E-Auction Application based on Blockchain

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Abstract.

Integration services, such as e-commerce transactions, transportation, and so on, have progressively revolutionised people's everyday lives as a result of the Internet's popularity. E-auction, which allows bidders to directly bid on items via the Internet, is one of the most popular e-commerce activities. Because the third party plays such an important role in enabling trade between buyers and sellers during the auction, an extra transaction fee for the intermediaries is required in the event of a sealed bid. It also never guarantees that the third party is reliable. To address this issue, we are developing an Android application that is powered by Blockchain Technology, ensuring that the databases used for transactions are dispersed and cannot be tampered with.

Keywords: Blockchain, E-Auction, E-Auction System using blockchain, Web3.

1. INTRODUCTION

The blockchain is a peer-to-peer access network that allows nodes to trust one another. Each site may interact, authenticate, and transfer data to others in a secure manner. As a result, the centralized middleman may be eliminated in the decentralized system, lowering transaction costs. In an era where practically all blockchain applications are booming, this is one such technology that will alter the world in numerous ways. We have discovered that traditional online e-auction providers may be readily tampered with or influenced by the supplier. Typically, these e-auction firms demand a hefty fee for their services.

A blockchain-based online auction platform would be a huge step forward from present auction platforms. Auction data and bids will be difficult to tamper with thanks to the blockchain framework. Transparency, dependability, and scalability will be key features of the platform. Anyone may use this market to auction off anything, and bidders can bid and acquire items without fear of being scammed.

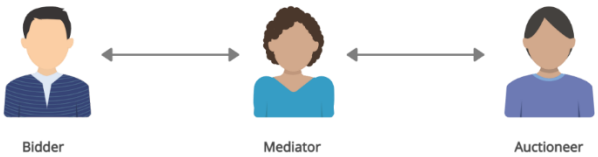


Fig.1 shows how traditional e-auction systems work

I. Literature Survey:

Ref. No.	Authors	Paper	Summary	Ref. No.
[1]	llichetty S Chandrashekar	Auction-based mechanisms for electronic procurement	In this project Bidders can place several bids during a public bid, which is why it's also known as a multi-bidding auction. Bidders	[1]

			encrypt the bill and only transmit it once in a sealed bid. The auctioneer compares all the bills if the time is up. The sealed bid is won by the bidder who offers the greatest price.	
[2]	Shih-Hsin Chen	Blockchain-based smart contract for the bidding system.	The smart contract in this article includes the auctioneer's address, the start auction time, the deadline, the current winner's address, and the current highest price. In the experiments, accounts are established with the Ethereum wallet.	[2]
[3]	Shengbao Yao	A Model in Support of Bid Evaluation in Multi-Attribute E-Auction for Procurement.	In this work, management science methodologies are discussed as potential solutions to various sorts of decision-making problems. The focus of this study is on bid evaluation in multi-attribute e-auctions for procurement.	[3]
[4]	Wen Chen	A Simple Efficient Electronic Auction Scheme.	This work offers a novel quadratic residue-based electronic auction mechanism that is both simple and efficient. Their technology meets the fundamental security requirements for a sealed-bid auction system.	[4]

In his paper "Auction-based procedures for electronic procurement," llichetty S Chandrashekar [1] claims that E-auctions are currently separated into two categories: public bid and sealed bid. Bidders may raise the price in order to bid on objects in a public auction. As a result, the bidding price keeps rising until no one is willing to pay any more. A bidder is proclaimed the winner if he provides the highest price for products. A public bid is sometimes known as a multi-bidding auction since bidders can put multiple bids throughout the auction. In a sealed bid, bidders encrypt the bill and send it just once. If the time is up, the auctioneer compares all of the bills.

Shih-Hsin Chen [2] of Cheng Shiu University suggested a Blockchain-based smart contract for the bidding system, claiming that the smart contract, which was designed in 1990 and implemented on the Ethereum platform, can ensure that the bill is safe, private, non-reliable, and unalterable. The smart contract includes the auctioneer's address, the start

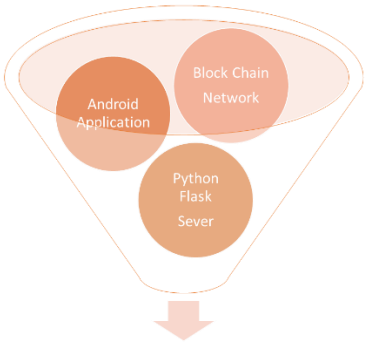
auction time, the deadline, the current winner's address, and the current highest price. In the experiments, accounts are established with the Ethereum wallet. In the miner stage, the Miner Gate is utilised to obtain money in order to pay the transaction fee. At the recording step, the blockchain nodes are synced to create smart contracts.

Shengbao Yao [3] of Zhongnan University of Economics developed "A Model in Support of Bid Evaluation in Multi-Attribute E-Auction for Procurement," stating that Bid evaluation is a vital but challenging problem in a multi-attribute auction. Management science techniques could be useful in resolving these types of decision-making problems. The focus of this study is on bid evaluation in multi-attribute e-auctions for procurement. The recommended model uses ELECTRE-III, an outranking-based multi-attribute decision approach, to analyse the buyer's preferences. As proven by a bid assessment example, the provided technique may be well suited as a decision-making tool for multi-attribute e-procurement.

"A Simple Efficient Electronic Auction Scheme" was proposed by Wen Chen [4]. This work offers a novel quadratic residue-based electronic auction mechanism that is both simple and efficient. Their technology meets the fundamental security requirements for a sealed-bid auction system.

Marco Iansiti [5] et .al “The Truth About Blockchain” article is a study about block chan in which the authors says the usage of smart contracts in the development of modern applications. The importance of smart contracts in the blockchain word is clearly discussed in this article.

II. Modules Identified



The proposed system can be divided into three modules

1. Android Application
2. Python Flask Server
3. Blockchain Network

1.Android Application :

The Android application is used as a user side layer for the application and is built in flutter.

2.Python Flask Server :

The Python Flask Server is used as the backend for the Android application.

3.Blockchain Application:

The Block chain network is used to store the transactions happening in the application.

III. Methodology:

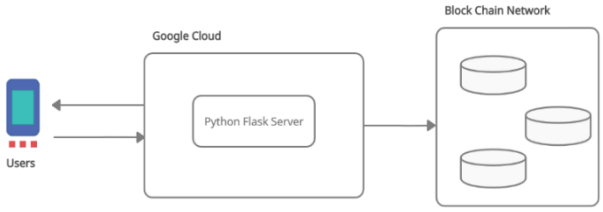


Fig 2. Explains the Methodology of the project

The Project uses python flask as the backend for the application wherein the frontend of the application is made with flutter.

When the users logins with th application the user is authenticate using the firebase authentication framework and gives the user an unique identity. Various data like images, descripition of items are stored in the firestore database and ared used by the android application.

Metamask is used to provide the transactions in the blockchan network.

In an E-Auction platform, The Bidders can place direct bids on items through the Internet. Because the third party plays such an important role in enabling trade between buyers and sellers during the auction, an extra transaction fee for the intermediaries is required in the event of a sealed bid. It also never guarantees that the third party is reliable.

IV. Results

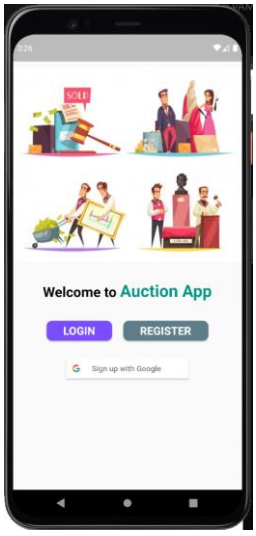


Fig 1. Shows the Home Page of App.

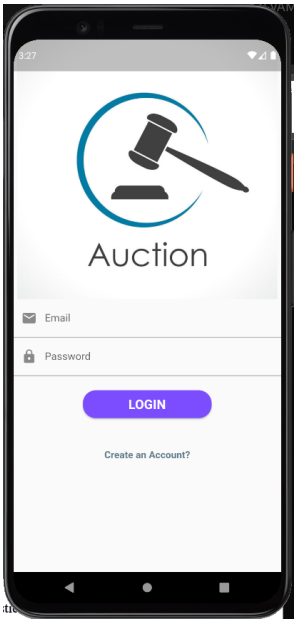


Fig 2. Shows the Login Page of App.

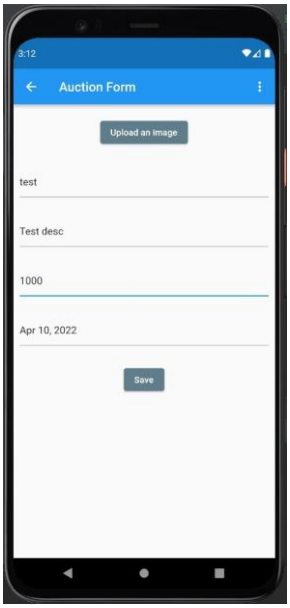


Fig 3. Shows the Item Uploading Form.

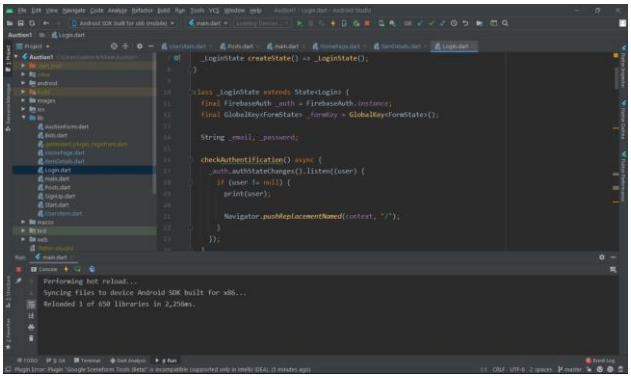


Fig 4. Shows the Android Studio file for login page.

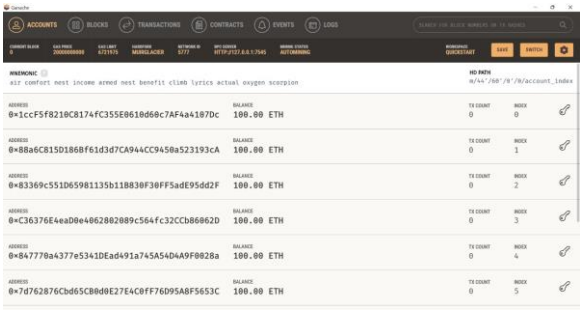


Fig 5. Ganache - Truffle Suite Ethereum Block Chain Simulation.

V. Conclusions:

We conclude that a blockchain-based E-Auction System can drastically change the way how auctions happen. The Cross-Platform application can be very useful for the user to easily conduct auctions over the internet without any physical interaction and in a secured fashion using technologies like blockchain

VI. References:

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