient and secure customer onboarding processes globally. With the KYC market projected to experience rapid growth, especially in regions with stringent regulatory requirements, there is a significant opportunity for solution providers to capture market share. Moreover, the scalability of blockchain technology positions it as a viable solution for organizations of all sizes, from small businesses to multinational corporations, seeking to improve compliance and customer experience.

5. Advantage of Proposed System

1. Efficiency: Streamlines KYC processes, minimizing redundancy and time consumption for both customers and institutions.
2. Cost Savings: Lowers operational expenses by centralizing data storage and eliminating repetitive verification tasks.
3. Security: Ensures data integrity and privacy with blockchain's cryptographic features, reducing the risk of breaches and fraud.
4. Compliance: Facilitates regulatory adherence by maintaining transparent, auditable records of KYC activities.
5. Improved Customer Experience: Offers a seamless onboarding experience, enhancing satisfaction and retention rates.
6. Interoperability: Integrates smoothly with existing systems and technologies, fostering collaboration and innovation in the industry.

1. Problem Definition

Traditional Know Your Customer (KYC) processes in the financial industry are often cumbersome, time-consuming, and expensive. They involve redundant data collection and verification, leading to operational inefficiencies. Additionally, the security and privacy of customer data are major concerns, as data breaches and identity theft are on the rise. Compliance with ever-evolving regulatory requirements is challenging for financial institutions. To address these issues, there is a need to leverage blockchain technology to streamline and enhance the KYC process.

2. Functional Analysis

The functional analysis of the proposed system delineates its key components and processes, highlighting its operational efficiency and security measures. From user registration of KYC information to verification by authorized entities, each step is seamlessly integrated into the blockchain network. The utilization of proof of stake and cryptographic nonce algorithms reinforces the system's security, safeguarding against fraudulent activities and ensuring trustworthiness. With a focus on user-centric design and interoperability, the proposed system aims to streamline KYC processes while adhering to regulatory standards and industry best practices.

Operation:

1. Users register its KYC information
2. KYC information is verified by a bank or an official entity. Once Verified the KYC Information is stored on the blockchain network.
- 3 Whenever a bank requires to do KYC of the user It requests KYC information from the blockchain.
4. Once the bank requests user for its KYC information. User can either approve or deny the bank's request

ALGORITHM:

1. Proof of stake:

Proof of Stake is a consensus mechanism used in blockchain networks to achieve agreement on the state of the network. In a PoS system, validators are chosen to create and validate new blocks based on the number of cryptocurrency tokens they hold and are willing to "stake" as collateral. Validators are selected to create blocks in proportion to the amount of cryptocurrency they hold and are willing to lock up as stake. This system aims to provide security to the network by making it prohibitively expensive for malicious actors to attack the network.

2. Delegated Proof of stake:

Delegated Proof of Stake is a variation of the Proof of Stake consensus mechanism used in blockchain networks. In a DPoS system, token holders vote for a limited number of delegates who are responsible for validating transactions and creating new blocks. These delegates are often referred to as "witnesses" or "block producers." DPoS aims to achieve faster transaction speeds and greater scalability compared to traditional PoS systems by limiting the number of validators and relying on a smaller set of trusted delegates elected by token holders.

Conclusion

In conclusion, the adoption of blockchain technology for KYC processes holds immense promise in addressing the challenges faced by organizations in verifying customer identities securely and efficiently. By revolutionizing traditional practices, the proposed system not only enhances operational effectiveness but also fosters trust and transparency in digital transactions. As stakeholders continue to invest in blockchain-based solutions and regulatory frameworks evolve to accommodate technological advancements, the path is paved for widespread adoption and transformative impact across industries. With ongoing innovation and collaboration, the future of identity verification looks increasingly decentralized, resilient, and user-centric.

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References

- [1] "Blockchain Orchestration and Experimentation Framework: A Case Study of KYC"-<https://ieeexplore.ieee.org/document/8406327>
- [2] A" Blockchain based Solution to Know Your Customer (KYC) Dilemma"- <https://ieeexplore.ieee.org/abstract/document/9118042>
- [3] "Optimised KYC Blockchain System" - <https://iscexplore.iccc.org/document/9071533>
- [4] "'Know Your Customer (KYC) Guidelines - Anti-Money Laundering Standards". Archived from the original on 2012-08-01.
- [5] Master Direction - Know Your Customer (KYC) Direction, 2016 of RBI Circular dated, February 25, 2016 <https://rbidocs.rbi.org.in> [5] Press release by Themas Reuters dated October 26, 2017 <https://www.thomsonreuters.com>
- [6] Buckley, Ross &Arner, Douglas &Barberis, Janos. (2016). The Emergence of Regtech 2.0: From Know Your Customer to Know Your Data. Journal of Financial Transformation. 4. 79-86. DOI=<https://dx.doi.org/10.2139/ssrn.3044280>