Advance Authentication System Using Block Chain Network

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Abstract: Propose to develop an authentication system that combines a client-server model with block chain technology. Companies will register on the block chain and deposit an initial asset, which will serve as an incentive for their active users. In this system, companies will register their users using their wallet address and password instead of traditional methods such as email or username.
The companies will perform a session with the user's details, authenticate them, and track their regular session. They will keep the login data of the users updated every day. If their users are active for consecutive days, they will be rewarded with incentives through a smart contract. If a company fails to update their users' login data, they will be deemed untrustworthy.

Keywords: Block chain ,incentives, smart contract, wallet

I. INTRODUCTION

Proposed System by using block chain technology to create a Registration and login of User. User have to first Register to the system by filling the required fields then user can proceed further and login to the system. Both the registration and login is secured and authenticate by the Block chain Network, which stores the all user data in the form of hash values on the blocks of the block chain network. block chain-based authentication systems provides enhanced security, privacy, user control, efficiency, and cost savings for businesses. With its decentralized structure, cryptographic algorithms, and anonymity, it eliminates the risks of data breaches and gives users more control over their online identities. This can be a significant advantage in today's digital age.
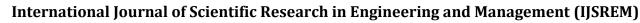
1.1 PROBLEM STATEMENT

To Integrating block chain-based authentication systems provides enhanced security, privacy, user control, efficiency, and cost savings for businesses. With its decentralized structure, cryptographic algorithms, and anonymity, it eliminates the risks of data breaches and gives users more control over their online identities. This can be a significant advantage in today's digital age, making it an attractive option for businesses looking to upgrade their authentication systems which also provides incentives

II.RELATED WORKS

Imam Riadi , Aulyah Zakilah Ifani , Ridho Surya Kusuma [5] describes "Optimization and Evaluation of Authentication System using Blockchain Technology" In this paper, Author Said that User data security innovation is a particular concern in protecting one's privacy rights, which is one of the serious violations when an attacker can bypass the user authentication so that it looks like something legitimate and becomes legal. Based on these issues, the research aims at optimizing and evaluating the blockchain-based authentication systems to minimize data leakage, manipulate the data, and modify the data. Blockchain is

one of the innovations that can solve this problem. Data or transactions in the blockchain are saved in hash form to make it difficult for hackers to break into them.

Yuki Ezawa, Makoto Takita, Yoshiaki shiraishi [8] describes , "Designing authentication and authorization system using block chain technology" In this paper, author said that a system that uses blockchain as a database for storing credentials and authority information and allows users and services to perform authentication and authorization based on that information.Data is accumulated daily in a society where the Internet has infiltrated. In order to further develop the industry, it is effective to establish a framework that can share and use data resources widely.
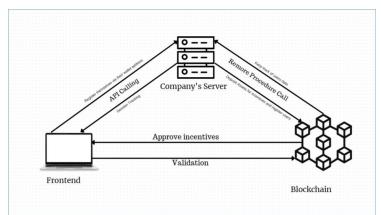
III. PROPOSED SYSTEM

The proposed system is called "Advance Authentication System Using Blockchain Network" and is designed to provide secure authentication through the use of blockchain technology. The system is divided into three main parts: the Client, the Company Server, and the Blockchain Network. To use the system, a company must first register on the blockchain network through a smart contract and deposit some crypto assets as security. After the company has made the required deposit, they can register their users in the system by providing their wallet address and password. When a user wants to log in to the system, they can send a login request to the Company Server by calling its API.
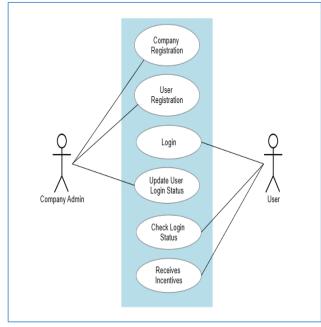
The Company Server then updates the user's status in the smart contract, indicating whether they are logged in or not, as well as how many times they have logged in. Users can also check their status and verify that the company is updating their status correctly by contacting the blockchain network. One key advantage of the system is that users who log in for seven consecutive days will receive incentives,

which can motivate them to use the system more frequently. This incentive program can also benefit the respective company by encouraging users to use the system and generate revenue. Overall, the Advance Authentication System Using Blockchain Network provides increased security, trust, and transparency in the authentication process, making it a useful system for both companies and user.
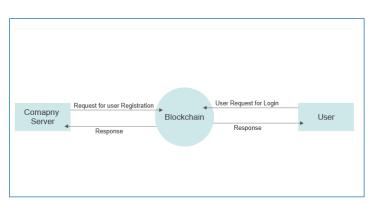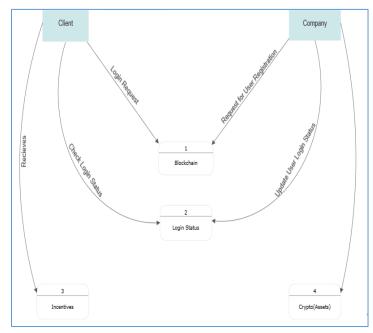
3.1 IMPLEMENTATION

ARCHITECTURE

USE CASE

LEVEL 0 DFD

LEVEL 1 DFD

IV. METHODOLOGY

System Design and Architecture: Define the system components: Client, Company Server, and Blockchain Network.
Design the interaction and data flow between the components.

Determine the required functionalities and features of each component.
Identify the technologies and tools needed to implement the system, such as blockchain platforms, smart contract languages, and API frameworks.

Company Registration: Develop a smart contract for company registration on the blockchain network.
Define the required parameters for registration, including company details and crypto asset deposit.
Implement the registration process, ensuring proper validation and verification of company information.

User Registration: Create a user registration mechanism within the system.
Define the required user information, including wallet address and password.
Implement the registration process, securely storing user data and linking it to the respective company.

Login Authentication: Design an API for users to send login requests to the Company Server.
Implement authentication mechanisms, including verifying user credentials and validating the login request.
Update the user's login status and log-in count in the smart contract.

User Status Verification: Enable users to check their status and verify the accuracy of their login information.
Implement a mechanism for users to query the smart contract and retrieve their login status.
Ensure the verification process provides transparent and trustworthy results.

Incentive Program: Design and implement an incentive program for users who log in for seven consecutive days.
Define the rewards or incentives to be provided to eligible users.
Integrate the program with the login authentication process, tracking the consecutive login days and granting incentives accordingly.

Security and Testing: Conduct security assessments and implement necessary measures to ensure the system's robustness against potential vulnerabilities.

Perform comprehensive testing of the system, including unit testing, integration testing, and user acceptance testing.

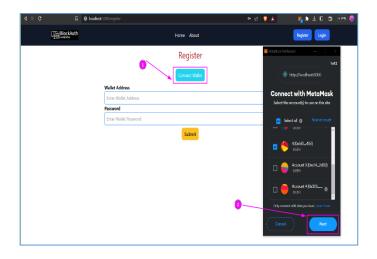Address any identified issues or bugs and refine the system accordingly.

Deployment and Evaluation: Deploy the Advance Authentication System Using Blockchain Network in a production environment.
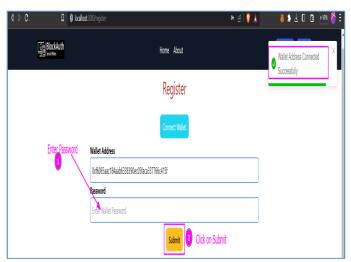
Evaluate the system's performance, security, and usability.

Collect feedback from companies and users to assess the system's effectiveness and identify areas for improvement.

V. RESULTS

Balance on the first day of login

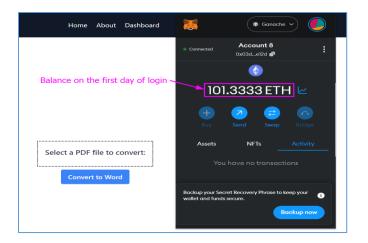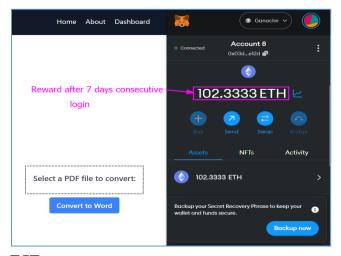Reward after 7 days consecutive login

VI. CONCLUSION

In this study, the proposed Advance Authentication System Using Blockchain Network offers several benefits and advantages for both companies and users. By leveraging block chain technology, the system provides a secure and transparent authentication process. In addition , Our System can completely reduce the security risks associated with validation and authentication. Blockchain Technology plays important role in our system because By implementing blockchain technology, data can be stored in more secure manner. Blockchain has the ability to check if the connection is tampered. The data will be more secure and unhackable than the existing system. Data can be retrieved only by the authorized user.

We successfully implemented the authentication system using block chain technology.

VI. REFERENCES

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