DEBARK UNIVERSITY

Project Title: Web-Based Shopping System

(Ghion electronics Shopping)

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Approval Sheet

This Proposal is prepared by Debark University 4th year Computer Science students.

We clarify that our work is original and compile according to the proposal writing guideline given by the university.

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This proposal has been submitted for examination with our approval as the project advisor.

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Abstract

There are a lot of problems using manual shopping such as product are not easily managed, there is no customer satisfaction, the customer waits in line for a lot of time, and there is no written description on items for customers. To overcome these problems, we are going to develop web-based electronics shopping system. Since using computer system the work is easy and fast. The system has different attractive graphical user interface that the user can interact easily with the system.

The system will be develop using object-oriented methodology and it also encompasses software development life cycle of the five phases namely planning, analysis, design, implementation and testing. In planning phase, we identified the problem and we formulate alternative solution. In analysis phase we will use the different UML diagram to draw the interaction between the actors and the system, the existing system were described with their problem and also the new system proposed based on the problem.

In system design phase the system will be design using different UML diagram like deployment diagram, how the system interacts to the hardware-installation and the system design will be based on the analysis phase. Similarly in implementation phase the physical design changed into computer code based on the design specified. The system developed using PHP programming language as front end and MYSQL database as backend. Lastly the system will be testing using different testing strategies based on the specified functionality.

Acronyms

Admin	Administrator
GC	Gorgonian Calendar
HTML	Hyper Text Markup Language
CSS	Cascade Stylesheet
ID	Identification Card
MYSQL	My Structured Query Language
UML	Unified Modelling Language
PHP	Hyper Text Preprocessor
OOA	Object Oriented Analysis
OOD	Object Oriented Design
TVM	Time Value of Money

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Shopping is an activity in which a customer browses the available goods or services presented by one or more retailers with the potential intent to purchase a suitable selection of them.
A typology of shopper types has been developed by scholars which identifies one group of shoppers as recreational shoppers, that is, those who enjoy shopping and view it as a leisure activity.

Online shopping has become a major disruptor in the retail industry as consumers can now search for product information and place product orders across different regions. Online retailers deliver their products directly to the consumers' home, offices, or wherever they want. The business to consumer process has made it easy for consumers to select any product online from a retailer's website and to have it delivered relatively quickly. Using online shopping methods, consumers do not need to consume energy by physically visiting physical stores. This way they save time and the cost of traveling. A retailer or a shop is a business that presents a selection of goods and offers to trade or sell them to customers for money or other goods.

Shoppers' shopping experiences may vary. They are based on a variety of factors including how the customer is treated, convenience, the type of goods being purchased, and mood.

1.2 Background of the Project

The system we planned to analyze in this project is about Ghion electronics shopping system. We will try the best way to make the complicated process of traditional shopping system as simple as possible using structured, modular technique and menu-oriented interface.

We select this topic because of unfair marketing in the market, unnecessary price growth, there is no equal price for the specific product even in the same shop, finding specific product is very tiring, and mostly the mixture of forged products with original products make is more annoying.

We are going to design the system in such a way that customer may not have any difficulty & further expansion is possible without much effort.

The main purpose of this project is to find the solution for the above problems and make each customer and workers activity in computerized way rather than manual and to make it easy to use which is time consuming.

In the world there are many famous online shopping platforms. The most known are amazon, Alibaba. In Ethiopia there are some online shopping like Qefira. But they are not complete. Transactions are not included in system. And by choosing the product ordering is done by phone calling.

We work in this project for the first time as much as possible we will try to make one of the best online shopping systems in Ethiopia. We call this project as ‘Ghion Shopping’.

1.3 Team Composition

Project Title	Web-Based Electronics Shopping System (Ghion Electronics Shopping)				
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Date	December 12 – May 30 GC				
Advisor	Mr. Birhanu A. +251925995413				

Table 1-1 Team Composition

1.3 Statement of the Problem

The overall activities of the shopping are under taken manually. Due to these there are many problems like:

- Customers have no enough information about the product. Because they don't get to see the whole products before the get to the store or where ever the want to go shopping.
- There is no written cost description on items for customers. There is no written information for the customers so their whole shopping can be easier.
- Sometimes customers may not get what they need. For example, customer may go to certain store to go get something but unfortunately end up not getting what he\she wants because he\she has no idea what he was gone get.
- It takes a lot of time for searching the product. It's very tedious and tiring to go from store to another searching for something, and that is probably because everything is being done manually.
- Customers spend a lot of money for transportation. Many people spend thousands for the have to drives some miles to where they can get something to buy
- Managing the shop is very tedious and expensive. Shopping owners are always having hard time looking after their shops
- Increases the possibility of human error. People might forget to record a transaction or simply miscount the number of goods.

1.4 Objective of the Project

1.4.1 General Objective

The main objective of this project is to develop Ghion electronics shopping system

1.4.2 Specific Objective

- Gathering relevant data about the existing system.
- Analyzing and identifying problems in the existing system.
- Suggest all possible and fishable solution, then select the best.
- Prepare requirement specification documents.
- Implement the system/platform
- Develop the data base and the system.
- Connect the database with the system implementation.
- Prepare system documentation for later use

1.5 Feasibility Analysis

1.5.1 Operational Feasibility

The system will be designed to be operationally feasible. If it is once deployed, the system will operate in any kind of platforms without any malfunctional. The new system will be operationally feasible like reliability, maintainability, supportability, usability and solve problem.

1.5.2 Technical Feasibility

Technical feasibility is the complete study of the project in terms of input, processes, output, fields, programs and procedures. The system is going to be developed by technological development techniques, such as PHP, Java Script, CSS. The team will have the ability to develop this system without any difficulty since the team has studied the required methodologies and tools. So, the system will be technically feasible.

1.5.3 Economic Feasibility

To identify the economic feasibility of the project the team will done cost-benefit analyses which enable the team to specify the benefits and costs associated with the project. The following work sheets specify the costs as well as benefits associated with the project.

Intangible benefits: The following worksheet lists the intangible benefits associated with the project.

- Increase employee moral
- Increase management flexibility
- Provides more timely information
- Increase performance

Tangible benefits: The team will calculate the corresponding tangible benefits based on the technique called the Time Value of Money (TVM).

1.5.4 Schedule Feasibility

Schedule feasibility determines whether the proposed system will be completed on the given schedule or not. Whatever the scarcity of time given for the project by the internal motivation and potential of the team members of the project, we surely expect the project will be completed on time.

Task Name	Time				
	Dec 12 – Dec 20 GC	Dec 20- Dec 31 GC	Jan 1 – Jan 31 GC	Mar 13- May 23 GC	May 25- May 30 GC
Project proposal					
Requirement analysis					
Design					
Implementation					
Testing					

Table 1-2 Schedule of The Project

I. Cost Benefit Analysis

To calculate the following things will be considered. Average Number of sale persons in most of electronics shops we take 2, and their monthly salary as 7,000. So, their annual salary is about 168,000 BIRR. For 20 shops it will be around 3,360,000.

If those shoppe owners collaborate and work with us the only thing they pay is 10% of the product value to the system

Average Number of Employee needed in Ghion shopping is 10 (3 Sale person, 5 deliver, 1 banker and 1 Admin).

Employee	No of employee	Each salary per month	Total salary pre month	Total Annual salary
Seller	3	6,000	18,000	216,000
Admin	1	8,000	8,000	96,000
Deliver	5	4,500	22,500	270,000
banker	1	6,000	6,000	72,000
Total	10	24,500	54,500	654,000

Table 1-3 Annual Salary in The New System

Total money required for payment per year in Ghion shopping is **654,000.00Birr**

II. Cost of the project

This represents a cost of different materials that we need to do our project. It represented as follows:

Material	**Amount**	**Single Price (in ET birr)**	**Total Price (in ET birr)**
Paper	1 pack	800	800
Pen	5	20	100
Flash (16 GB)	1	200	200
Print		400	400
Transport		200	200
Others		100	100
Total			1,700

Table 1-4 The Overall Cost of The Project

III. Cost breaks down

I. Recurring costs

Recurring costs for each shops

ITEM	Existing System (BIRR)	Proposed System (BIRR)	Amount cut Down Per year (BIRR)
Receipt paper	10,000	1,000	9,000
Receipt Paper Waste	100	0	100
Pen	200	100	100
Employee	168,000	0	168,000
Commission (for Ghion shopping)	0	10% of each product	-
Total	178,300	0	177,200

Table 1-5 Recurring Cost

II. One-off costs

One-off costs for each shops

ITEM	Existing System (BIRR)	Proposed System (BIRR)	Amount cut Down Per Year (BIRR)
Computer	20,000	20,000	0
Security Camera	15,000	15,000	0
Receipt machine	45,000	45,000	0
Training	0	100	-100
Stapler	1,000	500	500
Stapler wire	1,500	100	1,400

spare part	50,000	50,000	0
Total	132,500	130,700	1,800

Table 1-6 One-off Cost

1.5.5 Behavioral Feasibility

It evaluates and estimates the user attitude or behavior towards the development of new system. It helps in determining if the system requires special effort to educate, retrain, transfer, and changes in employee's job status on new ways of conducting business.

1.5.6 Legal Feasibility

The proposed system has no any conflict with any government directives, because it gave services for the people effectively and efficiently so the organization is profitable and the system is politically feasible.

1.6 Significance and scope of the Project

1.6.1 Significant of the Projects

This project is expected to have many significances. The following are some of the significances of the project.

- Enable the customers to get fast access and help the company in giving good services and operations.
- Contributes in realizing the company goals and objectives by supporting for employees in upgrading and updating their careers, which provides good service.
- Protect unauthorized access (by securing the data base with password and user name)
- Avoiding improper resource consumption
- Avoiding data loss because of proper data storage.
- The customer easily orders products at home or office using internet.

1.6.2 Scope of the Project

The scope of this project is clearly stated below as a result of what the system is expected to perform. The proposed system will cover the following main tasks:

- The system covers most part of Ethiopia.
- It uses to sell and perches any types of electronics devices.
- The system can be used by any person who have internet access.
- It can perform transaction system between customer and agent, between agent and business owner.
- Customer ordered products online in most part of Ethiopia.
- It delivers products for every customer throughout Ethiopia.

1.7 Target beneficiaries of the system

Business Owners

- They reduce the cost they pay for the employees
- They save time and maybe they will work part time jobs

Buyer

- They find products easily (simply by searching or by scroll down)
- They save time instead of searching for quality products and affordable price in many shops they found in one place
- The products have fixed price
- They find quality products easily (They will not cheat by fake and high copy products)
- The transaction will finish quickly.

1.8 Methodology For the Project

Interview

The other most important method that will helps us to get most important and critical information about the general view of the Shop is by interviewing manager of the Shop, seller of the Shop and some customers. We plan to interview almost 20 people.

We will ask some questions for Example: -

- How do you work currently?
- Have you any computerized system?
- What is the problem of the current system?

Observation

We will observe physically by going to the place.

Document Analysis

This technique provides information on how the existing system works. There for we will analysis documents related to the existing system of the organization will be assessed.

1.9 System Analysis and Design

The team decides to use object-oriented system analysis and design methodology because of the following reasons:

- **Simplicity:** Software objects model real world objects, so the complexity is reduced and the program structure is very clear.
- **Increased extensibility**: -When you need to add new feature to the system you only need to make changes in one part of the applicable class.
- **Modifiability:** It is easy to make minor changes in the data representation or the

procedures in an object-oriented program.

- Increase consistency across analysis, design and programming.
- This method is well known by the group members and commonly used in different course projects.

Object oriented methodology has two phases:

Objects oriented analysis (OOA): - The team looks at the problem domain, with the aim of producing a conceptual model of the information that exists in the area being analyzed. Analysis models do not consider any implementation constraints that might exist, such as concurrency, distribution, persistence, or how the system is to be built. Implementation constraints are dealt during object-oriented design (OOD). Analysis is done before the design. The result of object-oriented analysis is a description of what the system is functionally required to do, in the form of a conceptual model. That will typically be presented as a set of use cases, one or more UML class diagrams, and a number of interaction diagrams. The purpose of object-oriented analysis is to develop a model that describes computer software as it works to satisfy a set of customer defined requirements.

Object oriented design (OOD): - Transforms the conceptual model produced in object-oriented analysis to take account of the constraints imposed by the chosen architecture and any non-functional technological or environmental constraints, such as response time, run-time platform, development environment, or programming language. The concepts the analysis model is mapped into implementation classes and interfaces. The result is a model of the solution domain, a detailed description of how the system is to be built.

1.10 Development Tools

1.10.1 Software Tools

The system we will design web-based system commonly needs the following software tools.

- MySQL database: - Database system
- PHP: - Server-side programming language
- Apache: - web server software.
- HTML, CSS, Bootstrap, JavaScript: - Client-side programming language
- Edraw Max and visual paradigm editor: - for drawing different UML diagrams.
- chrome, internet explores: - Browser used to run the programs.
- Notepad++, notepad, visual studio code: - Editor
- Microsoft office word 2021: - for writing documentations.
- Microsoft power point 2021: - for presentations.
- Window 10: - an operating system.

There are many reasons why we select PHP for server-side programming and MYSQL for the database some of the reasons are described as follows.

From many of scripting languages PHP is powerful, easy to learn, cross platform, free, and PHP is faster. There are also so many reasons to choose MYSQL database some of the reasons are it is quick and powerful, handle large databases, and it is free.

1.10.2 Hardware Tools

The hardware tools are the touchable and visible component that necessary to develop a system. To design this system, we need some hardware tools like: Flush, laptop, paper, pen, mobile and etc. for different purpose such as:

- Computers: to do different activity or applications.
- Flash disk: to store data. The data in the computers may be lost because of the different cases and take available data from different sources.
- Pen and paper: to design the system before typing on the computer; for writing and to write on it.
- Mobile: for idea exchanging.

1.11 Testing Procedure

There are different testing levels for a system. However, we will use the following testing levels. These are:

Unit Testing

While coding, the project team performs some tests on that unit of a program to know if it is error free. The purpose is to validate that each unit of the software code performs as expected and are error free.

Integration Testing

A typical software project consists of multiple software modules, coded by different programmers. The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated.

System Testing

The purpose of a system test is to evaluate the end-to-end system specifications. Usually, the software is only one element of a larger computer-based system. Ultimately, the software is interfaced with other software/hardware systems.

Functionality Testing

The purpose of Functional tests is to test each function of the software application, by providing appropriate input, verifying the output against the Functional requirements.

1.12 Limitation of the Project

- The system only works on electronics device.
- The payment system isn't connected with the banks. It only works in its own systems.
- The project may be difficult to apply at the end, i.e., our society is more illiterate and live-in rural area.
- The system will be limited to users who have internet access and devices that are able to access internet.

1.13 Risk (what if Analysis), Assumption and constraint

Some of the problems that we might face while doing this project would include: -

- Lack of references
- Shortage of equipment
- Shortage of enough time to develop the system

Risk

The new system has some risks. Some of these are:

- Loss of data because of failure of server.
- Loss of file because of virus.
- Loss of file because of carelessness.

So that the above problems might require some kind of management and we had put some

Methods down: -

- We would have backup using hard disk (hard drives) so that, the data
- Could not be loss
- We would use antivirus if we might get the updated one
- As much as possible we would try to used day and nights

CHAPTER TWO: DESCRIPTION OF THE EXISTING SYSTEM

2.1 Introduction of the Existing System

In this chapter we will study the existing system deeply, since it is necessary to know the problem of the existing system to develop a better system.

After studying the existing system, we also determine the requirement or the feature that must be included in the proposed system. Furthermore, by analyzing the current system, we could also estimate how the proposed system solves the problems of the existing system.

2.2 Player of the Existing System

This illustrates the actors involved in the current system. The actors in the existing system are listed below.

- Product Distributer comes with the following activities: -
  - Arrange items on order.
  - Receive money from sellers.
  - Give receipt for sellers.
  - Keep materials properly
  - Obtain seller order
  - Show items for the seller
  - Tells the price of the item to seller
- Seller comes with the following activities: -
  - Arrange item by category.
  - Receive money from customers.
  - Give receipt for customers.
  - Keep materials properly
  - Obtain customer order
  - Show items for the customer
  - Tells the price of the item to customers
- Customer comes with the following activities: -
  - Ask information about the products.
  - Order item as they want.
  - Asking price of the item.
  - Take items from the seller.
  - Pay the cost of item.
  - Receive the receipt.
- Trade Bureau
  - It controls unnecessary over price
  - It controls quality of product

2.3 Major functions/activities in the existing system

The existing system performs different activities. In short, the main activities take place in the shop are: First, the seller takes massive amount of items or products from the distributer. Then the seller registers products when the products enter into store. After that seller arrange the product by category, the customer physically going to the shop and contact to the seller by visiting the products on category and select the product and ask the price, the seller tell the price of products and the customer give the price if he/she agree with the cost of product. Similarly, the sale person prepares receipt for the customer, and customer receives the product and receipt.

2.4 Business Rules

A business rule is effectively and working principle or polices that we try to specify that the existing system must satisfy. It often concerns to access control issues, working policies and principles of the organization.

❖ In the existing system

The organization has the following principles in the existing system, which includes the following.

- The customer must go to the shop address physically to get information about the product.
- After the customer successfully buys the product, sale person should print receipt and give for the customer.
- The shop gives guarantee based on the product. The shop does not give guarantee after the specified period of time.
- The organization does not functional on holiday.

❖ In the new system:

This platform is used as an agent between the business owner and the customer or buyer which is allowable in most parts of Ethiopia. This system will allow the customers to register online and the business owner will be registered by the system in order to upload the products that are needed to be sold. In this system, when the business owner is registered there will be a guide line that must be given in order to know how the system works and if they agree they will continue their business with the system and sold their products. The working principle of the system is going to be when the business owners will allow themselves to use the system, they will upload the products and if the registered customers want to buy the product there must be payment. In order to pay for it or if the customer wants to buy primarily there must be some amount of money in the account of the customer. After that, the customer will transfer the money that the product(s) cost for the business owner. But the money that the customer pay will be passed through the system because it is used as an agent between them. When the money is passed through the system there will be some specific commission that the system will take from the payment based on the guideline that is given for the business owner when registered and the rest money will be transferred to the business owner. Then, after the payment the customer will have the receipt and also code for the delivery purpose. Lastly, the customers give the code for the delivery and get the product they bought.

2.5 Bottlenecks of the existing system

The existing system actually faces to a lot of problems, and these problems results due to the manual system of accomplishing its operation. The following are some of bottlenecks of the existing system.

- Formation of queue when more customers come at one time.
- Can't get full inventory information when it is required.
- High copy and forged of product exist in the market.
- Price variety in different shops
- Products availability
- Behavior of seller and customer

Formation of queue when more customers come at one time

Some sellers can't handle when there are allot of customers. And it leads to theft for the customers and for the seller.

High copy and forged of product exist in the market.

In Ethiopia many products fond in the market are forged. Almost 70% of the product in the market. Many costumers can't find the original products. Even some high copy products make confusing in customers and they will be frauded.

Product availability

In Ethiopia context, the availability of products is the one of the reasons for the customers in order they didn't get the product they need at the right time and place. this leads the customers to get tired of finding the product they need; the seller will get ruin and the products are not going to be sold.

Behavior of seller and customer

This is one of the reasons in Ethiopia which leads disagreement between the seller and the buyer. Because of this reason many of the products are not sold and leads to theft.

Price variety in different shops

Price variety is one and the main reason that makes most of the customers not to trust the products and the seller of the products. Because of this most of the sellers which sold the products with the highest price will get ruin. most of the buyers relate the price with the quality of the product and the one with the lowest price will get more customers.

2.6 Proposed Solution for The New System

As we try to describe above the existing system faces some problems and the problem's primarily results from the manual system of running the activities and we try to put an alternative solution

to the problem. The best alternative solution to the existing system is to change the existing manual system and produce a web-based system.

Web based system is one of the mechanisms to solve problems of some manual activities. Web based application needs internet to work. Anyone can communicate with each other in different place. As a result, we will develop interactive and user-friendly interface web-based application that anyone can use anywhere, across the world. The system has different actors such as customer, seller, system administrator. Each user has their own activities and accesses rights.

The system has solution for the above bottle neck

- The system will handle many customers at one time
- The system will give full information
- The customers found quality product
- It will provide as much as products available in the Ethiopia
- The price of the product will be faire and fixed.

2.7 Requirements of the Proposed System

2.7.1 Functional Requirement

These requirements are the basic for the system or simply functional requirements that the system should satisfy. According to the tasks that the system we develop will do the following activities.

Admin

- The admin allows to view products.
- The admin allows to update his account.
- The admin allows to create and delete admin account.
- The admin allows to create and delete banker account.
- The admin allows to create and delete user account.
- The admin allows to create and delete seller account.
- The admin allows to create and delete deliver account.
- The admin allows to view report.
- The admin allows to view order products.
- The admin allows to cheek weather the order products deliver or not.
- The admin allows to view comment.

Seller

- The seller allows to update his account.
- The seller allows to register, update and delete product.
- The seller allows to update the price of the product.

Customers

- The user allows to update his account.

- The system automatically gives acceptance code for the product
- It allows the user to order products
- The user allows to write comment.
- It allows the user to view the product according to their category.
- It allows the user to search different products
- It allows the user to pay for the product.
- The system gives recite to user.
- It allows the user to view the map and add his location for delivery

Banker

- It receives money from the customers and add the money to their accounts.

Delivery

- The delivery allows to update his account.
- The system allows delivery to see orders and their location
- The delivery receives the acceptance code from the user to give the product.

2.7.2 Non-Functional Requirement

A Non-functional requirement defines the overall qualities or attributes of the resulting system. These requirements are the how of your website i.e. they form the user experience of your online shopping store and imply a different level of expectations. They can be the sum of the functional requirements and are implemented as a sum of web features. The common example is that users can easily find the products on the website and they should be captivating for the user.

It places restrictions on the system being developed, the development process, and specify external constraints that the system must meet.

Performance

The system we develop should have high performance. It provides fast response for the users and it reduces work load. The user can perform each transaction easily in the system.

User Interface

The system is user friendly which means the system has it's own functionality that needs interaction with users. The system has different levels which allows different categories of users, information types and formats.

Thus, to address the above requirement the interface easily communicate with the users.

Security issues

This system should have a mechanism to restrict some resources to unauthorized access. The system requires the users to provide his identifications before allowing accessing to resources.

It uses md5 code encryption to decrease vulnerability of the system from hackers.

Maintainability

In order to accommodate future demands of system, the system should be easy to understand and maintain. The system is developed by using easy platforms such as; PHP, HTML, CSS, JS, SQL so it is easily maintainable.

Webliography (List of websites/portals)

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