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KYC Verification Using Blockchain

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Abstract: ***The Know Your Customer process that exists today is inefficient and inconvenient for both banks and customers. The procedure is unnecessary and increases operating expenses. Furthermore, it offers little to no privacy protection to users. A blockchain-based method is proposed in this paper. Because documents are maintained by a centralised organisation, verifying KYC documents for multiple financial sectors is a time-consuming and insecure process. The proposed KYC system is a Blockchain-based decentralised system that can be used to establish proof of identity for an individual person. It is also a cost-effective method, and the data stored on the decentralised application provides an additional layer of security.***

I. INTRODUCTION

Since the evaluation of Bitcoin, blockchain has been able to be used in a real-time environment.. Banks gather details on the customers' names and addresses through a process known as KYC. This process by which banks obtain information about the identity and address of the customers. KYC is a process that acquire a better understanding of the activities of their potential customers and verify their legality. Due diligence is a process that is supervised by regulators that is used to confirm the legitimacy of clients.

This procedure aids in preventing the abuse of banks' services. The KYC process must be completed by the banks when opening new accounts. Additionally, banks are expected to routinely update the KYC information for their clients. KYC may be laborious, repetitive, and manual across institutions. Financial institutions would be able to achieve better compliance outcomes, boost efficiency, and enhance customer experience by sharing KYC information on Blockchain. Blockchain technology is completely decentralised, immutable, tamper-resistant, and secure. The data within the blockchain network will be accessible only to authorised users, ensuring transparency. This blockchain, in conjunction with the KYC chain, could be used to provide decentralised data storage and transparency. Sharing KYC information on Blockchain would enable financial institutions to deliver better compliance outcomes, increasing efficiency and also improves the experience of the customer. Because of managing the same customer information across multiple banks and financial sectors leads to data redundancy and high maintenance costs for sensitive data. There is a lack of security in the conventional system as well. All of the issues with the conventional technique of KYC verification can be resolved with a blockchain-based approach. Even by providing the user control over the data, we even eliminate third party intervention.

II. LITERATURE REVIEW

The authors of this paper have briefly discussed how the current banking industry, particularly the KYC document verification process, can be impacted by using blockchain to store and track records. On paper, which is an outdated process, today's banking KYC processes are highly reliable. The proposed system's use of blockchain in the KYC process reduces the presence of middlemen. As a result, minimize fraud by increasing efficiency, lowering costs, improving customer experience, and increasing transparency throughout the process of integrating customer documents into the bank database [1].

The proposed system will function similarly to the legacy KYC system. This paper aims to address some of the current system's shortcomings and propose the incorporation of innovative features to create a more secure and comprehensive system. The proposed system will enable customers and business institutes to verify and record customer KYC documents in the DLT. The proposed system will employ IPFS, which will significantly increase DLT storage efficiency [2].

The proposed activity improved the existing KYC system by utilising blockchain technology. A well-known DLT feature is the elimination of third-party involvement, and smart contracts are used to build our logic in data mobility. To provide a more secure environment for transactions over an unsecured channel, blockchain technology employs various types of cryptographic security. The proposed KYC process can optimise data storage, updating, sharing, and accessing operations while also improving security, transparency, and privacy by leveraging DLT, cryptography, and the blockchain consensus mechanism. It also improves the customer experience and increases customer ownership [3].

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In this proposed system of KYC documents, IPFS is used. Through the Inter Planetary File System (IPFS) and Blockchain Technology. Using this technologies we propose a cost-effective, fast, privacy, secure, and transparent platform for KYC document verification in the banking system. Because it is costly, the user cannot upload KYC documents to the Blockchain network. As an substitute, KYC documents can be shared using the IPFS and then distributed via the Blockchain Network. Users can save their transaction history and hashes to the IPFS network and then share them with the Blockchain network as needed. This procedure will significantly reduce the size of the blockchain data [4].

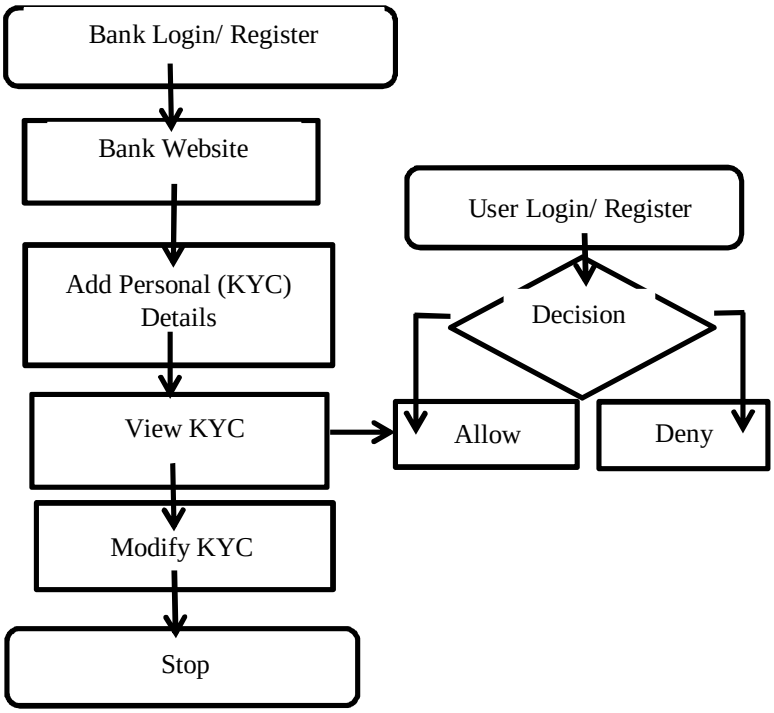
We propose a Blockchain-based solution that lowers the cost of the conventional KYC verification procedure. The major difference is that the whole verification procedure is carry out only once for each user, in any case of the number of institutions they register, increasing transparency by securely sharing the results via DLT. Proof of concept (POC) with ethereum is used in this approach. This procedure reduces costs, improves the customer experience, and increases transparency [5].

This paper presents a novel trust management platform that is self-sovereign and decentralises the Know-Your-Customer (DKYC) model,by enhancing customer security and privacy a through consent-based access, incorporating regulator governance, and assisting banks in using trusted and accurate customer data while lowering customer acquisition costs [6].

III. METHODOLOGY

We proposed a blockchain-based kyc verification system that would generate a block for each bank. Once the block for each bank is created, the customer must enter the kyc information, which is then stored in the blockchain network by creating an account on blockchain through the customer account. Then they can ask the bank to open an account for them, and the information is saved in the blockchain. The details stored in a blockchain can be modified or changed only by the customer, and this is done primarily with the customer's permission. By sending a view request to the customer profile, only the requested bank can view the customer kyc document. When the request is sent to the customer profile, the customer has the option to allow or deny it. If the customer agrees to the view request, the blockchain will provide the bank with a transparent view. So that the government can cross-check the customer's kyc document, which was issued by the government. This customer information, which is stored in blockchain, is primarily for additional security.

IV. IMPLEMENTATION



Here we are using ganache-cli for making a smart contract. The system has an open the terminal window and execute the command testrpc to run the local blockchain network.

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First step is to open a terminal and type ganache-cli into the command prompt. Then go to the root directory in another terminal. By using the command line node init.js, run the init.js file. The address of the smart contract that has been assembled will be generated in a matter of seconds as a 20-byte address .Open a text editor and navigate to the file root\js\contractdetails.js. Then launch a text editor and go to contractDetail.js, where you need to enter the 20-byte address that represents the contract instance address given by the contract variable. Here we need to edit the first line, which denotes the contract instance address provided by the contract variable. Then set the 20 byte address as we have done in previous. The programme is now ready to be used. Make sure the ganache-cli terminal is up and running. It serves as an ethereum test network for the local community. The system has two portals: Bank and User. The main functionalities of Bank is that, At first the bank has to register itself over the block with Name of bank, Password and Registration No. The details will be stored over the ganache-cli. This password must need to copy paste. After successful registration, Login with Name of Bank and Password. Now that the bank is logged in, it is able to view the details, view KYC, add KYC, and modify KYC. By clicking on the add kyc tab, one can fill the personal details form and click on the send button for bank declaration. After which a notification appears displaying the current bank account number and click on ok button. After which the user profile is successfully created and one can view the same in view tab and then click on ok button. Then Click on view kyc tab, it will prompt for your username. When username is entered, it displays access denied and requests permission from the user. Once this procedure is done. Then there is some main functionalities of user is that, the User has to register himself in the Customer Portal with Customer Username and Password. After successful registration, user can log into the account created and proceed further. After logging in, a page appears where user can view the details in kyc details tabs and over the requests tab, user would have received the request from bank. It is upto user whether to approve or deny the access to the user's information. If the user chooses to allow, the bank will have access to the details because the user has given permission.

V. RESULTS

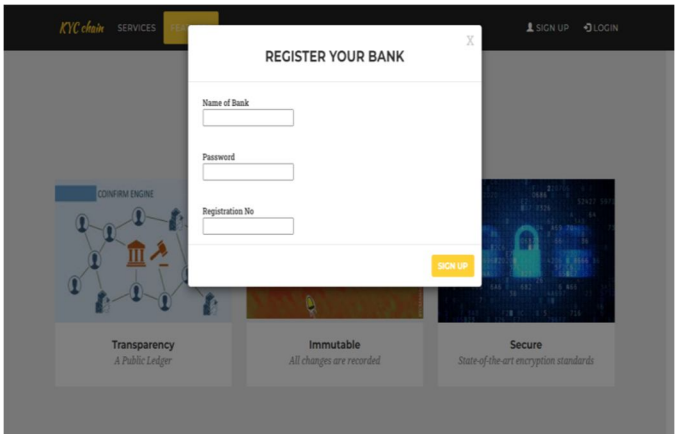


Fig: Bank Registration Form

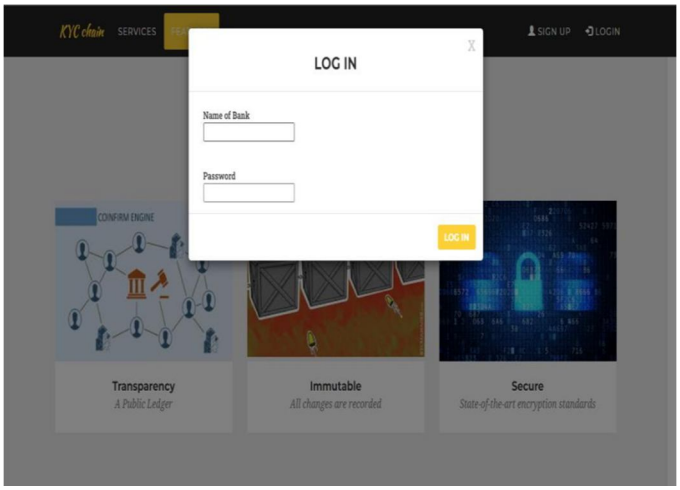


Fig: Bank Login Form

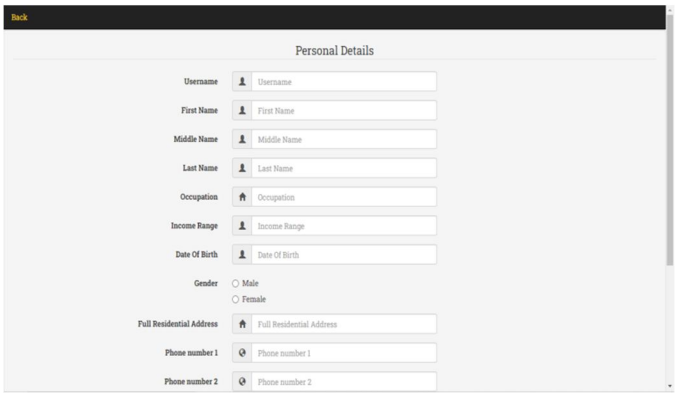


Fig: Personal Details

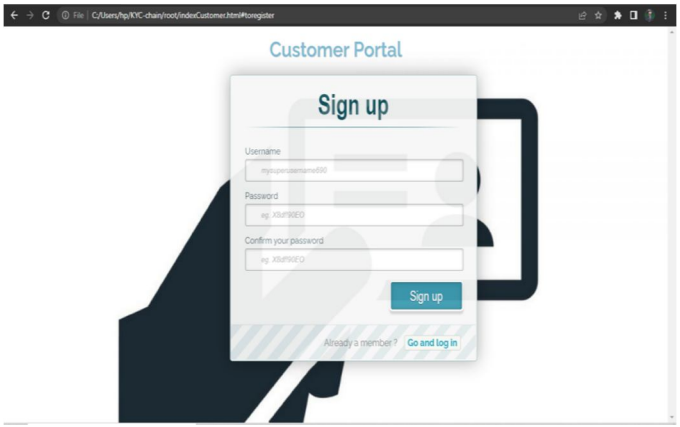


Fig: User Registration Form

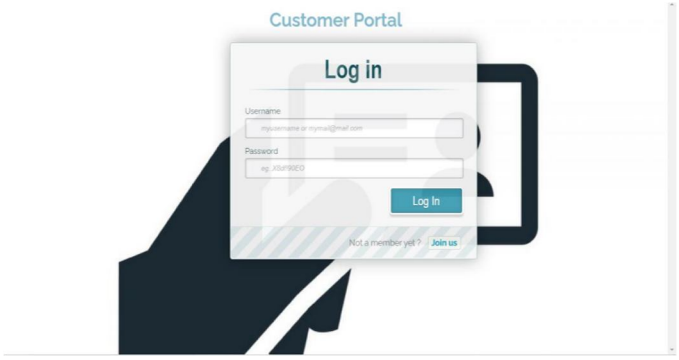


Fig: User Login form

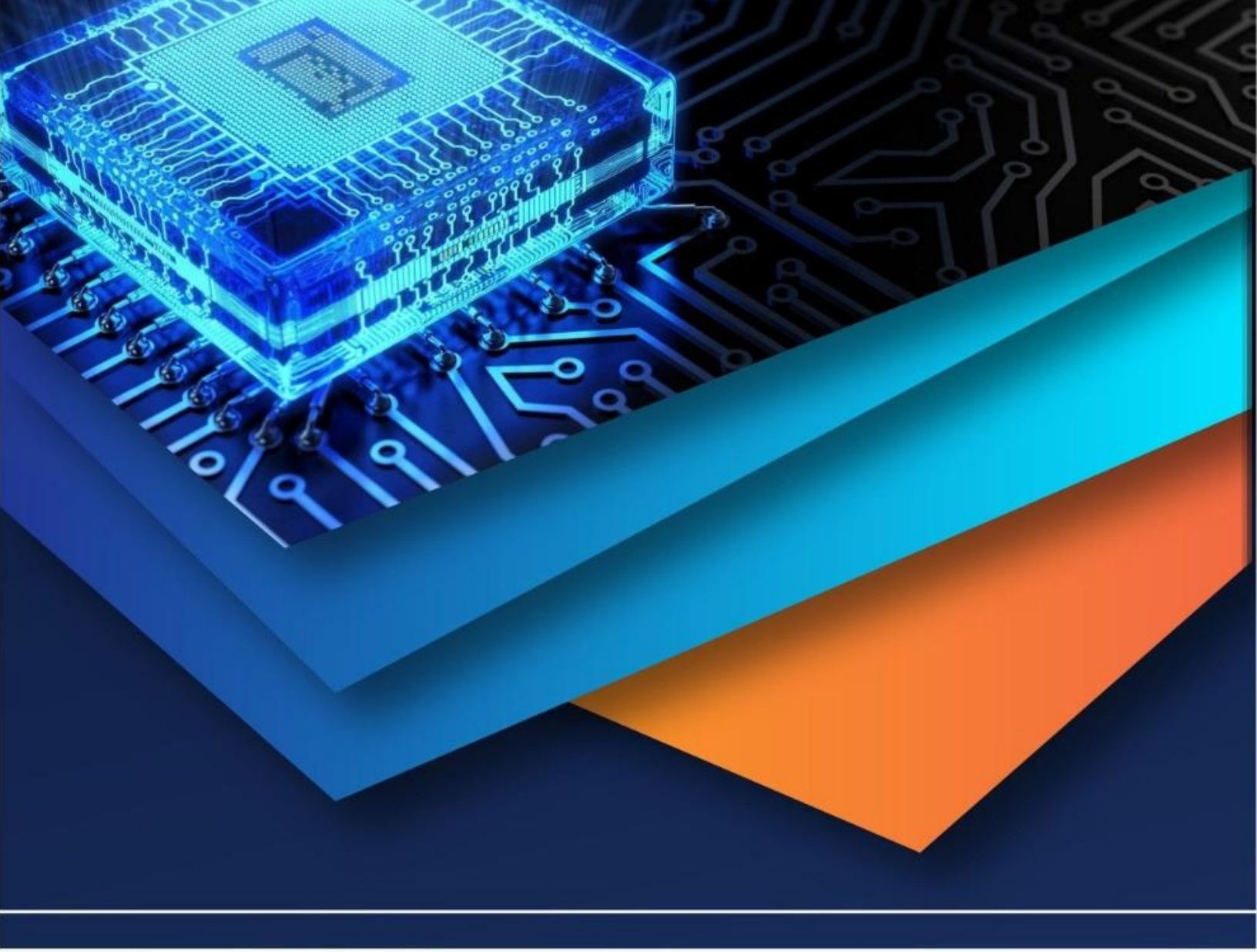
VI. CONCLUSION

Any industry's future lies in complete digital transformation, which can only be achieved through infrastructure changes. To improve operational efficiency, core processes must be modified. This can only be accomplished by being open to new and disruptive technologies. The main goal of our proposed solution was to reimagine the traditional KYC process. This proposed paper gives a solution to the problem of redundancy and inefficiency in the current KYC process, drastically lowering the system's operational costs. We also eliminate the presence of a single point of failure by utilising a blockchain-based approach. Blockchain is a game-changing technology, and its applications are expanding all the time. Implementing a blockchain application for kyc document verification provides proof of identity of a customer on bank and transparent access to all or any of the banks that are connected into the blockchain network, ensuring faster access to the kyc document while also providing security. By doing so, we can lower the cost of maintaining the document from the centralised organisation.

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