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# Decentralized Twitter Using Block chain and Sanity Database

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**ABSTRACT**

***Social Networks have turn out to be one of the maximum important and well-known packages in the international. These days the sort of social media like twitter, Instagram, fb, and so on clients is ready 3 billion, and this style increases year in step with 12 months however with high influence at the privacy difficulty. However, decentralization of social offerings has been viewed a large possibility to overcome the primary issues in Social Networks. The innovation with a block chain is that it guarantees the security of a record of statistics and generates consider without the need for a trusted 0.33 celebration. And a block chain shops data electronically in digital layout. In this paper we introduce an outline of the most important block chain-based Social Media platforms. We describe in element those structures via highlighting the most important elements and offerings they offer, however additionally the frequent drawbacks of these systems.***

***Keyword: - Decentralized system, Hyperledger, Block chain, Ethereum, MetaMask.***

## 1. INTRODUCTION

The block chain is a peer-to-peer disbursed ledger in which facts known as blocks are related and secured the usage of a cryptographic hash. By way of layout, block chains are decentralized, secure, immutable and extraordinarily fault tolerance making them suitable for file management activities i.e., financial transactions, identification control, provenance and authentication. Block chain can be deployed as permission less (e.g., Bitcoin or Ethereum) or permissioned block chain e.g., Hyperledger venture via The Linux basis. In permission less or public block chain the actors within the machine aren't regarded. Online Social Networks (OSNs) have become one of the most popular applications of the daily life of users in the worldwide [1]. Today, the number of Social Media users is more than 4 billion, and this trend increases year after year with a high impact on the privacy issue [1]. The block chain network at any time, which may additionally improve security risks within the community. But, in permissioned or personal block chain best acknowledged and identifiable set of participants are explicitly admitted to the block chain network. This reduces the presence of malicious actors within the community. As an end result, best authenticated and certified actors can take part inside the community which increases the security of the system as required by way of the business enterprise applications.

The thrilling non-economic regions that leverage the possibilities of permissioned block chain encompass fitness, government offerings, deliver chain management, internet of factors, peer-to-peer cloud storage and plenty of more. Further, with smart contracts, blockchains have the potential to make more secure and trustable trades or collaborative business among a supply chain [4]. Smart contracts can be used to compose the entire transaction process and automatically executed in a cost-effective, transparent, and secure manner [4] . The decentralized information garage will help to get rid of the most traditional records screw ups and outages through growing the safety, privations, and control of the statistics. Several popular and promising blockchain techniques are underdeveloped; among them are those for blockchain creditworthiness, performance, efficiency, security, privacy, supervision, and online-to-offline integration [4].

## 2. RELATED WORK

Block chain are write-handiest information systems with no administrative permissions for modifying or deleting of the data. A blockchain system is secure and autonomous based on its chained blocks, peer–peer nodes, consensus-based ledger mechanism, anonymous accounts, self-regulated data ownership, and programmable smart contracts[4]. Every block consists of the cryptographic hash function of the preceding block and is used to expand a hyperlink between them. The related blocks shape an entire chain, subsequently the time period block chain. The hash feature continues the safety, integrity, and immutability of the block chain.

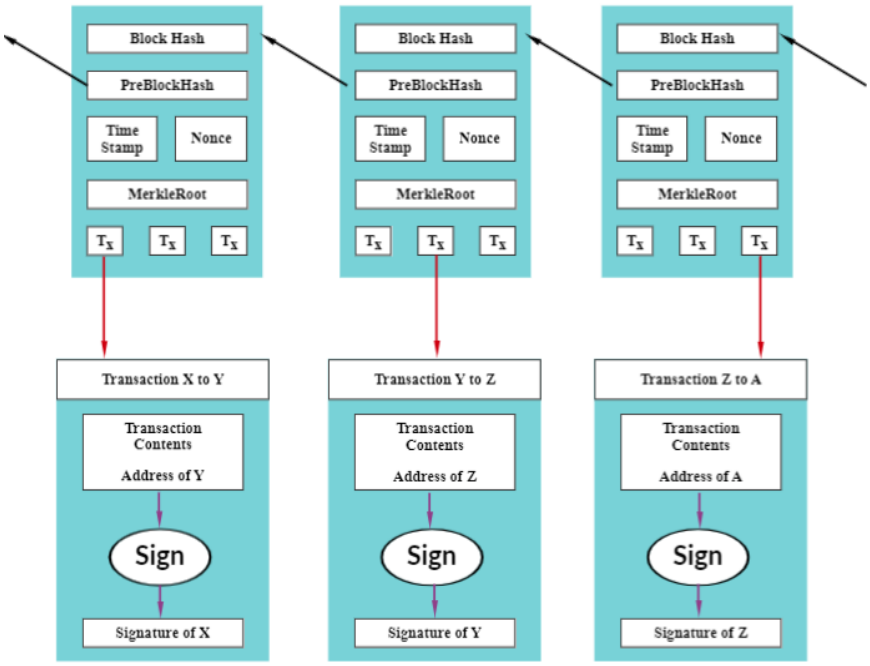


Fig -1: Block chain Structure

Solidity: Solidity is an object-oriented, high-level language for implementing smart contracts[8]. Smart contracts are programs which govern the behaviour of accounts within the Ethereum state[8]. Solidity is compiled to byte code this is executable at the EVM.

Ethereum: It's miles a decentralized open supply block chain providing smart settlement capability. Ether is the local cryptocurrency token of Ethereum platform. It's far the second biggest cryptocurrency in the back of Bitcoin. Ethereum presents a decentralized digital machine referred to as EVM, which could execute scripts the use of a global network of public nodes.

Smart Contracts: They are the laptop programs that run routinely while sure standards are met inside the gadget. They may be used to transfer cost of any kind between the peers in a block chain without the carrier of the relied on 0.33 party. Nowadays, the Ethereum smart contracts are designed to run on all nodes of the Ethereum network.

Transactions: The file of an event, cryptographically secured with a digital signature that is tested, ordered, and bundled together into blocks, shape the transactions within the block chain. For this reason, each block is composed of transaction data along with the timestamp, cryptographic hash of the preceding block (parent block) and a nonce. A nonce is a random range or bit string that is used to affirm the hash. The hash values are precise and assist to maintain the integrity of the complete block chain from the primary block to the ultimate within the community

MetaMask: MetaMask is an extension for accessing Ethereum enabled distributed applications, or "Dapps" to your browser. The extension injects the Ethereum web3 API into every internet site's JavaScript context, so that dapps can read from the block chain. MetaMask also we could the user create and control their own identities, so while a Dapp wants to carry out a transaction and write to the block chain, the consumer receives a comfortable interface to study the transaction, earlier than approving or rejecting it.

## 3. PROPOSED WORK

As Block chain is decentralized generation and arise all the transactions with the assist of ethers for going on every and every transaction. In this paper, we used tools like Ethereum IDE, remix.ethereum.org and Ganache and MetaMask for deploying the contracts.Decentralized Twitter Dapp is a software in which the customers can create bills on twitter and able to upload the tweets, delete the tweets and capable of ship the messages from one account to any other.

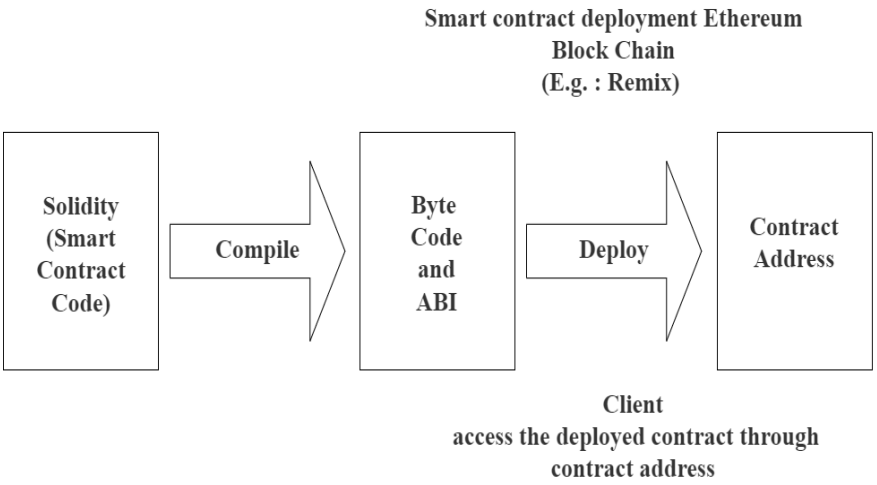


**Fig -2**: Deploying Smart Contract

The smart contract will be created by the first user, who will then deploy it. After each new block is added to the chain, the Ethereum Virtual Machine, also known as the EVM, computes the state of the Ethereum network and executes smart contracts. The hardware layer and node network layer of Ethereum are on top of the EVM. The user will be able to log into Twitter using Metamask after the contract has been successfully deployed (the user must have Metamask with test ethereum on their wallet; they will log into Twitter after a transaction occurs; and the transaction will be stored on two platforms, one on Ether scan and the other on Sanity Database). After logging in, the user will be able to access the frontend, where they can easily add, delete, and tweet (although they still need ethereum for that). Additionally, we now have the mint option, which allows users to change their profiles to become NFTs. Overall, the user of our project needs Ethereum in order to complete all of their requests.

## 4. METHODOLOGY

On this paper, deployed the smart contract using Linux operating system. The tool named as Remix is used for deploying the smart contract in OS. Decentralized software which gives extra protection and integrity. The project we proposed is greater secured in comparison to normal twitter app. Only the legal customers can create accounts in Twitter and may capable of send messages from one account to another account and also able to upload and delete tweets. Ethers are main tokens used to carry out every and each transaction in the Block Chain. Gas is the computational unit used in Ethereum for taking place the transactions. Compilation and migrations of smart contracts is step one for deploying the contracts. Tweet Book smart contract is deployed using the Goerli network. The network id for Goerli is 3 and it has certain gas limit. We used Metamask and it is the tool used to connect the smart contract with the particular network whether to confirm that the transactions should occur with this network or not. Through this metamask network (i.e. goerli) we can perform all functions which are include in smart contract with the cryptocurrency called Eth. Account is created within the Goerli network to perform the transactions according to the smart contract. Each account state has four components i.e.

1. Nonce
2. Balance
3. Code Hash
4. Storage root

After deploying the smart contract, we need to run that particular smart contract with the help of server. The contract runs and it opens in the browser and are able to perform various functions like creating an account on social media i.e. twitter, add and delete the tweets, we can also send message from one account to another account with more security. We also added Chabot which can help users to know more about decentralized dwitter using AI. There will also a message features which we have integrated in dwitter where user can communicate with each other using react and sanity database to store every message securely.

## 5. RESULT

After deploying the smart contract it will run on browser (localhost 3000).It will able to perform various function like creating an account in twitter, adding the tweets, updating of cover image as well as profile image, send message from one account to another account (using socket.io).

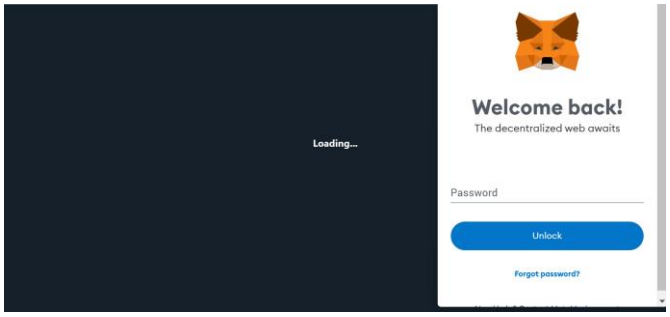


**Fig -3**: Meta Authentication.

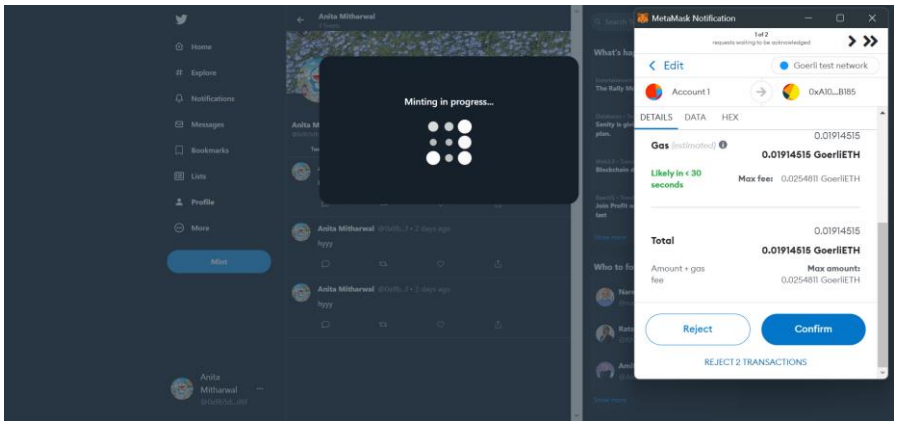


**Fig -4**: Ethereum payment after mint.


**Fig -5**: After Tweet.

## 6. CONCLUSIONS

In this work block chain primarily based decentralized twitter utility has been carried out which presents extra integrity and security as compared to the conventional software. The proposed frame work eliminates the want for centralized repository. This technique decentralizes the Twitter framework and removes the mission dependence upon centralized computing assets for storing, processing and uptime. This block chain primarily based decentralized generation also can be applied to different social media applications like Facebook, WhatsApp and LinkedIn etc. This, in flip, will assist in enhancing the performance tracking of the net had to preserve the first-rate-of-carrier required for cutting-edge and future technology of the net. And the users can be more relaxed because the important stuff of the user is placed safely in Sanity database.

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