ADDIS ABABA UNIVERISITY

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DEPARTMENT OF SOFTWARE ENGINERRING

Management System for Gead General Trading PLC

Project Proposal

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

- **GUI:** Graphical User Interface
- **PLC:** Privately Licensed Company
- **ETB:** Ethiopian Birr

ABSTRACT

Traders have existed as long as business, trade and commerce have been conducted. In Ethiopia the demand for goods has grown a substantial amount, empowering businesses like Gead Trading to fulfill that demand by selling and distributing electronic devices to the market. But the business requires a better management system to operate to its maximum potential.

In this document we have are proposing a software specially designed and tailored for Gead Trading that will computerize most of the operations of the business, thereby creating an efficient company.

1. INTRODUCTION

1.1 Background

Trade is a basic economic concept involving the buying and selling of goods and services, with compensation paid by a buyer to a seller. Trade is believed to have taken place throughout much of recorded human history. Trade exits due to specialization and the division of labor, a predominant form of economic activity in which individuals and groups concentrate on a small aspect of production, but use their outputs in trades for other products and needs.

In Ethiopia, trade is the backbone of the economy. Being one of the few countries in Africa that do not have oil or vast mineral resources, Ethiopia is highly dependent on the export of agricultural productivity. Ethiopia also has huge trade imports. Ethiopia is a net importer of fuel, foodstuffs and textile apparel; the main trading partner being China with 18% of the total imports.

Trade also provides mankind's most significant meeting place, the market. The market is the medium that allows buyers and sellers of a specific good or service to interact in order to facilitate an exchange. In Ethiopia the place where people of Addis Ababa go to buy almost anything they want is Merkato. It is the largest open air market in Africa, covering several square miles and employing an estimated 13,000 people in 7,100 business entities. Many items form agricultural products to electronic devices are sold at Merkato.

Gead Trading is one of the stores that operate at Merkato. It is a privately owned business which distributes different types of electronics devices. It was established in 2016 to exclusively distribute Mewe products. Mewe is a company that assembles electronics devices such as televisions, refrigerators, speakers, satellite dish receivers and other electronic devices.

1.2 The Existing System

In the existing system, when new goods come to the store, they are manually counted and recorded on paper. Then they will be transferred to a storage facility. The stock manager and sales-person will issue copies of the recorded list. When a customer buys items from the store, the sales-person will look at the list and see if the item requested exists in storage. This might take a long time if the list is long. If the item is found, the sales-person will deduct the amount requested and will inform the stock-manager to take the items out of storage. Then, the stock-manager will take the items out, and will deduct the amount from his/her copy of the stock-

list. The sales-person will also issue the customer a receipt. Two copies of the same receipt are made, one will be given to the customer as a conformation of transaction and the other will be documented.

At the end of each working day, the manager will compare the two copies of the stock-list given to the stock-manager and the sales-person. The manager will be responsible for making sure that the amount of goods listed in both lists is identical. He/she will also check for any irregularities in the transactions made throughout the day by going through every documented receipts. At the end of every week, the manager is required to present a report on the state of the business. He/she will refer to the paper-documented results collected so far and manually calculate profits or losses.

1.3 Statement of the Problem

One of the issues of the existing system is the use of paper-based documentation for transactions and stock information. Paper-based systems will limit the collaboration between the staff. Understanding the changes that other staff members made requires exhaustively going through papers. This makes it very hard for the staff members to communicate effectively.

Second problem of using this system is that it leads to a lot of damage. Paper-based documents can be damaged from the wear and tear of regular handling, which makes it a very unreliable mechanism for handling important issues.

The Existing system also involves vast amount of mathematical works that are mostly done manually. This will in turn introduce human errors to the system. This has many consequences to the business. It would be very hard and time consuming to check for errors. Even if errors were found, correcting them is also a hurdle. In some cases, the errors may not even be discovered, which means the company will be forced to pay a higher or lower amount of taxes than it is required. Which is illegal in both ways and affect the business and the country as well.

The other issue is in knowing the exact financial state of the business which is a very time-consuming activity. The main aim of business owner is to make a profit and most businesses use their previous sales and marketing plans to make future decisions. But the current system does not enable the company to know if their past decisions are good or not, in an acceptable amount of time. So, they will resort to pure instincts in making this important decision, rather than logically assessing them.

1.4 Objective of the Project

1.4.1 General Objective

The main objective of the project is to develop a user-friendly computerized system which will enable the company to run its business with minimal workload.

1.4.2 Specific Objectives

In order to attain the general objective, we have to fulfill specific objectives that we have outlined below:

- Perform detailed analysis about the problems in the current system
- Propose a new system that solves the problems of the existing system
- Design the new system
- Prototype and Implement the new system

1.5 Proposed System

In the new system, when new goods come to the store the stock manager will add them to the system through the GUI (graphical user interface) and they will be transferred to a storage facility. When a customer buys an item from the store, the salesperson will use the system to add a transaction and notify the stock manager to deliver the items from storage. Then the salesperson will confirm the transaction and will also print the receipt for the customer.

The manager will use the new system to oversee all activities happening at the store. He/she will log in to the system and will be able to view and update staff information and also get comprehensive sales data report. At the end of each week the manager will be able to view or print the system generated report.

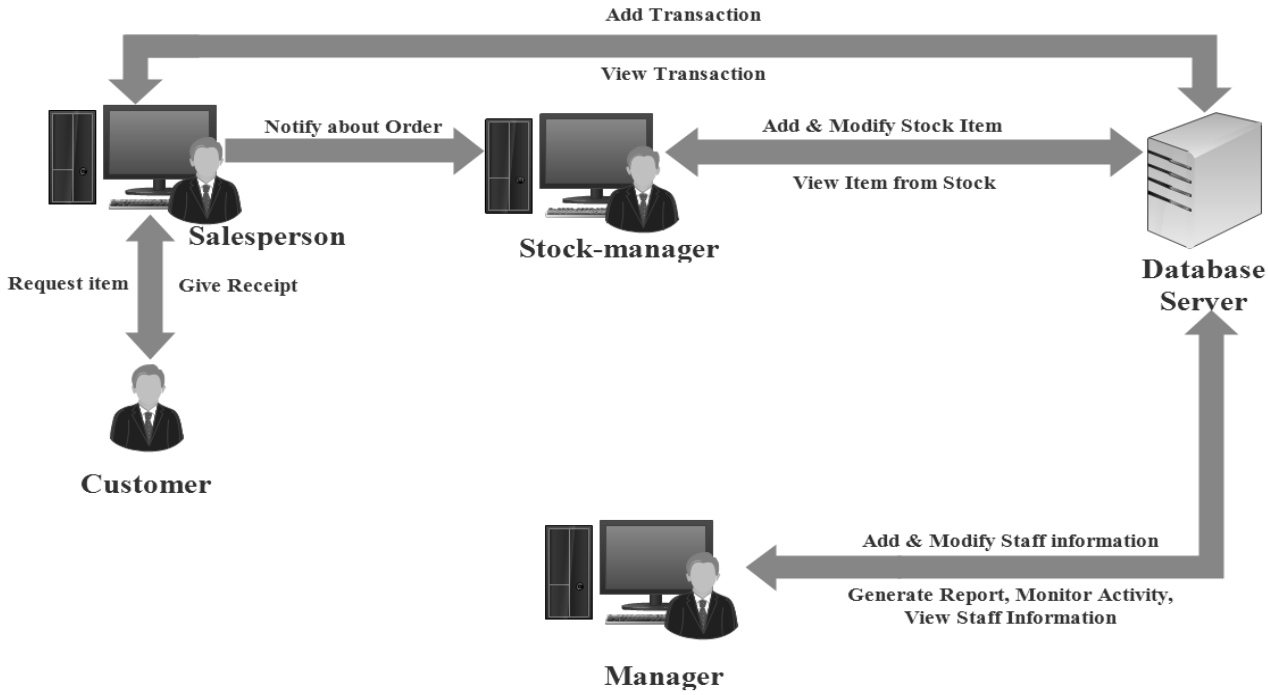

Figure 1 - Proposed System

1.6 Feasibility Study

1.6.1. Economic Feasibility

1.6.1.1. Developmental cost

For every component in table 1, we have specified the amount hours it will take to reach completion. The amount of hours reflects the complexity of the component. Hence, the cost will also increase accordingly. (See Appendices*)

Table 1 - Developmental Cost

Component	**No of Hours**	**Cost (ETB)**
Database Design	30	4,500
User Interface Design	30	4,500
Back-end System Development	54	8,100
Front-end System Development	42	6,300
Total	**156**	**23,400**

1.6.1.2. Operational Cost

On table 2 we have outlined the approximated costs of items which are required and must be purchased by the client in order to use the proposed system.

Table 2 - Operational Cost

Item	Cost (ETB)
Computers (3x, one-time investment)	18,000
Maintenance Fee (as required)	2,000
Domain-name Fee(annual)	300
Website Hosting Fee (annual)	3,000
Total	**23,300**

1.6.2. Technical Feasibility

From our initial interviews we have come to understand that most of the staff have not heard of or used any system like the one we are planning to develop. Most of the staff are also not fully confident with using computers. But almost all have a basic understanding on how to navigate through a website. So, we will be developing the system focusing on GUI concepts. The user interface of the system will be designed with minimal complexity to make it user-friendly. But, to use the system to its full potential we believe a short one-time training session is required.

1.6.3. Schedule Feasibility

By the end of this semester we will deliver the completed system. But, setting up the system in a practical environment might take more time than we have allocated.

1.7 Scope

The system will have a feature that will allow different staff members to log in with different credentials. They will only have access to data for which they have the permissions for. This will guarantee the system's security, as users with valid authorizations only will be able to use certain parts of the system. There are three users of the system, namely salesperson, stock-manager and manager.

Salesperson will be able to:

- Add new transaction

- Print receipt for customers
- Search and view previous transaction

Stock manager will be able to:

- Add new items
- Update the quantity of item already in stock
- Change the price of an item in stock
- Remove items from stock
- Search and view stock information

Manager will be able to:

- Monitor the activities of the other users
- View and change staff information
- Generate weekly, monthly or annual sales report
- View real-time sales activity like the number of items sold, total items in stock and earnings in a specific year.

1.8 Methodology

For our data collection methodology, we will be using previously stored paper-based documentations and records to gather the data-set needed for the project. We will also obtain additional information through interviews and other means. The data-sets will include details about each item in the stock, like the item's reference number, name, price, quantity in stock and description. The project will also have transaction information and staff information as its data-sets.

The project can be considered to be a small one. If we look at it form a time perspective, the time we have to develop this project is short. Our team is also small in number and have no past experience nor skills in developing a system as this one. Requirements of the system can also be collected at one instance. For this reasons, we believe that the best software development life cycle model suited for us would be the waterfall model. (See Appendices*)

1.9 Project Management plan

1.9.1. Time Management plan

ID	Task Name	Start	Finish	Duration
1	Project idea presentation & approval	Mar.13,18	Mar.13,18	0 w. 1 d.
2	Proposal Development phase 1	Mar.13,18	Mar.20,18	0 w. 6 d.
3	Proposal Progress	Mar.21,18	Mar.21,18	0 w. 1 d.
4	Proposal Development phase 2	Mar.21,18	Mar.29,18	1 w. 0 d.
5	Proposal Defense	Mar.30,18	Mar.30,18	0 w. 1 d.
6	Requirement Data Collection	Apr.2,18	Apr.19,18	2 w. 0 d.
7	Design	Apr.20,18	May.9,18	2 w. 0 d.
8	Implementation	May.10,18	Jun.7,18	3 w. 0 d.
9	Testing and Validation	Jun.8,18	Jun.11,18	0 w. 2 d.
10	Finalization	Jun.11,18	Jun.11,18	0 w. 1 d.

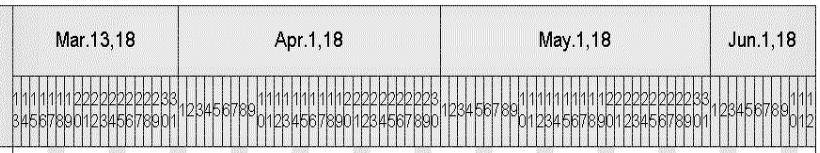

Figure 2 - Gant Chart

1.9.2. Quality Management Plan

We plan to identify the client's quality objectives during the phase of requirement gathering. Then we will develop an effective plan and process that will help us to achieve the objectives. At the implementation phase, we will also develop performance measures to ensure the objectives are met. If performance measures are not in compliance with the objectives set by the client, we will take remedial actions to fix the problem. This will be done at the testing and validation phase of this project.

1.9.3. Communication Management Plan

Table 3 - Communication Management Plan

Type of Communication	Method / Tool	Frequency/ Schedule	Information	Participants
Internal Communication:				
Project Meetings	In Person / Telegram	Weekly and on event	Project status, problems, risks, changed requirements	Project Team Members
Sharing of project data	Trello / Telegram	When available	All project documentation and reports	Project Team Members
Progress Meeting	In Person	On event	Project status	Advisor, Project Team Members
Final Project Defense	In Person	On event	Wrap-up Experiences	Advisor, Project Team Members
External Communication and Reporting:				
Project Report	E-mail	Monthly	Project status	Client, Project Team Members

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A. Appendices

A.1 Developmental cost calculation

On table 1, we calculate the cost of each component according to the hours of work we allocated for it. The hours are also distributed referring to the time management plan described in figure 2. For each working day, form Monday till Friday, we have assigned 6 hours for doing the project. For every hour of work we charge 150 ETB. Multiplying the amount of hours assigned to the component with 150, we get the cost of a component.

A.2 Waterfall model

The waterfall model, though it may have some disadvantages is suitable for this project. It follows a linear sequential flow and does not define the process to go back to the previous phase. It is also well defined and easy to understand, which makes it suitable for teams with no previous experience in software engineering.