



“E-AUCTION WEBSITE USING BLOCKCHAIN TECHNOLOGY”

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Abstract: The emerging e-commerce systems open the way for several applications to be viable from off-line to online system. E-Auction is an effective ecommerce system that allows bidders and sellers to interact through online platforms. However, providing completely secure e-auction system that satisfies security conditions for all players in these systems requires very complex efforts in the traditional design. Blockchain and smart contract, as a revolutionary technology, has attracted the interest of different industries including the designing of e-auction systems.

In this paper, our aim is to provide a prototype of secure blockchain e-auction system that lowering the uncertainties about identities of long-distance complex trade in an e-auction system that can be implemented in UAE services, especially, UAE Auction. In our implementation, we use smart contract in order to guarantee the necessary security requirements. The smart contract contains important information about the transaction details such as auctioneer data, the start time and the deadline of auction, the current winner data, and the current highest price.

Keywords: Bidding, Blockchain, Security, Auction

I. INTRODUCTION

The purpose of the online e-commerce website is to ease online transaction and improve business and customer relationship and communication. It will also make it easier and convenient for customers to use application. The system is based on relational database with its storage and retrieval functions. We will have database supporting at a time at least a hundred customers.

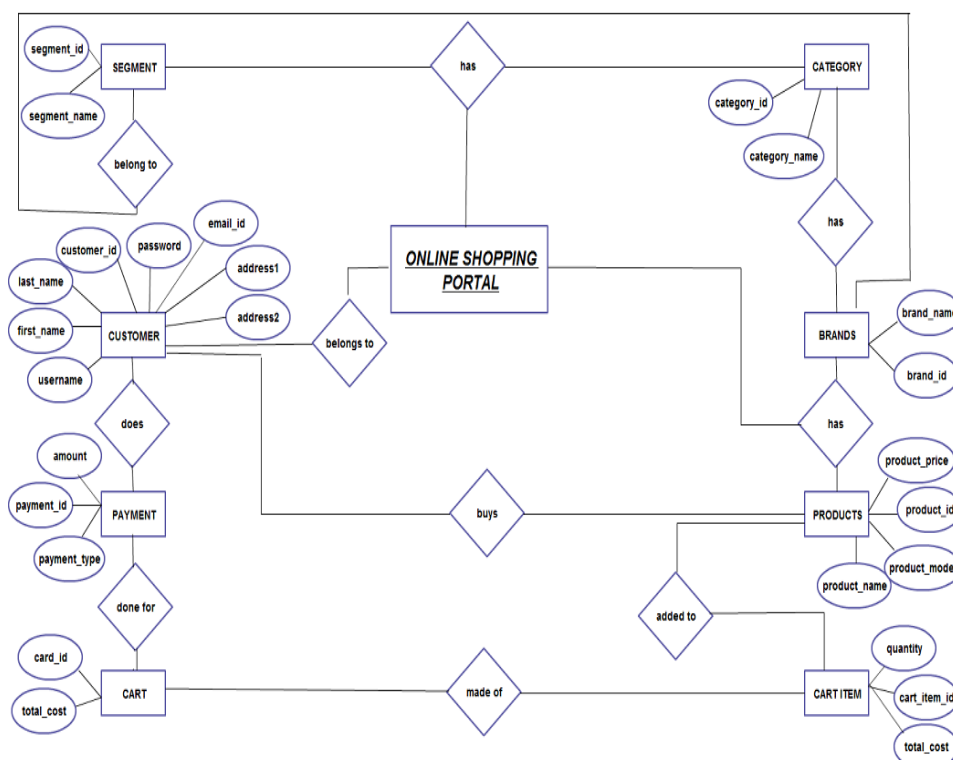


Figure 1: UML Diagram of complete System

A distributed e commerce website stores the following objects-

1. Customer details-details about every verified user if he wants to buy or sell product and all valid information representing the person.
2. Product details-details about product to be sold their market value, age and sellers contact details.
3. Transaction details-if any transaction occurs then the details between buyer and seller along with proper transaction function details is stored.

II. WORKING

A user should be able retrieve information about the products he wishes to purchase as well as if he wants to sell any product then information about interested should be readily available to him. Interested buyers should get easy access to seller phone number along with other relevant information about product easily. Other than this there also be different functions for administrators to manage the portal itself.

1. Customer functions-
 - Add new profile.
 - Add product image.
 - Add product details.
 - Add contact information along with other necessary details.
 - View other products added by other buyers.
 - Necessary transaction functions to have secure transaction.
2. Employee functions-
 - View details of products as well as new customers.
 - Delete products which do not follow website guidelines.
3. Administrator functions-
 - Add or delete any customer profile what do follow company guidelines.
 - Change/update any technical functions for website.

Design and implementation constraints

- Hosting the website in the form of managed hosting where in you pay a firm to host your website or the other option is shared hosting which is when many websites reside on one server which increases time lag, harder to maintain and customize but relatively cheaper.
- An e-commerce website requires setting up payment gateway for which and SSL (secure socket layer) is a must for securing the website.
- SQL queries for all functions which should on a global scale.
- Creating a database which can be centralized or distributed database system.

We have assumed that this is centralized database which has managed hosting dependent on information uploaded by users and no pre-uploaded data.

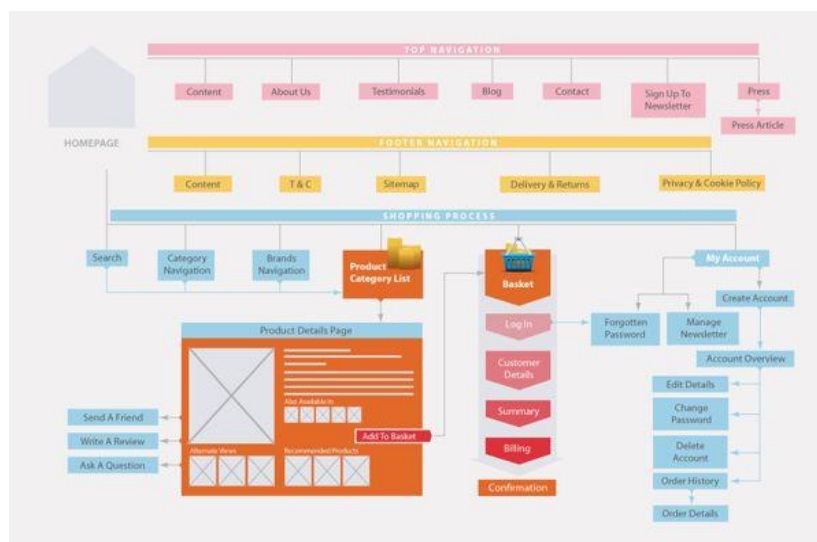


Figure 2: Architecture of complete System

Cryptographic hash functions provide the following benefits to the blockchain:

Avalanche effect – A slight change in the data can result in a significantly different output.

Uniqueness – Every input has a unique output.

Deterministic – Any input will always have the same output if passed through the hash function.

Quickness – The output can be generated in a very small amount of time.

Reverse engineering is not possible, i.e. we cannot generate the input by having the output and the hash function.

One of the major parts of asymmetric-key cryptography is digital signatures. Digital signatures provide integrity to the process; they are easily verifiable and cannot be corrupted. They also hold the quality of non-repudiation, making them similar to the signatures in the real-world. The digital signatures ensure that the blockchain is valid and the data is verified and correct. Hashing, public-private key pairs, and the digital signatures together constitute the foundation for the blockchain. These cryptographic features make it possible for blocks to get securely linked by other blocks, and also ensure the reliability and immutability of the data stored on the blockchain.

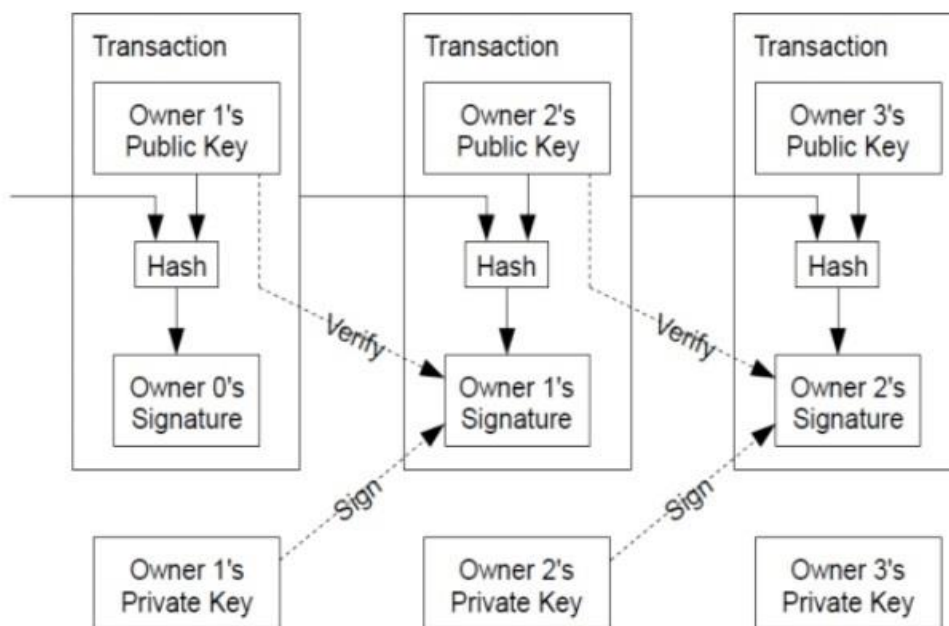


Figure 3: Blockchain Technology

III. TYPES AND ADVANTAGES

Types of E-Auction Fraud:

BID SHIELDING: Having phantom bidders bid at a very high price when an auction begins, they pull out at the last minute, and the bidder who bid a much lower price will win.

SHIELDLING

- Placing fake bids on auction items to artificially jack up the bidding price.
- Fake photos and misleading descriptions.
- Improper grading techniques.
- Selling reproductions as originals.
- Failure to pay.
- Failure to pay the auction house.

**Benefits of E-Auctions:**

Benefits of E-Auctions to Buyers

- Opportunities to find unique items and collectibles
- Lower prices
- Anonymity
- Convenience

Through dynamic pricing, buyers and sellers are able to adjust pricing strategies and optimize product inventory levels very quickly. Suppliers can quickly flush excess inventory and liquidate idle assets. Buyers may gather the power to procure goods and services at the prices they desire.

IV. CONCLUSION

E-Commerce is not just about conducting business transactions via the Internet. Its impact will be far-reaching, and more prominent than we know currently. This is because the revolution in information technology is happening simultaneously with other developments, especially the globalization of the business. The new age of global e-commerce is creating entirely new economy and that will tremendously change our lives, will reshape the competition in various industries, and alter the economy globally. As companies are gaining high profits, more and more other companies are developing their websites to increase their profits. Since more businesses are being held online resulting in high economy development and emergence of a more innovative and advanced.

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