**2. Business area analysis and requirement definition**

**1.1 Introduction**

**1.2 Business area analysis**

**2.2.1 Detailed analysis**

**2.2.2. Current system**

There are many existing systems in the works which are online based such as gochereta.et,auction-ethiopia.com. These systems are confusing to use. The other method which is manual from the company that wants to sell them and most of the information is published in the newspapers.

**2.2.3. Players of the existing system**

1) auction-ethiopia.com

2) gochereta.et

**2.2.4. Proposed system**

The System we propose is An online Auction web application that will be easy to use and understand. And the system will have auction posting, verification of the companies and users.

Make it the default amharic language as the system is focused for Ethiopians as it is the most used language.

**2.2.5. Forms and reports used**

**2.3. Requirement definition**

**2.3.1. Functional requirement**

Functional requirements define the specific actions and functionalities the system must perform. They detail what the system should do from the user's perspective. These are the functionalities we will have:

**User Management:** The ability for buyers and sellers to register, login, and manage their profiles.

**Item Listing:** Sellers can list items with descriptions, photos, starting bids, and durations. Buyers can search and browse through listings.

**Bidding Process:** Buyers can place bids, track current bids and time remaining, and potentially utilise features like automatic bidding.

**Auction Management:** The system automatically closes auctions when time expires, determines winners, and facilitates communication between buyers and sellers.

**Payment Processing:** Secure integration with a payment gateway to allow secure transactions for both buyers and sellers.

**Admin Panel:** An interface for administrators to manage users, auctions, and the overall system, including generating reports and analysing data.

**2.3.2. Essential Use case Modelling**

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**2.3.3. Actor description**

**Companies**: the one who lists items for auction on the platform. They can set the starting price, duration of the auction, and any other relevant details about the item. They can also track bids and communicate with potential buyers.

**Buyers**: the one who browses the auction listings and places bids on items they are interested in. They can monitor auctions, adjust their bids, and track their success in winning items.

**Administrator:** The administrator is responsible for the overall management of the auction platform. They may handle tasks such as setting up the system, managing user accounts, ensuring fair play, and resolving disputes. They may also generate reports and analyse data to improve the platform.

**2.3.4. Essential Use Case Description**

## **Use Case: Placing a Bid on an Auction Item**

This use case describes the scenario where a bidder finds an item they are interested in on the online auction platform and submits a bid.

**Actors:**

* Bidder: The user who wants to purchase an item through the auction.

**Preconditions:**

* The bidder has a registered account on the platform.
* The bidder is logged in to their account.
* An auction for the desired item is ongoing and accepting bids.

**Basic Flow:**

1. The bidder browses the available auctions through categories or search functionalities.
2. The bidder finds an item of interest and clicks on the auction listing to view details.
3. The auction details page displays information like item description, photos, current highest bid, reserve price (if any), and time remaining in the auction.
4. The bidder decides to place a bid. They enter a bid amount in the designated field.
5. The system validates the bid amount. It checks if the bid is higher than the current highest bid and meets the minimum bid increment (if applicable).
6. If the bid is valid, the system confirms the bid. The bidder receives a message indicating their bid has been placed successfully and they are now the highest bidder (if applicable).
7. The auction details page updates to reflect the new highest bid and the bidder's username (unless anonymous bidding is allowed).
8. The system may notify the previous highest bidder (if any) that they have been outbid.

**Alternative Flows:**

* **Invalid Bid:** If the bidder enters an invalid amount (e.g., lower than the current highest bid or minimum increment), the system displays an error message explaining the issue and prompts the bidder to enter a valid amount.
* **Reserve Not Met:** If the auction has a reserve price and the bidder's maximum bid is not high enough, the system may inform the bidder that the reserve has not been met without revealing the actual reserve price.
* **Outbid:** The bidder places a bid, but another bidder submits a higher bid before the auction closes. The system notifies the first bidder that they have been outbid.

**Post conditions:**

* The bidder has successfully placed a bid on the chosen item, and they become the highest bidder if their bid is the current highest.
* The auction details page reflects the updated bid information.
* Depending on the scenario, other users involved (previous highest bidder, seller) may receive notifications.

**2.3.5. Essential Use Interface Prototyping**

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**2.3.6. Collaboration modelling**

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**2.3.7. Nonfunctional Requirements**

Non-functional requirements for a system are specifications that describe **how well** the system operates rather than what specific features it has. They are often contrasted with functional requirements, which define the actions and functionalities of the system.

Here are the Non-functional requirements:

**Security:**

* + Secure user authentication and authorization.
  + Encryption of sensitive data like credit card information.
  + Protection against Cyber attacks and fraud.
* **Performance:**
  + Fast loading times for web pages and responsiveness to user actions.
  + Scalability to handle a large number of users and concurrent auctions.
* **Reliability:**   
  + The system should be highly available with minimal downtime.
  + Data backup and disaster recovery procedures.
* **Usability:**
  + User-friendly interface with clear navigation and intuitive design.
  + Responsive design for optimal viewing on different devices (desktop, mobile, etc.).