Blockchain Technology

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Abstract:- Block chain the most interesting and new topic discussed all around the world in recent years. Blockchain technology has been known as a digital currency platform since the emergence of Bitcoin.Bitcoin is a crypto currency. It is decentralized digital currency without a central bank or a single administrator that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediate. Some of the Uses of Block chain applications that are Transforming Society are Asset Management, Insurance, Payments, Smart Appliances, Block chain Internet-of-Things(IoT),etc.

Keywords : Peer-to-peer system; Distributed Consensus; Bitcoins; Blockchain;Elements of Blockchain Working of Blockchain; Applications of Blockchain;

INTRODUCTION:

A Blockchain is a growing list of records, called blocks and that are linked using crypto currency. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. Blockchain are decentralized. The decentralized transaction ledger of blockchain could be employed to register, confirm, and send all kinds of contracts to other parties in the network.

ABOUT:

Blockchain was invented by a person(or a group of people) using the name Sathoshi Nakamoto in 2008 to server as the public transaction ledger of the crypto currency bit coin. The identity of Sathoshi Nakamoto is unknown. The invention of the block chain for bit coin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server. For use as a distributed ledger, a block chain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without alteration of all subsequent blocks, which requires consensus of the network majority. Although blockchain records are not unalterable, blockchains may be considered secure by design.

PEER-TO-PEER SYSTEM:

Blockchain builds on the idea of P2P networks and provides a universal data set that every actor can trust, even though they might not know or trust each other. It provides a shared and trusted ledger of transactions, where immutable and encrypted copies of information are stored on every node in the network.

DISTRIBUTED CONSENSUS:

"Proof-of-Work" is mechanism that enables distributed control over ledge. It is based on the combinations of economic incentives and cryptography.
"Proof-of-Work" makes it exceedingly difficult to falsify the blockchain, due to the prohibitively large amount of computing power that would be required to do so. Blockchain therefore uses traceability as well as a higher statistical security against counterfeiting than conventional information system, without the need for trusted intermediaries.

BITCOINS:

Bitcoin is a digital currency. Bitcoins is the form of crypto currency. It follows P2P cash system and its use is worldwide. Bitcoin is not an official currency i.e. it operates without the involvement of banks. Bitcoin do not have any value. It is decentralised network(Direct Contact).Particular algorithm is used for transaction which create a Blockchain. In Blockchain we can see all the transaction but cannot recognize the person correctly. Bitcoin value is given by its miners. Bitcoin mining is a process, which helps in adding transaction fees to the public ledger, or the blockchain. Miners are motivated by rewards and transaction fees are paid in Bitcoins. Bitcoin transaction time is 10-12 minutes. If the Bitcoin are not supported by any country, then the value of bitcoin decreases and the availability will be more. Maximum Bitcoin Price is $19783.06(Dec 17,2017). Bitcoins offers the promise of lower transaction fees than traditional online payment mechanisms.

BLOCKCHAIN:

Blockchain is a shared, trusted, public ledger of transactions, that everyone can inspect but which no single user controls. Blockchain is the technology behind Bitcoin. Blockchain has No Bank! No Government! No intermediaries of any kinds. It is a distributed database that maintains a continuously growing list of transaction data records, cryptographically secured from tampering and revision.The ledger is built using a linked list, or chain of blocks, where each block contains a certain number of transactions that were validated by the network in a given timespan.This ledger runs on a peer-to-peer (P2P) network of computers. Distributed consensus based on economic incentive mechanisms (game theory) combined with cryptography allows for secure P2P validation of transactions, thus bypassing the need for traditional trusted third parties.

ELEMENTS OF BLOCKCHAIN:

Nodes, Miner, Ledger(block or blockchain), Proof of work, Network consensus, Difficulty level, Double spending problem.

WORKING:

When a new transaction or an edit to an existing transaction comes in to a blockchain, generally a majority of the nodes within a blockchain implementation must

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execute algorithms to evaluate and verify the history of the individual blockchain block that is proposed. If a majority of the nodes come to a consensus that the history and signature is valid, the new block of transactions is accepted into the ledger and a new block is added to the chain of transactions. If a majority does not concede to the addition or modification of the ledger entry, it is denied and not added to the chain. This distributed consensus model is what allows blockchain to run as a distributed ledger without the need for some central, unifying authority saying what transactions are valid and (perhaps more importantly) which ones are not.

LIMITATION:
Complexity, Network size, Transaction costs, Network speed, Human error, Unavoidable security flaw, Politics.

BENEFITS OF BLOCKCHAIN TECHNOLOGY:
Blockchain is attractive to a number of different constituencies for a variety of reasons like the lack of a requirement for a central authority makes it an ideal ledger. The concept of blockchain works really well at tracking how assets move through a supply chain, through certain vendors and factories to transmission and transportation lines and into their final locations.

DOWNSIDES OF BLOCKCHAIN:
The biggest problem with blockchain technology now is that it is hard to apply, mainly because, as is typical with open source projects, there are numerous projects each with their own teams and ideals.

APPLICATION:
Asset Management: Trade processing and Settlement.
Insurance: Claims Processing
Payment: Cross-Border Payments
Smart contracts
Blockchain Internet-of-Things
Blockchain Healthcare
Blockchain Government
Blockchain identity

BLOCKCHAIN CAPABILITIES:
Decentralized governance, New flow of values, Sharing a distributed ledge, Time-stamping, Running smart contracts on blockchain.

CONCLUSION:
The Blockchain will redefine the existing intermediaries(if they accept to change), while creating new intermediaries therefore it will disrupt the traditional boundaries of values.

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