International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 09 Issue: 07 | July 2022 www.irjet.net p-ISSN: 2395-0072

Decentralized Social Network

Gnanesh K S [1], Varsha Shastri[2], Priya Ramesh Naik[3], Suman R M[4], Sathish B Basapur[5], Shilpa Biradar[6]

*[*1,2,3,4] Bachelor of Engineering, Information Science Student, Dr. Ambedkar Institute Of Technology.*
*[*5]Asst.Professor, Department of ISE, Dr. Ambedkar Institute Of Technology, Bangalore*
*[*6]Asst.Professor, Department of ISE, Dr. Ambedkar Institute Of Technology, Bangalore*

Abstract - *The current approach of social networks is based on extreme responsibility in the hands of a single platform. Conflicts are inevitable when there is disagreement between users, creators, advertisers or governments within the platform. In the current scenario of online social networks, users and creators do not have much-needed privacy and security. Decentralization helps to change this status.People need a reliable, predictable and free platform.This trust can move from a closed corporate policy established by a company to open blockchain protocols. Because of its predictable state, it can provide the necessary security and stability for the creators to function on the platform. Decentralization is the future. Decentralized social networks operate on independently managed servers rather than a centralized server owned by a company. Blockchain technology allows data inputs to be stored on servers anywhere in the world.It promotes transparency as everyone on a network can see the data in near real-time. Users can sign up on their social media and see how the network works and what other users can say. Rather than having a company monitor the content, the founder of a federated social network can set the terms of acceptable behavior for the site.*

Keywords: Decentralized applications, Blockchain , Web 3.0 , Solidity, Hardhat , Metamask , InterPlanetary File System , Smart Contract.

1. INTRODUCTION

Decentralized social media, also known as blockchain-based social media, refers to social media platforms powered by distributed ledger technologies (DLT) such as blockchain or directed acyclic graph. Therefore, activities on these platforms are irrevocably logged in a decentralized log that cannot be controlled or monitored by any central authority.

Because these social media platforms are decentralized, they are not under a central authority that owns all the data. Rather, data is stored decentrally across all nodes in the network.

Traditional social platforms not only control what users post, but also what they see. Therefore, they present users with attention-grabbing advertising content that entertains them rather than informs them.Users of decentralized social networks are free to interact as they please without censorship, since developers usually only provide guidance rules and leave the rest to a distributed group of users.

Decentralized social media platforms prevent the unauthorized sale of user data, which is one of the bones of contention of centralized social media. In addition, blockchain technology increases user privacy and data security through end-to-end encryption.

2. METHODOLOGY

The smart contract of this application manages all transactions of the DApp . The user must first register once with their wallet/account address and this user address is stored in a mapping in the smart contract. Each account in the app is linked to a single account address to avoid creating multiple accounts from the same address. This smart contract will be implemented in the Ethereum virtual machine and the user interface will interact with the users. Thus, the whole system forms a three-tier architecture, where the UI is responsible for user interaction, while the web3 and IPFS libraries are responsible for API calls from the UI, the client interface to the blockchain, and the IPFS storage, respectively are. .At the very top is the frontend UI, which is responsible for getting user input for log data, publishing data and messages, and forwarding them to the web3 library and the IPFS library. The web3 library then connects to the underlying Ethereum blockchain system for function calls, contract implementation, and fund transfers. The IPFS library is called when the user creates a post with an image or video. Images and videos are stored in IPFS data storage and an IPFS hash is returned and stored as log data on the blockchain.The whole system consists of three main components, namely the Ethereum backend blockchain, the IPFS storage and the frontend web UI.

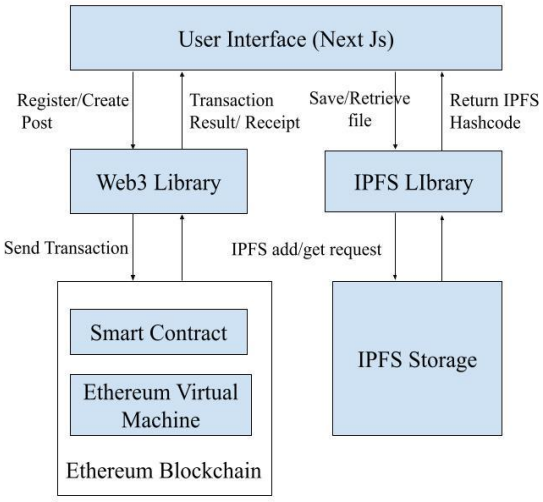

Fig -1: System architecture

3. MODELING & ANALYSIS

When starting the client, the user can register in the application only if he is not already registered. This is handled by user mapping and the interface. If the user account address already exists in the user mapping, interface logging is disabled; Otherwise, the interface will send a transaction to the blockchain along with 0.002 Ether (the cryptocurrency of the Ethereum blockchain) and a new user account will be registered in the application.

When creating a new post, if the user uploads an image or video along with the post, the front-end client uploads the image or video into a byte array and emails the byte data from the IPFS library to the IPFS -Storage endpoint. If the datastore succeeds, it returns the corresponding IPFS hash. This hash is stored on the blockchain and is then used to retrieve the image or video when needed. All post data along with creator address, image/video IPFS hash and current timestamp are sent to the blockchain as a transaction and the post is created.

4. CONCLUSION

Misuse and monetization of user data by social media companies, censorship issues, data security, and data availability issues due to centralized industry are the main concerns of companies using social networks around the world. This article presents a possible solution to the above mentioned problems by developing a social network, as a decentralized web application. All the above functions have been successfully developed. The main technologies used in this project, from which a purely decentralized application was developed, are the Ethereum blockchain and the distributed storage system IPFS.

In the future, work should be done to develop the same as a mobile app without breaking aspects of the web app. The app's smart contract can also be improved as Solidity, Ethereum's smart contract language, currently does not support passing complex data structures such as multidimensional arrays.

REFERENCES

1. https://www.researchgate.net/publication/251812910_Decentralization_The_Future_of_Online_Social_Networking

2. https://ieeexplore.ieee.org/document/8955104

3. https://www.irjet.net/archives/V7/i4/IRJET-V7I4379.pdf

4. https://ethereum.org/en/

5. https://trufflesuite.com/ganache/