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Blockchain Based Bidding System

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Abstract: ***The E-auction, one of the most common e-commerce events, allows bidders to bid directly on the Internet. As with the sealed deal, additional transaction costs are needed with intermediaries, as the third party plays an essential role between buyers and sellers in helping to negotiate both during the auction. In fact, it never confirms that a third party is trustworthy. To solve the problems, we propose the low transaction cost blockchain technology which is used to build the public bid and sealed bid smart contract. The smart contract consists of the Auctioneer address, the start time for the auction, the deadline, the current winner's address, and the current highest price. The project demonstrates the bidding framework with blockchain technology. This bidding application prepared by using Advanced Encryption Standard(AES) Algorithm. This algorithm contains AES cipher specifiers the number of repetitions of transformation rounds, that converts the input called the plain text, then into the final output called cipher text.***

Keywords- Blockchain, Bidding System, AES Algorithm, Plain Text, Cipher Text.

I. INTRODUCTION

The E-auction, one among the favoured e-commerce activities, allows bidders to directly bid on the products over the web. As for sealed bids, the extra transaction cost is required for the intermediaries because the third party may be a crucial role between the buyers and thus the sellers help to trade both during the auction. additionally, it never guarantees whether the third party is trust. To resolve the problems, we propose blockchain technology with low transaction cost which is used to develop the smart contract of public bid and sealed bid. This smart contract consists of the address of the Auctioneer, the start auction time, deadline, the address of this winner, this highest price. E-auction has two main problems: 1) a centralized intermediary is required within the bidding system to assist communication between bidders and auctioneers. The charge fees for the centralized intermediary increase the transaction cost. 2) Secondly, during a sealed envelope, bidders have no because of ensuring that lead bidder never leaks their bidding price.

II. LITERATUER SURVEY

In paper [1], the author discussed about the popularity of the internet, the integration services have gradually changed people daily life, such as e-commerce activities and transactions, transportation and so on. Electronic auction is the most popular electronic commerce activity, which allows the bidders to directly bid the products with the help of internet. This paper helped us to know how e-commerce works over the internet and e-auction system.

In paper [2], the author proposed about auction based mechanisms are extremely relevant in modern day, electronic procurement systems since day enable a promising way of automatic negations, with suppliers. It will help to get the efficient procurement and cost minimization. This paper tells us research and recent area in the art of the action based on mechanism of electronic procurement.

In paper [3], the author convey about block chain technology has emerged as a solution to consistency problems in peer to peer networks. Now it has a efficient solutions in the range of use cases, in which scan give the notion of third party without any trust. Which makes it very attractive for distributed systems.

In paper [4], the author presented about the use of digital applications is n the rise nowadays. So the processing of those data is done by a tool called Map Reduce. Map reduce has its own structure which can't be modified. While processing those data, skew will occur in both map and reduce phase. This paper aided us, that about map reduce framework and working of it.

In paper [5], the author proposed about the blockchain based digital content, distribution system was developed. Decentralized and peer to peer authentication mechanism can be considered as the ideal rights management mechanism. The blockchain has the potential to realize this ideal content. This paper analysis that how blockchain works with the content that we added.

III. PROBLEM STATEMENT

The Blockchain based bidding system is the bidding software It is.to design and develop a bidding system for the communication between bidders and auctioneers using block chain technology. It makes the transparent communication between two users and saves the privacy of two end users and secures the information while transmission going on. This model is to provide security and transparency.

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IV. EXISTING SYSTEM

Nowadays, E-auction can be classified into two types, namely public bid, and sealed bid. A public bid is that bidders could raise the price to bid on the products. Thus, the bidding price gets increasing continuously until no bidders are willing to pay a higher price. The bidder will be a winner if he bids the highest price for such a product. During public bid, bidders can bid several times; thus, the public bid is also called multi-bidding auction19. A sealed bid is that bidders encrypts the bill and only send the bill once. If the time is remaining, the auctioneer compares all of the bills. The bidder who bids for the highest price is the winner of the sealed bid. Due to bidders only can bid once, it is also called single-bidding auction. In the seal bid, all bidders' prices are sealed until the bid opening deadline is compared to the prices of all bidders. There is a common shortcoming in electronic seal ticket auctions. Before the deadline for opening bids, the bidder is confident that the bid price may be leaked by a third-party bidder, resulting in other bidders may collaborate with the bid winner to obtain the best bid price the blockchain is a technology that accesses, verifies, and transmits network data through distributed nodes.

V. METHODOLOGY

The methodology proposed in this work is discussed in the following two steps:

A. Algorithm: AES Algorithm

AES has a fixed block size of 128 bits, and a key size of 128, 192, or 256 bits, AES operates on a 4 × 4 column-major order matrix of bytes, termed the state for instance, if there are 16 bytes, b_0, b_1, … b_{15} , these bytes are represented as this matrix:

$$\begin{bmatrix} b_0 & b_4 & b_8 & b_{12} \\ b_1 & b_5 & b_9 & b_{13} \\ b_2 & b_6 & b_{10} & b_{14} \\ b_3 & b_7 & b_{11} & b_{15} \end{bmatrix}$$

Fig.1 Matrix for AES Encryption

The key size used for an AES cipher specifies the number of repetitions of transformation rounds that convert the input, called the plaintext, into the final output, called the ciphertext. The number of cycles of repetition are as follows: 1)10 cycles of repetition for 128-bit keys. 2)12 cycles of repetition for 192-bit keys. 3) 14 cycles of repetition for 256-bit keys.

B. System Architecture & Design

This proposed methodology applies blockchain technology to the E-auction to resolve the two main problems in the E-auction that we stated earlier. The blockchain is a peer-to-peer access structure such that points in the structure can trust each other points. Each location can securely communicate, authenticate and transfer data to any of the other sites. Consequently, in the decentralized structure, the centralized intermediary can be removed to reduce the transaction cost. And the second problem is, the smart contract is used to not giving access to the bid price leaked by the lead bidder. Some rules are written inside the smart deal which cannot be opened before the deadline.

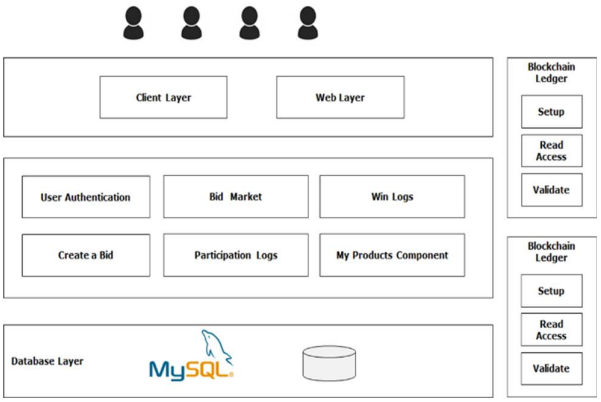


Fig.2 System Architecture

C. Node Implementation

In this proposed methodology we'll be implementing the blockchain network by creating our set of distributed ledger nodes. Each node are going to be ready to perform various operations

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- Receive the blockchain data once the transaction within the blockchain has been committed and therefore the block is mined.
- Perform block validation by comparing the hash codes of the present block and therefore the hash codes of the previous blocks
- Provide a read only access to the clients thereon node for visualizing the amounts of blocks and therefore the sort of data being stored
- Provide the block chain data to the bidding application once requested.

Each node are going to be deployed in its own platform over the cloud infrastructure. For this purpose, we make use of Digital ocean cloud service provider.

VI. RESULTS

The proposed system results in the probability of the E-auction mechanism based on blockchain to ensure electronic seals confidentiality, non-repudiation, and unchangeability. We proposed the blockchain technology with low transaction cost which is used to develop the smart contract of public bid and sealed bid. For this we used the Algorithm AES to allow the digital information to be stored and distributed across the entire network of the computer system on the blockchain.

The Results are expressed as below lines.

A. The first step is taking input of the user credits to log in as a results of user credits we can log in to the web software this is how the first step of the results explained.

B. After user logged into the web software, he will choose the bid options there will be two options there will be open bid and sealed bid.

C. User chooses the bid and he will create a product that has to be bid, then another user will register a account and he will start bidding and there will be more users who can log in and bid on the products.

D. After creating a product, so many users bid on the products the highest bid will get a chance to get the product.

E. The one who will win the bid, he will get the mail to his registered email id about you got the product and product.

F. The person who made the product that available to bid also get a mail id to his registered email, that your product is bid to the user.

VII. CONCLUSION

This proposed approach provides an E-auction mechanism supported blockchain to make sure electronic seals confidentiality, non-repudiation, and unchangeability. We propose the blockchain technology with low transaction cost which is employed to develop the smart contract of public bid and sealed bid. The smart contract, proposed in 1990 and implements via Ethereum platform, can make sure the bill secure, private, non-reputability and inalterability due to all the transactions are recorded within the same but decentralized ledgers. The smart contract consists of the address of Auctioneer, the beginning auction time, deadline, the address of current winner, the present highest price.

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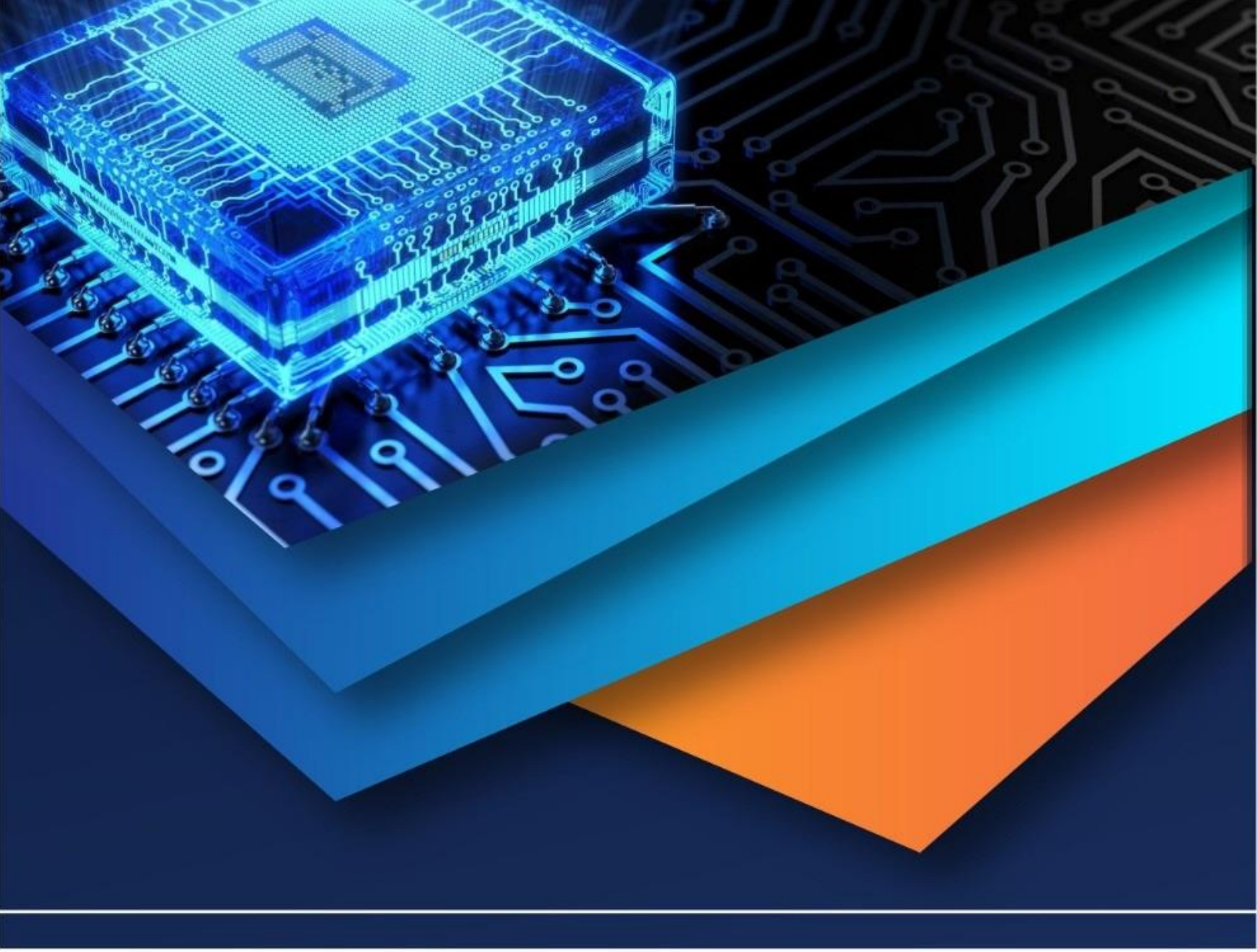
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