Chapter 1

1.Introduction

Bidding is a way of buying and selling goods or services through a tender or auction. The bid is awarded to the bidder when purchasing with a minimal price based on the provided quality. Moreover, Auction is a sales event where in potential buyers place competitive bids on assets or services in an open or closed format. Auctions are the way buyers and sellers believe they will get a good deal buying or selling assets.

Every country has rules, regulations and establishing procedures, in ASTU there is FEDERAL GOVERNMENT MANUAL FOR PURCHESING IMPLEMENTATION. This manual governs the organization and details in bid are organized according to this Manual. However, the process undertaken by the organization accomplishes manually from the starting of the bidding and purchasing action to final part of the process, here is the concern that arises many issues. The different Equipment and supplies, which are in or out from the university are all managed based on the manual work.

The online auction system refers to the bidding process means the digitalization and automation of the bidding process from the low level of paper work to the final level of contract closure in a very efficient and effective way of implementations.

How Auctions Work

There are two formats of bidding which are an open format and closed format in an open format all bidders are aware of the bids submitted. In a closed format, bidders are not aware of other bids. Auctions can be live or they can be conducted on an online platform. The asset or service in question is sold to the party that places the highest bid in an open auction and usually to the highest bidder in a closed auction.

1.2. Background of the organization

Adama Science and Technology University (ASTU) was first established in 1993 as Nazrete Technical Collage, offering degree and diploma level education in technology fields. Later the institution was renamed as Nazrete college of Technical Teachers Education then changed to Adama University. After chosen by the ministry of Education in 2008 it was opened with various program in applied science and engineering fields also, the organization changes its name to Adama Science and Technology University.

ASTUs Purchasing and property administration Directorate was established in 1993 with establishment of ASTU to satisfy the various needs of the university by purchasing different types of tools, items and other services by classifying itself into main department of Bidding and Purchasing.

1.2.1 Mission of the organization

The mission of the organization (ASTU) is to provide ethical and competent graduates applied science and technology through quality education, demand driven research and community service. ASTU also provides innovative knowledge to support the socio-economic development of the nation.

1.2.2 Vision of the Organization

Adama Science and Technology University aspires to be the first choice in Ethiopia and the premier center of excellence in applied science and technology in Africa by 2030.

1.3Background of the project

The main concern of this project is to study the current bidding system and develop a system that operates digitally which is online, the system of purchasing and bidding which is widely used in current times are operated manually. Most organizations conduct bidding without any type of IT supported bidding system. The problem with the current bidding system is bidders must attend specific place otherwise, they cannot participate on the bidding process. And online Auction system avoid problems that both bidders and organizations might face due to the types of problems mentioned above and we believe this system (Online auction system) will make the bidding process easier, efficient, time saving and reliable for both buyers and sellers.

1.4 Statement of the problem

Lack of digitalization systems lead to unnecessary time wastage, Data redundancy, limitations of availability and a major reason for the wastage of external cost on the process of implementations.

The existing Auction system in Adama Science and Technology University follow a traditional way of mechanism for the process of bidding and purchasing. The process undertaken by the organization accomplishes manually from the starting of the bidding action to final part of the process, here is the concern that arises many issues:

- ✓ Time management problem
- ✓ Wastage of materials (resources)
- ✓ leading to external cost for the purpose of promotion(advertisement)
- ✓ Data redundancy due to manual process
- ✓ Limitations of participants
- ✓ leading the bidder for external cost
- ✓ Transparency issues

Therefore, This Online Auction system would be able to overcome the above problems by making the traditional process into digital and automated from the low level of paper work to the final level of contract closure in a very efficient and effective way of implementations.

1.5 Purpose of the project

The purpose of this project is to overcome the problems of the existing purchasing and bidding system by changing the complete current system of ASTU purchase and property administer directorate manual works into computerized or online system without affecting the structure of the existing system.

From the university perspective:

- ✓ The system brings out a mechanism of digitalized and automated implementation of processes that makes the purchasing and auction system more transparent and organized.
- ✓ It would be a good way to obtain a best financial return for ASTU.

From the bidder perspective:

- ✓ It brings free and fair competitions between bidders.

1.6 Objective of the project

1.6.1 General objective

The general objective of this project is to design and develop an Auction System for ASTU purchase and property administer directorate, which is an interactive web based platform that automates the current manual purchase and bidding system.

1.6.2 Specific objective

In order to achieve the general objective, we have to surpass the following:

- ✓ Study the given problem from different perspectives. (how ASTU purchase and property administer directorate work)
- ✓ Gather any data and information that would be an input to the project as if how supplies and equipment requests made and how purchasing occur as well as bidding perform.
- ✓ Decide on a general direction and principle to follow throughout the analysis, design and development phase.
- ✓ Implement the system based on the proposed design and architecture.
- ✓ Implementation through designing independent modules for:-
    - Advertisement
    - Communication
    - Registration and subscription
    - Purchase and bid management
- ✓ Develop prototypes as early as possible
- ✓ Test prototype of the new system rigorously and arrive at a stable working software version.

1.7 Scope and limitation

1.7.1 Scope of the study

- ✓ Support different request for supplies and equipment from major division of service seekers like departments, ASTU directorates.
- ✓ Support pro-forma based purchasing (the purchasing mechanism which not include bidding and advertisement)
- ✓ Support national wide auction on the required criteria of ASTU purchase and property administer directorate for different approved requests.
- ✓ Advertisement for the bid.

1.7.2 Limitation of the project

- ✓ The system may not totally fulfill the gap (Not work reliably as the manual and still not completely resolve all manual works)
- ✓ Online payment. (We are not working on online payment the admin or somebody must check the receipt)
- ✓ Quality inspection. (Quality inspection of proposed products for the purpose of evaluation of bidders will be perform manually)
- ✓ Time constraint (limitation of time for the project)

1.8 Feasibility study

Feasibility study is a crucial thing to evaluate the cost and benefit of the new system whether the system is do-able and profitable. Because of the feasibility study, decision will take whether a specific action makes sense from an economic and operational standpoint.

1.8.1 Technical feasibility

The team members expect the system to be technically feasible. The system will be develop using different open source, easily available software. The team members try to understand what the project need and through refereeing different online courses and available documentations, they would try to design and develop the system. To bring out the technical feasibility of the project as well as to utilize any open source development methods team members use laptop, lab computers, and open source software like slack, Git-hub, Telegram, MS word, Enterprise Architecture, Phpstorm, Vs-code, Browsers, PHP MyAdmin, CSS, Native PHP, Node-JS and Data-bases (relational data base SQL).

1.8.2 Operational feasibility

Once the system is deployed and available for any potential customer and it starts to give its service, it would be very helpful for solving any of the major concerns. However, the service is beyond that because it addresses the major issues of transparency between both sides of Auction participants. As a system, it requires a regular monitor and control to make sure that any of the available data are performed and to monitor any of the service requests.

1.8.3 Economic feasibility

The system as a product would be beneficial in many ways. One of the major cost benefits is good financial return for ASTU also, it reduces the unnecessary cost, which will spent for the promotion and advertising of the bidding, paper work and employers salary. With some kind of agreement with the ASTU, the system could be developing as a main online Auction and purchasing system to replace the traditional work so it would result an economic income to the developers.

1.9 Significance of the project

Significance of the project-

- ✓ Effective management of request and approval for a bid
- ✓ Simplicity for the bidders to supply the requested document and to be active participant of bidding process.
- ✓ Effective and accountable way of bidding
- ✓ Protection over the documents
- ✓ Better and fast process scheduling
- ✓ Reducing errors
- ✓ Reduction of cost
- ✓ Improved efficiency of employees
- ✓ Better and faster decision making

1.10 Beneficiaries of the project

- ✓ The first beneficiary of this project is ASTU Purchase and property administer directorate and the others are Adama Science and Technology University (ASTU) and different bidders all over the country.

1.11 Methodology

Data collection methodology:

- ✓ **Document Analysis:**

We have analyzed a document that placed in ASTU Purchase and property administers Directorate by comparing each business rule and process. We used information from the document.

- ✓ **Observation:**

We visited ASTU Purchase and property administer Directorate Office and observe how the bidding under taken.

- ✓ **Interview:**

At the time we visit, ASTU Purchase and property administer Directorate office to understand how there system work. Then we interview two employees of the office and the Director

MR Kuma Waqtolla is the Directorate Director of ASTU Purchase and property administers Directorate office. He gives us basic information about the system and gives us permission to find out all information from his subordinate.

Mrs. Aberash

Mrs. Aberash is the head of the central procurement office of ASTU Purchase, property administers Directorate, and she told us how they purchase items and the whole system about purchasing.

Mr. Yoseph

MR Yoseph is the Head of bidding management office. He told us all information about bidding process.

System development methodology

We planned to use agile because the collaboration is highly important for the success of the project.

- ✓ Agile focuses on active software rather than documentation.
- ✓ It offers direct communication that helps in maintaining transparency.
- ✓ It also helps us to deliver working software with a preference to the shorter timescale.
- ✓ Also promotes the teams to meet several days in a week to discuss progress, identify problems and plan the day's activities with the goal being able to produce working software as quickly as possible.

1.12 Development tools

Hardware tools:

- ✓ Computer
- ✓ Storage (hard-disk /flash)

Software tools:

Table 1 Development tools

Tools or Programs	Used for
Slack, Git-hub, Telegram	Group working platform
MS Word	For preparing and compiling the document
Enterprise Architect	As a Designing tool for different UML diagrams.
Phpstorm, Visual studio code	Used as editor for the code

Browser	To open the system and display web application
SQL	A database that we use to manage and Store our Data.
CSS, Node-JS	A language used to develop front-end
Native PHP	Language used to develop back-end of the system

1.13 Required resources with cost

Table 2 Required resources with cost

Material name	No. material	Price in ETB	Total price in ETB
Lap top 1	1	25000	25000
Flash 8GB	1	250	250
Paper	100	0.50	50
Pen	5	10	50
Binding	2	10	20
Print	110	1	110
Miscellaneous cost	-	300	300
Total cost of material			25,780

1.14 Task and Schedule

Table 3 Task and schedule

Phases	Time frame					
	March 01,2021	March 15,2021	April 25,2021	May 5,2021	July 1,2021	Aug 13,2021
Project start	✓					
Requirement gathering and Analysis	✓	✓				
Documentation		✓	✓	✓		
Design the Prototype			✓	✓		
Implementation			✓	✓	✓	✓
Testing phase					✓	✓
Finalizing project						✓

1.15. Team Composition

Table 4 Team Composition

Title	**Online Auction System for ASTU**		
	Name	Email	Roll
	Edomias Tesfaye	edomwt@gmail.com	Front-end development and Documentation
	Besufekad Sentayehu	Besufekadsintayehu42@gmail.com	Requirement analysis, Back - end development , Documentation

Team Composition	Ekram Kumdin	bintkumdin@gmail .com	Front-end Development and Documentation
	Adnan Mohamed	adunimh@gmail.com	Ui/Ux design , Requirement analysis and Documentation
	Mikiyas Leul	mikiyasleul@gmail.com	Coordinator , Back-end development and Documentation