FUTURE OF SOCIALIZATION: SOCIAL MEDIA PLATFORM BASED ON BLOCKCHAIN NETWORK AND ETHEREUM

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ABSTRACT

The world of fine art is a difficult one. It is not an exaggeration to say that it is cutthroat, and to truly attain renown, most artists travel to art epicenters such as New York City, Los Angeles, Washington, DC, and Paris, to mention a few. There's a chance that life will be tougher than they anticipated. For their own brand, which is themselves, they must be brand marketers. Most artists have no idea how to do this and are naturally bad at self-promotion. However, it is the artist's responsibility to advertise themselves or to hire someone to do so on their behalf, such as an art rep or an art dealer. Owing to the above problems and also due to internet, artists reside to a number of social media platforms in order to make sure that their work reach to most of the people. But since due to many policies and also the content getting copied, the content creators, however good their content might be, do not get the fame and money they merit. Nor do they have a common platform to showcase their talents without the fear of others copying it. This makes an utmost need of a platform where these artists get due recognition and also feel some sense of security about whatever content they post, which will eventually result in more superior content from them in coming times. 'The Crypto Content' does the job needed. It is a social media application where these content creators can post their content and the viewers can tip the content they like with dummy cryptocurrency. The greatest advantage of this platform would be that the blockchain technology will not allow any type of plagiarism and all the credit of the posts will be given exclusively to the original content creator.

Keywords: Blockchain, Ethereum, social media, Tipping, Decentralized, Smart contract, Censorship

1. INTRODUCTION

We live in an era of Internet-driven socialization, with social media being the most often utilized and popular online activity. Nowadays, content creators do not receive the fame and money they deserve, regardless of how outstanding their work is. They also lack a common platform on which to display their talents without fear of others duplicating them. As a result, in an effort to brighten their spirits and provide them with golden possibilities, the intent is to develop a social media platform where these content creators can submit their work and viewers can tip the material they enjoy with

cryptocurrency. The most significant benefit of this platform is that the blockchain technology will prevent any sort of plagiarism, and all credit for the posts will go to the original content provider. Furthermore, there will be no censorship on the platform, and content creators will have the freedom to share their work. Decentralized platforms for the creation of smart contracts and applications are what Blockchain social media are all about. Decentralized networking systems built on blockchain protocols or platforms that are used for the development of the smart contracts and applications are known as blockchain social media. The main advantage of these platforms is that they provide the user an end-to-end encryption for all the user interactions, providing them with more privacy and control over their data and information. In-platform transactions, crowdfunding, and rewarding members with special offers are just a few of the primary perks provided by blockchain social media networks. Apart from security and privacy, third-party intermediaries are costing content providers on social media platforms a significant amount of money. Users can have complete control over where and how their content is delivered on blockchain-based social media networks. The ability to distribute provides them a better chance of profiting from the development of passive revenue. Furthermore, such decentralized platforms pay users for sharing content on their networks. This scenario is common in most blockchain ecosystems, as the network's own coin provides rewards.

2. METHODOLOGY:

2.1 Blockchain

Blockchain sounds complicated, and it can be, but the basic concept is really quite simple. It is a type of distributed database. In order to understand blockchain, it helps to first understand what a database actually is. A database is a collection of data saved in an electronic format on a computer system. Database information, or data, is frequently organized in tabular format to make it easier to access and filter specific data. The main difference between a typical database and a blockchain is how the data is structured. A blockchain collects information in groups, also known as blocks, that contain collections of information. Blocks have a certain storage capacity and, when filled, are linked to the previously filled block, forming a chain of data known as the "blockchain". Any new information following this newly added block will be compiled into a newly formed block, which will then also

be added to the chain when filled. A database structures its data into tables while a blockchain, as the name suggests, structures its data into chunks (blocks) chained together. This ensures that all blockchains are databases, but not all databases are blockchains. This system also inherently creates an irreversible data timeline when implemented in a decentralized manner. When a block is filled, it is set in stone and becomes part of that timeline. A precise timestamp is assigned to each block when it is added to the chain.
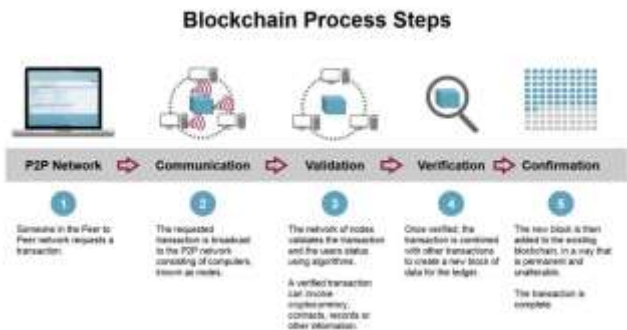

Figure 1: Blockchain Process Steps

In various ways, blockchain technology tackles security and trust concerns. To begin, new blocks are always kept in a linear and chronological order. That is, they are always appended to the blockchain's "end." If you look at the Bitcoin blockchain, you'll see that each block has a location on the chain known as "height". As of November 2020, the block height attained 656,197 blocks. It is extremely difficult to go back and modify the contents of a block once it has been appended to the end of the blockchain unless the majority has achieved a consensus to do so. This is due to the fact that each block has its own hash, as well as the hash of the block before it and the aforementioned timestamp. A mathematical function transforms numerical information into a series of numbers and letters to generate hash codes. If this information changes in any manner, the hash code will change as well.

2.2 Ethereum

The Ethereum network's digital money is called 'Ether.' Ethereum, like Bitcoin, is based on a public blockchain network; but, unlike Bitcoin, which is intended to monitor money ownership, the Ethereum blockchain is focused on executing the computer code of any decentralized application. Security programmes, voting systems, and payment mechanisms are examples of these uses. Ethereum, like bitcoin, works independently of central authority like as banks and governments. Vitalik Buterin concocted the idea for Ethereum. With the support of many co-founders, he released the initial edition of the platform in 2015. Since then, it has risen to become the second largest cryptocurrency, assisting in the emergence of new bitcoin competitors. The name Ethereum refers to the digital platform, rather than the money itself. The real tokens (used for network payment) are known as ether. In other terms, ether is the Ethereum network's "crypto fuel" (or cryptocurrency). When it comes to trading, you'll notice that the prices you see are for ether.

Figure 2: Ethereum Network

- Smart contracts: In this phase we are creating and deploying smart contracts. There are two functions in our smart contract:

o Creating posts

o Tipping posts

2.3 Smart Contracts

Smart contracts, as we can say are the program stored on the blockchain and are executed successfully when the predetermined conditions are met that stored on it. These can also automate the process or a certain workflow, triggering next action when conditions are met.

While we were writing the solidity code for the function, we were also simultaneously writing the test for smart contract in JavaScript inside a separate file. Writing test simultaneously will helps us with a couple of things, that are, firstly it will save time for us as we can ensure all of the code, we have written is in working condition, also its vital to ensure that all our smart contract is correct before putting them on the blockchain, as the smart contracts are immutable once applied in network of blockchain.

So, after creating new file in JavaScript, in the test file we can support it using Mocha testing framework and Chai assertion library. This library usually comes bundled with Truffle framework. The test has mainly 2 things to check that the smart contract is deployed and name for the app is correct. After these tests are passed, we can continue developing smart contract, first function is for creating posts.

We have kept the function public so that we can call it from outside smart contract, i.e., from the test or client-side website. The main structure in function contains post_id, content, tip_amount and address for tipping. After creating structure, we are storing new post on the blockchain through solidity mapping.


```
function createPost(string memory _content) public {
    require(bytes(_content).length > 0);

    postCount ++;
    posts[postCount] = Post(postCount, _content, 0, msg.sender);

    emit PostCreated(postCount, _content, 0, msg.sender);
}
```

Figure 3: Function Create Post

This mapping uses key value pair for storing post, where id is key and value is post structure. We have also put a counter post count as this will also govern the post_id. So, all we have

to do now is triggering the event whenever the post is created. Lastly, adding validation so that users can't post blank content.

This is all for creating post function that we have deployed in the smart contract.

After creating post function, we will write function for tipping post, which will allow users to tip post through cryptocurrency. Before going through tipping post function, lets know about "gas".

While we post something a blockchain network a small gas fee is deducted from our account which is required for maintaining the network, but it is not required for fetching posts, i.e., writing post costs gas, while reading is free.

Figure 4: Function Tip Post

Next, we are adding test for ensuring that we can list out all of the post that are posted on our network.

Moving on towards tipping post function we are using payable modifier for this function, which allows us to send cryptocurrency whenever called. In this function what we are doing is, firstly we store a copy of the post from the blockchain in memory. Then we assign the author of the post to a variable and using transfer function, we transfer the cryptocurrency to the address of the author. After this we are incrementing tip amount for the post, and finally we are updating post values using mapping and are restoring it to the network.

Now, after completing with the smart contract and the front-end part of it, we created the Newsfeed using truffle console. However, before posting, we must import the smart contract into the react app, and then the smart contract ABI file will be imported whenever the contract is published. This file contains a JSON explanation of how our smart contract works, as well as the smart contract's address on the blockchain network.

So, what basic information each post would be having is Author address, Author identification, Post content and Tip amount. Once the smart contract is deployed and posts are created users will be able go through it and they would be able to tip the post which they like.

3. RESULTS:

Following images show deployment of Smart Contracts.

Figure 5: Initial Migration

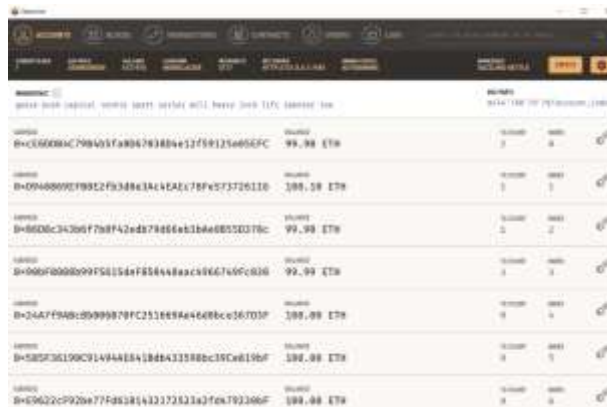**Figure 6:** Social Network Migration

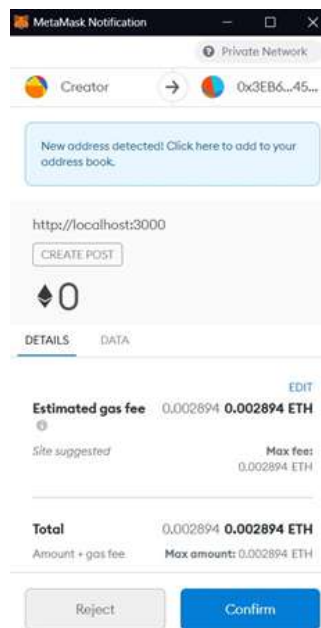**Figure 7:** Local Blockchain Network on Ganache

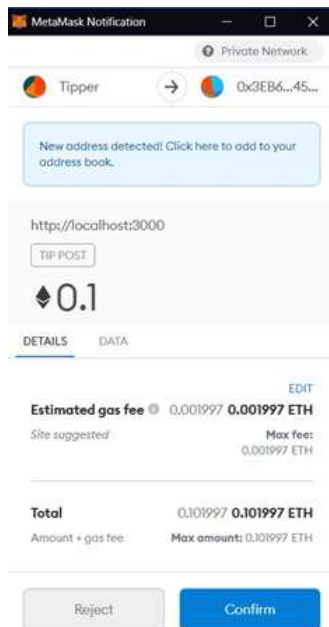**Figure 8:** Metamask notification for creating post

Figure 9: Metamask notification for tipping post

4. CONCLUSION

Traditional social media is gaining popularity as a consequence of the expanded marketing and entertainment opportunities it offers its users. On the other hand, there are growing concerns regarding data and privacy breaches related with these sites. Fake news, excessive trolling, censorship, and demonetization are all major issues on traditional social media platforms like Facebook, Twitter, and YouTube, etc. The decentralized nature of Blockchain technology, regardless of how we look at it, because there is no central structure or supervisor, is the future of different fields, particularly social media or supervisor regulating value. Furthermore, because there is no centralized authority, users on these networks have more privacy. As a result, the freedom of speech and expression is preserved, and people are spared the agony of being persecuted for their opinions expressed on social media. Users can earn cryptocurrency by posting and interacting on most decentralized social networking platforms. Blockchain can also be used to protect any media from unauthorized changes and help maintain originality and credibility of the source. Despite their many benefits, such uncensored platforms are rife with opportunities for criminal activities, undercutting the objective of preserving freedom. However, restrictions may be required to ensure that the decentralized blockchain social media concepts are followed. To sum up, these Blockchain-based social media platforms have the potential to change the way we interact on the internet.

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