



# KYC Verification System Using Blockchain

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**Abstract :** In today's digital age, data security is a significant concern, and traditional methods of safeguarding information are no longer adequate. However, with the advent of blockchain technology, data can now be secured and kept private. This revolutionary technology has the potential to transform industries and businesses, particularly in the financial sector.

In this paper, we propose a blockchain-based system for KYC document verification in financial institutions, which will enhance the security and privacy of customer data. We will also discuss the fundamental principles and benefits of using blockchain technology, such as transparency, immutability, and decentralization.

As blockchain continues to gain traction, we can expect to see its widespread adoption in various sectors, including healthcare, logistics, and supply chain management. By providing a secure and tamper-proof platform for data sharing, blockchain has the potential to revolutionize the way we conduct transactions and store confidential information.

**IndexTerms:** Blockchain, Know-your-customer, KYC, Blockchain identity, Distributed ledger technology, DLT.

## INTRODUCTION

Blockchain technology has witnessed remarkable growth since its inception in 2008, driven by the emergence of cryptocurrency exchanges and data sharing. Essentially, a blockchain is a system that facilitates the recording and secure storage of information. Its unique features ensure that data remains tamper-proof and safe from hacking attempts. Transactions conducted using blockchain technology are widely considered to be the most secure for now. Its characteristics of immutability, enhanced security, and consensus make it particularly suited for deployment in the financial sector.

Traditional KYC verification processes can be tedious and time-consuming for both banks and customers. By leveraging blockchain technology to verify crucial documents in one go, the banking industry can achieve significant efficiency gains. This would be a significant accomplishment as blockchain technology's secure and transparent platform can ensure the safety of KYC documents and mitigate the risk of corruption.

Blockchain technology's versatile nature implies that it can be deployed across multiple industries. Its ability to enhance transparency and security means it has the potential to drive transformational changes across the banking sector and beyond.

## BLOCKCHAIN CHARACTERISTICS

- **Decentralized-** The decentralized nature of blockchain technology is one of its key benefits. Unlike traditional systems, blockchain systems are not governed by any single entity. Instead, access to data is restricted to those with the appropriate keys. This decentralization ensures the integrity of the system, making it highly suitable for use in KYC verification.
- **Enhanced security-** Another advantage of blockchain technology is its enhanced security. By utilizing complex cryptographic algorithms, data is secured from unauthorized access. Only those with access tokens can access the data, adding an extra layer of security. Furthermore, the hashing of data is done using the SHA algorithm, making it even more secure.
- **Immutability-** The immutability of blockchain transactions is also a significant advantage. Once a transaction is completed, it cannot be altered or denied. This feature ensures that a permanent record of all transactions is maintained, and any discrepancies between previous and current documents can be easily identified.
- **Distributed ledger-** Distributed ledgers are another important feature of blockchain technology. Rather than being owned and governed by a single entity, blockchain systems are distributed among a network of organizations. This allows for the simultaneous use of KYC documents by multiple organizations, making the process faster and more efficient.

## OBJECTIVES OF THIS RESEARCH PAPER

The aims of this research paper are:

- To demonstrate the potential of blockchain technology for facilitating the verification and storage of KYC documents by financial institutions and individuals.
- To evaluate the reliability of blockchain technology as a tool for KYC verification, and assess its suitability for use by financial institutions.

**THE EXISTING KYC PROCESS**

The KYC verification process is a critical aspect of financial institutions, as it ensures the prevention of fraudulent activities such as money laundering and illegal funding. It is mandatory for financial institutions to verify the KYC documents of their customers to maintain their integrity. The current KYC process requires individuals to provide valid documents to onboard with a financial institution. The verification process includes verifying the identity, address, and sometimes biometrics of the customer, after which the documents are authenticated by the bank before the customer is trusted. This process must be followed each time a customer wants to work with a new financial institution. However, this process can be tiring for both parties, especially for the customer, who may have to pay intermediaries for passing on their documents. In India, customers can use documents such as an Aadhar card, Pan card, Voter ID, Driving license, and passport for identity verification. Financial institutions follow the KYC process strictly, not only for the safety of their customers but also because the Indian government has made it mandatory. Non-compliance with the process can result in significant fines for financial institutions. The diagram below illustrates how a customer needs to provide the same set of documents to bank A, bank B, and bank C for the KYC verification process.

**PROPOSED METHODOLOGY WITH BLOCKCHAIN**

A blockchain is not controlled by any single entity. Many nodes all together take decision in the network. Moreover, as the data is stored on multiple nodes, its hard to change it. In this paper we have proposed a way we can utilize the blockchain technology to store the data used in KYC verification. This system will give the customer a single portal through which they can get their documents verified through multiple organizations. The smart contract makes the process even easier and better as it works as per the specified conditions. If a set of documents are not valid according to its conditions, it will reject them. Whereas the current KYC system will take a long time to determine whether a document is valid or not.

In the figure given above of the existing KYC system, we can see that the customer verified the same set of documents individually at bank A, bank B, and bank C. the efforts, resources, and money used during this process will get wasted. On the other hand, if we use this system, we can get verified by multiple organizations using a single portal. This system will help customers and financial institutions to save paperwork, cut down costs, and minimize fraudulent activities.

**SYSTEM ARCHITECTURE DIAGRAM**

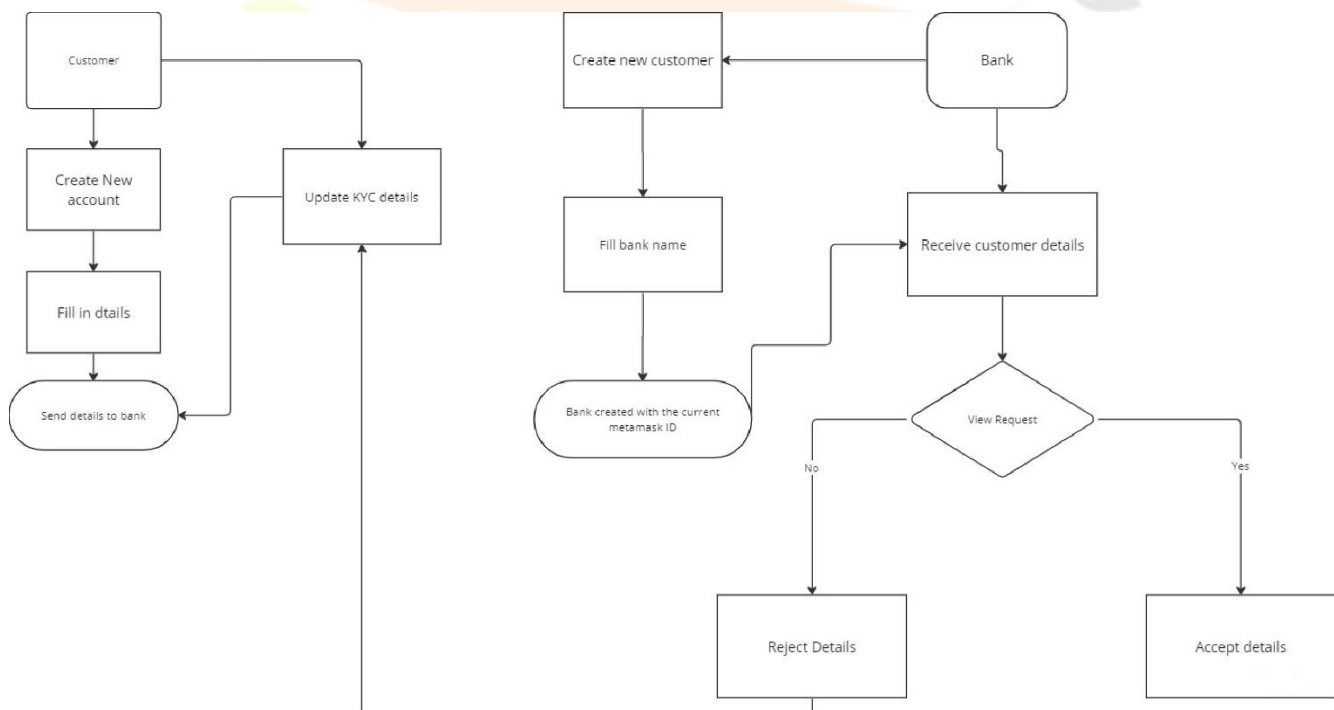


Fig. 01: System Architecture Diagram

**WORKING**

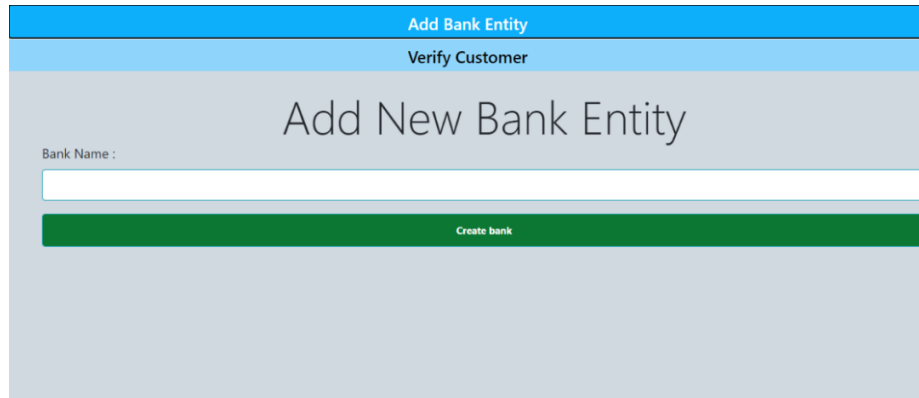
The proposed project comprises of two distinct portals, one for financial institutions and the other for their customers. To begin with, financial institutions must register themselves using their official name, following which they will be allocated a unique identification code that will appear on the left-hand side of the customer portal. The unique IDs of various other organizations will also be displayed there.

On the customer portal, users can enter their personal details such as name, Aadhar card number, pan card number, and upload images of their Aadhar and pan cards, along with the unique ID of the organization they wish to complete KYC with. After the customer submits all the necessary information, it is forwarded to the bank portal for verification by bank officials, who will accept or reject the KYC request based on the information provided.

Moreover, customers can monitor the status of their KYC request and track whether it has been accepted, rejected, or is still pending. If the KYC application is declined due to any incorrect information provided by the customer, they can reapply and get themselves verified once again. Additionally, the customer can complete KYC verification with other organizations through the same portal by modifying the unique ID code for the desired institution.

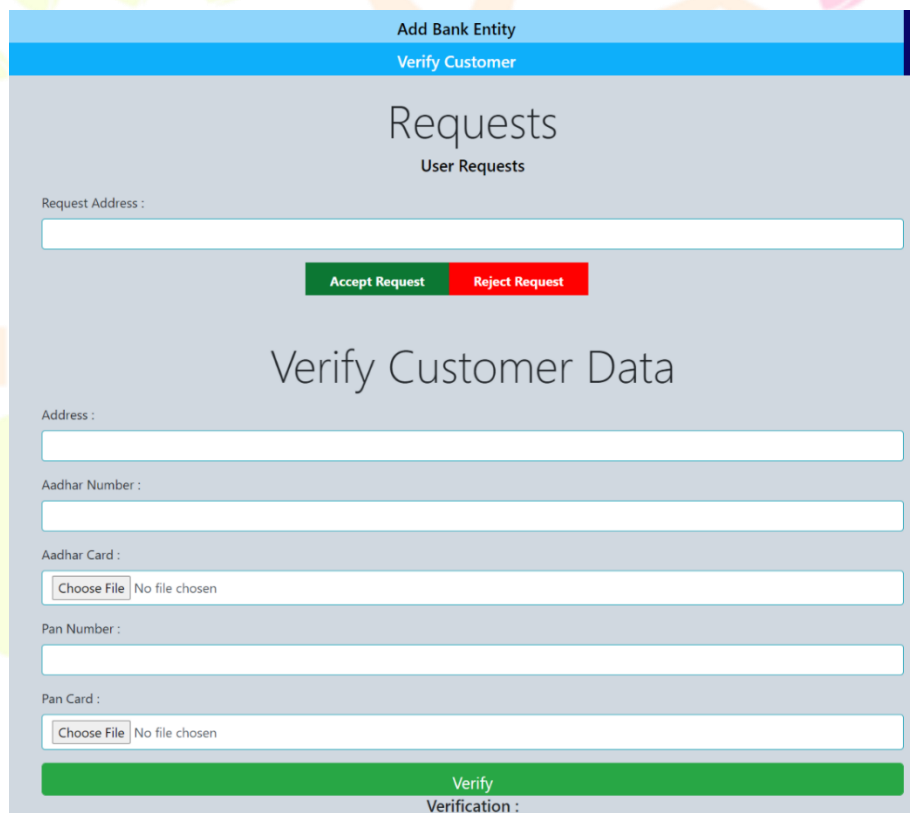
Overall, the proposed project streamlines the KYC verification process by providing a convenient platform for customers to submit their details and track the status of their application, while also providing an efficient system for financial institutions to verify the submitted data.

### OUTPUT



The screenshot shows a web form titled "Add Bank Entity" under the "Verify Customer" section. It features a text input field for "Bank Name" and a green "Create bank" button at the bottom.

Fig. 02: Bank Portal



The screenshot displays two forms. The top form, titled "Requests", includes a "Request Address" input field and "Accept Request" and "Reject Request" buttons. The bottom form, titled "Verify Customer Data", contains input fields for "Address", "Aadhar Number", "Aadhar Card" (with a "Choose File" button), "Pan Number", and "Pan Card" (with a "Choose File" button), followed by a green "Verify" button.

Fig. 03: Bank Portal

New customer  
Verification Status

## View Customer Status

Get Customer Status

Customer Status is:

### Update existing customer Details

If the KYC verification status is rejected please update the correct information

Customer Name :

Adhar Card Number :

Pan Card Number :

Pan Card :

Aadhar card :

Bank Address :

Change Data

Verified Organisation Addresses

0x1bd6ae8B0d88839D375730ba4cE1AaCD9118E7a5  
0xf74f43303Fe8701020995aAF063cF4D47cE10CdF  
0xe4C3f509155176f554cb21885F0Ecf95B1BF713F  
0xf84c9A6285d1C034E65f4e061d3b57A27e9D47f1  
0xf7d5e9a998eb82df978029329b54Cbfb8b2065C5D  
0x39454f875dDe0aA03ef9d8571D8e389008CB4502

Fig. 04: Customer Portal

New customer  
Verification Status

## New Customer Registration Form

Customer Name :

Adhar Card Number :

Pan Card Number :

Pan Card :

Aadhar card :

Bank Address :

Create Customer

Verified Organisation Addresses

0x1bd6ae8B0d88839D375730ba4cE1AaCD9118E7a5  
0xf74f43303Fe8701020995aAF063cF4D47cE10CdF  
0xe4C3f509155176f554cb21885F0Ecf95B1BF713F  
0xf84c9A6285d1C034E65f4e061d3b57A27e9D47f1  
0xf7d5e9a998eb82df978029329b54Cbfb8b2065C5D  
0x39454f875dDe0aA03ef9d8571D8e389008CB4502

Fig. 05: Customer Portal

## CONCLUSION

The present paper proposes a blockchain-based KYC verification system and its architecture to enhance the process's efficiency and reduce costs for customers. By ensuring that only valid users can access the financial system, this KYC verification system can facilitate significant growth in the financial sector. The proposed architecture can also assist the government's anti-money laundering initiatives and minimize fraudulent transactions.

Compared to the current system, which involves a lengthy authentication process that can take several months to complete, the proposed blockchain-based KYC verification system can authenticate a customer within a few days, enabling them to start working promptly with financial institutions. Additionally, blockchain technology is known for its security, cost-effectiveness, and time-saving attributes, making it an ideal solution for KYC verification.

Given the versatility of blockchain technology, its numerous applications are expected to facilitate significant development in various industries. Therefore, in the foreseeable future, it will offer a plethora of opportunities for individuals to explore and develop.

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