SURVEY PAPER: BANKING SYSTEM WITH BLOCKCHAIN AND OWN CRYPTOCURRENCY

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ABSTRACT-

In todays world banks are highly affected by economic and digital transformation, financial innovations and development of internet. Apart from the effects the banks are having we as a customer are also facing an issue which is regarding authenticity and authority of our belongings in that bank as in this banking system we have one centralized point of failure which is the bank itself. Blockchain technology emerges as one of the underlying technology with promising application in various sectors including banking sector. Therefore, Aim of this paper is to do a research on the impact of Blockchain platform in the banking sector. To have a more clear view about this technology this paper is having description of a working model using Ethereum blockchain in banking systems.

Keywords-*Blockchain, Ethereum, ERC-20, Smart Contract.*

INTRODUCTION

In today's world Banks are continuously exploring new ways to do their transactions quicker to enhanced customer services by assuring transparency to their customers and regulators while ensuring that it is cost efficient. Blockchain is a technology with promising application scenarios in banking industry in todays world. It has the power to transform banking industry and make all the processes more democratic, transparent secure and efficient. Blockchain is a combination of several different technologies like distributed data storage, consensus mechanism, point-to-point transmission and encryption algorithms. Blockchain behaves as a decentralized ledger that can keep track of transactions between two parties effectively in the network. These parties may have simultaneous access to update digital ledger constantly but the system is virtually impossible to hack. More than 90 central banks involved in Blockchain globally and 80% of banks predicted to initiate Blockchain with distributed ledger technology[4]. Most of the banks are on their way to establish blockchain use cases which may create huge revolution in banking sector which may point towards end of traditional banking. This paper outlined as follows. Section I gives an introduction about how blockchain going to revolutionize the banking industry. Section II explain the architecture of Blockchain architecture, model and how Blockchain works with consensus algorithm. Section IV discusses Our proposed system towards this sector our project architecture.

Section V discuss Algorithm used in our project and why we choose this specific algorithm. Section VI provides gives conclusion about this article.

LITERATURE SURVEY

A blockchain is a virtual, decentralized, immutable and distributed ledger that is used to record transactions in real time. Blockchain systems consist N number of nodes which are interconnected with each other on a commonly accepted protocol, thereby creating a mechanism which constantly maintains errors, manipulation and data quality. This maintains creates a continuously growing list of records which are generally reffered as 'Blocks'. Blocks in a blockchain can identified with the help of hash in the block header which is generated with the help of SHA256 algorithm (bitcoin)[3]. This hash function is developed using a mathematical algorithm that maps arbitrary size data into 32 byte string[2]. These blocks act as the data structures which are used to bring transactions which are needed to be included in the public ledger. The header of the block consists details regarding the block in the using parameters index, Hash, previous hash, timestamp and nonce. Transactions are stored as array in the body of the block.

The first block of a blockchain is called as genesis block and it contains its transactions with a unique hash value. This hash is used in the next block in the chain, creating a link between current block and the previous block creating a chain of blocks. This means transactions can be added safely and are secured from tampering and revision. So changing the data of a block leads to a changed hashed value which also effects the next block because it contains the hash of previousblock. Therefore any one cannot change transaction data of block. Blockchain uses cryptography to confirm that users modify the transactions on a secured network. If majority of nodes or participants agree that the transaction performed looks valid transaction information which matched with the blockchain's transaction history, then new block will be added to the chain

GAP ANALYSIS

As blockchain is a new technology so lack of awareness/understanding is the main challenge to implement this technology in the banking sector.

Traditional banking to banking in blockchain is a complete shift so changes in banking culture should be adopted.

Government polices and proper regulatory framework should be established.

Blockchain is a decentralised structure so it's important to find the right approach to implement this technology.

PROPOSED SYSTEM APPROACH

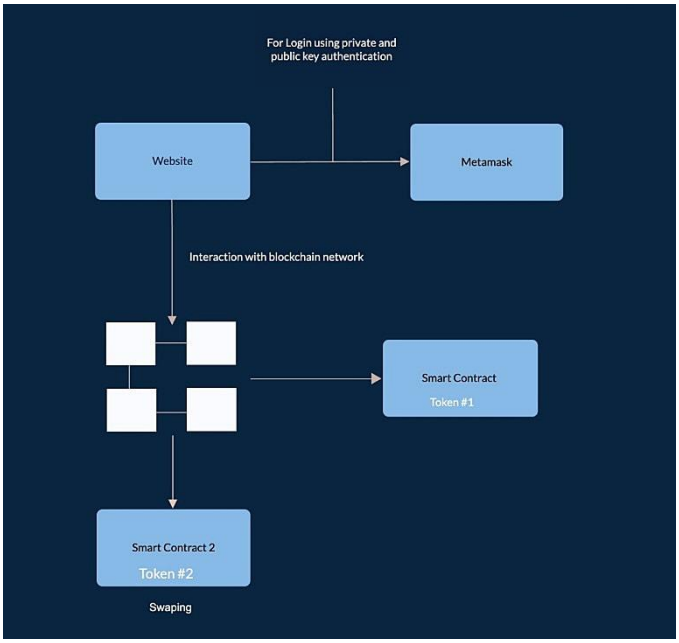

Fig. System Architecture of Proposed System

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering. We offer a blockchain based banking system application, which will not only have its own currency but also smart contracts which will act as real life contract between two entities for various banking features like loan, deposit and withdrawal. We have used React for the client side application and solidity for the backend section of our project. HardHat is used as our testing and deployment framework . This system is compatible with any blockchain which supports solidity as there smart contract language. Currently our project will be running on two different local test network Ganache and Hardhat, which are both a copy of actual blockchain. Metamask is used as wallet to ensure login procedure to be authentic.

ALGORITHM

ERC-20 is a standardized token interface which is constant through the whole ethereum blockchain network. It is a specialized token which is use to manage financial transactions between participants of ethereum networks. There are many standardized token there for ethereum which are built to represent various real life entities in real world for eg ERC-721 which is a standardized

token for Non Fungible Token. Our Project is focused around problems related to baking which involves currency. Which can or cannot be a decimal based value, as ERC-20 is a fungible token, we are using ERC-20 as our standard.

CONCLUSION

Blockchain is a decentralized digital ledger which is designed to oppose hacker's objectives. Which leads to it being Security wise very important technology to adopt in countries like Sri Lanka and Financial industries like banks. Blockchain also helps to enhance the efficiency of the banking industry by way higher means than earlier. There are a lot of opportunities with Blockchain technology with immeasurable values in every industry in todays world. This provides a unique way to establish cryptography transactions between every party in the network which may lead to simplification of money in the world.

FUTURE WORK

This application can be easily implemented under various situations we can add new features as and when we require. Reusability is possible as and when required in this application as there is flexibility in all the modules. Software scope extensibility: This software enhances the following principles creating a decentralized scenario in the environment.Reuse usability: It is possible as and when required in this application we can update it to the next version. Reusable software reduces software design, coding, and testing cost by reducing effort over several designs present and the amount of code written.

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