**WANDERI’S ANIMAL FEED MANAGEMENT SYSTEM.**

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**PRESENTED TO KENYA NATIONAL EXAMINATIONS COUNCIL IN PARTIAL FULFILMENT OF THE REQUIREMENT OF A DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY.**

## Declaration

I, Hellen Wahome, hereby declare that this project report is developed through my own intelligence, research, time, and effort. It has not been submitted to the Kiambu Institute of Science and Technology or any other institution of learning for any award.

Signed: …………………………...... Date: ………………………………

Hellen Wahome, ICT (Kiambu Institute of Science and Technology)

## Approval

I certify this project is my original work and has been done under the supervision of Mr. Gabriel Mbugua. This work has never been submitted for any award of a diploma in any institution of higher learning.

Name Mr. Gabriel Mbugua. Sign: ……………………......

## Acknowledgments

I would like to acknowledge the assistance of Mr. Gabriel Mbugua whose supervision and guidance have enabled me to bring this project to what I believe is a satisfactory completion. I extend my thanks to those who have assisted me financially and at all costs: my parents, my siblings, and my friends. Finally, I thank the Almighty God who has enabled me to think creatively.

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# CHAPTER ONE

## 1.0 INTRODUCTION

Wanderi’s Animal Feed Management System is designed and programmed to help manage the quantity of animal feed sold to livestock and poultry farmers. This involves the development of diets that supply the number of available nutrients required by livestock and poultry for maintenance, production, performance, and reproduction. After observing the manual system currently being used, it’s quite evident that it is too slow thus wasting a lot of time for the staff working on the animal feed and this was the reason I decided to come up with an advanced system so that a lot of time could be saved analyzing the information required on daily basis. The advanced system will be able to record information for easy future reference. It will also determine the kind of nutrients being fed to the livestock and poultry. This system will calculate the daily sales with accuracy. It will determine the amount of salary each staff would be paid. The current system was wasting a lot of time while recording the daily sales as well as had many errors since the staff responsible for recording would at times get tired and record wrongly or worse, even fail to record some sales. A lot of paperwork was also involved with the current system being used. Once the record book gets misplaced or damaged, there is no backup to show how the transactions were made. This resulted in the distortion of information that would be important to the management in making decisions for the way forward for the company.

The animal feed industry is an exciting one but many at times it can also be overwhelming especially during seasons where events tend to be quite many. For example during ceremonies. The industry also has been experiencing fast growth and innovation that forces organizations and corporations to adjust their spaces to fit new and modern standards or designs. Wanderi’s Animal Feed Management System is, therefore, necessary to help streamline and automate all the chaos of the industry while booking more business. The current system in place is a traditional one where clients have to line up in offices to get attended to. A staff member would then collect the client’s orders and start scheduling by the use of pen and paper which can get mixed up which makes this such a terrible and chaotic way to make and record sales. . The current system also has a lot of unnecessary paperwork for storing client’s details and sales that have already been made. This makes generating reports that can be used to make decisions for the company difficult.

## BACKGROUND INFORMATION

Wanderi’s Animal Feed is located on Limuru road, only a few kilometers from the Limuru hospital. The company was founded on 22nd August 2012 in Limuru, by Wandering. It’s very common to find farmers in the Limuru area hence the need for a well-established company that can provide animal feed to farmers. The company has managed to secure a standard office facility in the busy business town of Limuru. Wanderi’s Animal Feed is a well-established animal feed company set to compete in the highly competitive animal feed industry not only in the local market but also in the global market.

The company works with farmers and businesses to cater to the animal feed needs of both livestock and poultry. The company started with around five employees but has since then grown to now having a total of around fifty employees thus making it necessary to have an efficient way to store the data for the employees. The purchase of animal feed is also done by farmers who have to queue thus making this such an inefficient and tiresome way of making sales to farmers.

This project is to develop a management system that will enable farmers to buy animal feed more efficiently and also help with the automation of the billing process to enhance the security of data and ease in producing reports that can be used to make meaningful decisions in the company.

## 1.2 PROBLEM STATEMENT

The current system at Wanderi’s Animal Feed is quite inefficient as it is tiring, slow, and time-consuming. The access to farmers’ data or even purchases made is unreliable due to a lot of paperwork in the data stores, also a lot of data is lost in between the data stores leading to data inconsistency. It is also not user-friendly since data collection can be repetitive and the staff has a hard time when there is a need to update data such as farmer’s details, price of products offered, or even the availability of the products.

Due to the unreliability of the method used, the farmers are forced to wait in long ques to make their animal feed purchase and sometimes end up not even getting the chance to buy the products since the queues could at times extend to the closing hours, thus the need to develop a more convenient method that will enhance efficiency unlike,e the current system.

## 1.3 PROPOSED SYSTEM OVERVIEW

The proposed system, (Wanderi’s Animal Feed Management System) facilitates the gathering, storing, accessing, singing, and manipulating of information for the farmers by staff members.

The current system in use is file-based hence too slow and cannot provide the updated list of farmer’s purchases in a reasonable time since the updates have to be done manually.

The system intends to reduce unnecessary time consumption and data inconsistency

The proposed project will be a perfect way to manage data that runs the day-to-day operations of the company since it utilizes a secure login system, well-designed and easy-to-understand forms for farmers and staff members to work with, and searchable tables with the required data.

## 1.4 JUSTIFICATION

I found it necessary to develop a system that will enable the company to generate reports digitally which will help save time. This is because the company needs to maintain records of farmers, staff members, and sales made for animal feed. The animal feed industry is a competitive and fast-growing one so any company interested in dominating must put in place good technology and be led by innovation. This is where the project kicks in. In a world where technology is the new order, the project will ensure Wanderi’s Animal Feed is well ahead of its competitors.

As Richard Branson once said, “Business opportunities are like buses, there’s always another one coming”, it’s important to keep up with the pressure the animal feed business can cause. Thus it’s important to note how advantageous it would be to develop and put into place the new system where data security, analysis, input and output of data will be much easier, farmers will have a smooth time ordering and browsing animal feed, staff members will be more efficient since they can now focus on what’s more important (the farmers) rather than spending any unnecessary time on calculations or analyzing paperwork data.

## 1.5 OBJECTIVES.

### 1.5.1 General Objectives

The main objective of this research is to enhance and improve the way farmers are handled by increasing the efficiency of the staff members.

### 1.5.2 Specific Objectives

1. To develop a system that increases the efficiency of the staff members while making sales.
2. To develop an easy-to-use interface for admins to analyze the most purchased animal feed.
3. To improve data security of the sales, farmers, and staff members as well.
4. To analyze sales data in a more efficient and timely manner.
5. To handle billing automatically thus improving accuracy.

# CHAPTER TWO

## 2.0 INTRODUCTION

In this chapter, the researcher discusses the documented literature that relates to the animal feed management systems in animal feed companies. The various day-to-day activities that lead to erroneous data entry, data loss, time wastage, and duplication of records are explained. The challenges faced by animal feed companies with no automated management system, the effects of these challenges, and finally the solutions given by various scholars on how to solve these shortcomings are discussed in this chapter.

## 2.1 REVIEW OF PAST LITERATURE

Past literature that was reviewed captures in depth the following topics of concern: the problems of using a manual animal feed system in animal feed companies, the causes of the identified problems, the consequences of such problems in the area of interest, and the solutions given as remedy to counter the mentioned limitations of a manually operated Animal Feed Management System.

### 2.1.1 PROBLEMS ASSOCIATED WITH A MANUAL ANIMAL FEED SYSTEM

Manual data entry is both time-consuming and comes with a lot of errors.

About Den Hartog, Johan. “Feed for food: HACCP in the animal feed industry.” Food Control 14.2 (2003): 95-99, manual data entry is a time-consuming and menial business process that many employees strongly dislike. Manually entering data requires valuable employee time that could otherwise be spent on more urgent or engaging tasks.

A manual animal feed system involves paperwork that takes up a lot of office space.

According to Merican, Zuridah, and Dagoberto Sanchez. “Overview of the aquaculture feed industry.” Aquafeed Formulation. Academic Press, 2016. 1-19, paper documents can take up a significant amount of space, and the quantity of paper will increase day by day. Furthermore, documents will typically need to be stored close to hand so that they can be accessed as quickly as possible.

On the issue of data and information security, Denning, Dorothy E., and Peter J. Denning. “Data security.” ACM computing surveys (CSUR) 11.3 (1979): 227-249, regardless of size, for any organization, it is important to protect its data and other valuable assets. One of the biggest information security risks for businesses is paper because printed documents can be easily lost, mishandled, or damaged while digital data could be encrypted and safely kept on hard disks or electronic devices.

Data inconsistency is also a major problem when it comes to manually operated animal feed management systems being used.

Pernot, Pascal, and Fabien Cailliez. “A critical review of statistical calibration/prediction models handling data inconsistency and model inadequacy.” AIChE Journal 63.10 (2017): 4642-4665, says an organization is broken up into different departments, each using its tools and systems, each following its process and with its interpretations of the data points they are creating and using.

### 2.1.2 CAUSES OF THE MENTIONED PROBLEMS

Data insecurity can arise from malicious insiders within an organization.

Schwartz, Paul M., and Edward J. Janger. “Notification of data security breaches.” Mich. L. Rev. 105 (2006): 913 says, “Staff members will have access to sensitive information, and there’s always a chance that someone will try to misuse it. Employees are also susceptible to use sensitive information maliciously if they are disgruntled at work or have left the organization under poort terms and still have access to its systems.”

When it comes to data inconsistency in an organization, Y Zhang (2018) says, “Data inconsistency is a situation where multiple tables are within a database that deals with the same data but may receive it from different inputs.”

According to Dr. Mitnick (2019), “The lack of document management solutions leads to using of paperwork processes that require paper documents to be physically transferred from one person to the next. This leads to wastage of valuable time that would have otherwise been used to carry out other important tasks.”

### 2.1.3 EFFECTS OF THE IDENTIFIED PROBLEMS

The inconsistency of data and information has a variety of impacts on organizations.

About Irwin. L (2020), “If you are conducting data analysis or predictive analytics with incomplete and incorrect data, you run the very real risk of being led down the wrong path. With duplications, missing fields, and other anomalies in your data you will be wasting resources due to poor data analysis.”

On the issue of data breaches regarding data and information security, Strawbridge. G (2020) says, “The reputational damage resulting from a data breach can be devastating for a business. Research has shown that up to a third of customers in retail, finance, and healthcare will stop doing business with organizations that have been breached. Additionally, 85% will tell others about their experience, and 33.5% will take social media to vent their anger. This negative press coupled with a loss of consumer trust can cause irreparable damage to the breached company.”

According to Tim Cook (2019), “Going paperless is a priority for plenty of human services agencies. The amount of time a social worker is required to spend on paperwork is frustrating and discouraging to workers who have a passion to serve and want to be doing all they can to help families. Manual, time-consuming processes limit these workers’ ability to engage clients, build trust and do actual work.”

R. Munroe (2015) says, “Another impact of manual systems is on customer service. Customer queries can be difficult to respond to as information is stored in different places and may even require that you find the right person before being able to respond. This is no good if they are out to lunch or only work part-time”.

### 2.1.4 SOLUTIONS TO THE IDENTIFIED PROBLEMS

Morrow. M (2020) says, “Investing in software solutions is the key to solving problems associated with manual data entry. Document management software offers a wide variety of tools and automated processes that decrease turnaround time and data entry errors. Systems can quickly identify and amend sources of data inaccuracies to avoid unnecessarily accumulated expenses.”

To minimize data inconsistency, Kovalenko. K (2019) says, “A central semantic store approach involves focusing on meticulously logging and storing all the rules used by the database integration process in a single centralized repository. This is aimed at making sure that as data sources become updated or new ones are added they do not fall outside data integration rules. A master reference store approach tries to solve the data inconsistency problem through greater centralization.”.

According to Cobb. D (2017), “Paperwork processes can be replaced by electronic documents that can move instantaneously through your different departments resulting in quicker processes and leaving you with more time for other aspects of your job.”

## 2.2 CONCLUSION

Increasingly, technology has a profound impact on Animal Feed needs. As technology evolves, it will also force animal feed companies to take on new contours in both their practices and processes. AFMS emerged in response to the need for this change to be carried out in the most efficient way possible, considering the improved accuracy of data collected, the quick retrieval of information, the increased competitiveness and efficiency in calculations of sales made, and the efficiency of analyzing information that was automated.

There are still many questions about the objectives of AFMS and the responses they allow to the real needs of both farmers and company admins. Indeed, there are still some limitations to the use of these Management systems. However, the role of these systems allows us to respond more quickly to farmers’ needs even with the increasing demand.

By focusing on using technology to continuously improve the quality of the work, technology can improve the information available to farmers, facilitate ordering animal feed in a more efficient and timely manner and make accessing and analyzing data more effectively thus increasing competitiveness.

Some of the Animal Feed Management Systems that exist in the market today include Elatoir Animal Feeds (Odelly, 2021) and Livestock Animal Feeds MS (Henkings, 2013). However, most of these are premium meaning farmers have to pay a fee to keep using them. These systems are also complex in their Graphical User Interfaces thus making it hard for staff members to use them. Wanderi’s Animal Feed Management System is meant to solve this issue by reducing the cost of membership and simplifying the Graphical User Interface to ensure staff focus more on the sales and less on learning how to use the management system as it will be pretty easy after training has been offered.

## References.

Den Hartog, Johan. “Feed for food: HACCP in the animal feed industry.” Food Control 14.2 (2003): 95-99.

Merican, Zuridah, and Dagoberto Sanchez. “Overview of the aquaculture feed industry.” Aquafeed Formulation. Academic Press, 2016. 1-19.

Denning, Dorothy E., and Peter J. Denning. “Data security.” ACM computing surveys (CSUR) 11.3 (1979): 227-249.

Pernot, Pascal, and Fabien Cailliez. “A critical review of statistical calibration/prediction models handling data inconsistency and model inadequacy.” AIChE Journal 63.10 (2017): 4642-4665.

Schwartz, Paul M., and Edward J. Janger. “Notification of data security breaches.” Mich. L. Rev. 105 (2006): 913.

So, K.F., Chou, C.H., Jiau, H.C. and Hu, W.T., 2006. Detection and diagnosis of data inconsistency failures in wireless sensor networks. Computer networks, 50(9), pp.1247-1260.

# CHAPTER THREE

## METHODOLOGY.

## 3.O INTRODUCTION

This chapter goes over the methodology that was used for the study in detail. For Wanderi’s Animal feed Management system, System Analysis and Design Methodology (SSADM). Different techniques such as Data Flow Diagrams, (DFDs), and Entity Relationship Diagrams were also adopted. The techniques that were used for data collection are also discussed in this chapter. The tools used for data analysis, system implementation, and testing are discussed in depth. The scheduled feasibility of the WanderisAnimal feed Management System and the projected project cost are explained in detail.

## 3.1. DATA COLLECTION METHODS.

These are the various methods and techniques used together with data on the existing system. The researcher used two methods of data collection to gather data for the study. The tools used were:

1. Interview
2. Questionnares’s

### 3.1.1 QUESTIONNAIRES.

This is a set set of written questions with multiple choice answers designed for data collection in research.  
The researcher created two questionnaire sets which are listed below.

#### 3.1.1.1 FARMERS QUESTIONNAIRES.

The data gathered here included the level of satisfaction with services obtained through the old manual system. The types of complaints lodged against the feeding system were also recorded, as well as an opinion on the improvements required to address the issue of erroneous examination reports.

#### 3.1.1.2. STAFF QUESTIONNARES.

The purpose of this questionnaire was to gather information about the mentioned party's professional qualifications. It also gathered information on the difficulties encountered while using the old manual examination system and the need to implement a new automated system.

#### 3.1.1.3. INTERVIEWS.

This is a one-on-one interview between the interviewer and the interviewee.

Senior members of the teaching fraternity and teachers were interviewed at random.

The following questions were posed:

1. Fill in the blanks with what you want to be changed. Then, press the What were the most common mistakes made when using the manual examination system?
2. What are the deficiencies of the manual examination system?

What recommendations were required to address the current system's inefficiencies?

## 3.2. DATA ANALYSIS

This procedure entails using logical techniques to describe, illustrate, and systematically evaluate data. Following data analysis, a new automated system for Wanderis Animal Feed was recommended as the best option. The current challenges affecting the current manual examination system will be addressed by the implementation of a new automated system that will provide a secure and fast platform for all examination processes.

## 3.3. TIME SCHEDULE AND COST OF THE PROJECT

Having a project schedule during project development ensures that all required tasks are completed on time and without delay. During the project's development, a Gannt Chart with various tasks and the time allotted for each task was created. The following major activities were completed:

1) Present the title.

2) Data collection and research

3) Create a proposal.

4) Presentation of the Proposal

5) Programming.

6) Test the system.

7) System deployment.

8) Provide documentation.

9) Presentation of the Project

## 3.4 FEASIBILITY STUDY

By creating a project schedule during project development, all required tasks will be completed on time and without delay. During the project's development, a Gannt Chart with various tasks and the time allotted for each task was designed. The following major activities were carried out:

1) Title Presentation.

2) Research and data collection

3) Proposal Writing

4) Proposal Presentation

5) Coding.

6) System testing

7) System implementation.

8) Documentation.

9) Project Presentation

### 3.4.1. OPERATIONAL FEASIBILITY

This type of feasibility involves supporting, utilizing, and carrying out the system or the project tasks. The new automated system is thus the answer to address the mentioned problems. A Graphical User Interface will provide better service upon which Wa System will operate the platform will be easy to navigate and with commands for the user to get the desired result

### 3.4.2 TECHNICAL FEASIBILITY.

This type of feasibility evaluates the technical complexity of the system and it involves determining whether the new system can be implemented or not. The hardware and software used to develop the examination system accurately fit the new system as no compatibility issues arose during development. A computer having the following minimum requirements will be needed for the new system to operate; Processor 2.9GHZ, RAM 2GB, Hard Disk space of not less than 350GB, and a windows 10-11 operating system. The mentioned technology is available in the current market and at very fair prices. PHP was the computer programming language chosen to develop the new examination system. The choice of this language was vital because it is easy to learn and use, it treats data as objects and provides large community support, and produces efficient and effective systems.

## 3.5 COST-BENEFIT ANALYSIS

This is the process or technique of measuring the benefits of a decision minus the costs associated with taking that action.

|  |  |
| --- | --- |
| **Items** | **Cost (Ksh)** |
| Computer System | 30000 | |
| Recurring Costs | 4500 | |
| MS OFFICE 2019 | 3000 | |
| Training of personnel | 5000 | |
| System Maintenace | 9000 | |
| **TOTAL COSTS** | **24500** | |

Calculation of the Net Present Value.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Years | Cost (Ksh) | Benefit (Ksh) | Net Benefit (Ksh)  (Benefit cost) | Discount Factor  (Rate = 15%) | Net Present Value (Ksh)  (Net Benefit \* Df) |
| 0 | 24500 | 0 | -24500 | 1 | -24500 |
| 1 | 0 | 10000 | 10000 | 0.8696 | 8695.65 |
| 2 | 0 | 15000 | 15000 | 0.7562 | 11343.06 |
| 3 | 0 | 21000 | 21000 | 0.6576 | 13809.49 |
| 4 | 0 | 25000 | 25000 | 0.5718 | 14296.11 |
| 5 | 0 | 30000 | 30000 | 0.4973 | 14918.29 |

## 3.6 SUMMARY

The researcher used interviews and questionnaires as the main data collection methods. The questionnaires were administered to two groups; teachers and students. Random interviews were also done with members of the teaching fraternity to collect information about the manual system used for examination processes. The proposed examination management system will automate most of the manual operations at Wanderis Animal Feed thus saving time and resources for the institution.

## 3.7 SYSTEM SPECIFICATION

This describes the features and behavior of a system.

### 3.7.1. USER REQUIREMENTS

The following attributes will be required for a user to operate Wanderis Animal Feed Management System;

1. A user will need to be computer literate.
2. Data entry techniques to use the system.
3. Knowledge of database administration.

### 3.7.2. SOFTWARE REQUIREMENTS.

Some software may require to be installed, which includes PHP. The net will be needed, an SQL server for database operations. Microsoft Windows 10-11, an Antivirus Software for maximum protection against viruses. Microsoft office suite will also be needed.

**HARDWARE REQUIREMENTS**.

A computer with the following requirements; Processor 2.9GHZ, RAM 2GB and above, Hard Disk space of not less than 100GB, and a printer will need to be integrated into the system for hardcopy documents production.

# CHAPTER FOUR. SYSTEM DESIGN.

## 4.0. SYSTEM DESIGN.

## 4.1. INTRODUCTION.

System design describes the architecture, interfaces, database design, and system functionalities that are required to achieve the proposed system's objectives.

## 4.2. SYSTEM SPECIFICATIONS.

The proposed Wanderis Animal Feeds Management System will provide a login to the platform in which the user will be able to access the system. The system administrator will be able to make changes to the system by adding, editing, updating, and deleting records from the system.

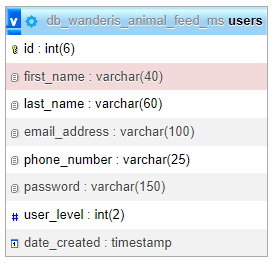
## 4.3. SYSTEM CONCEPTUAL MODEL.

Wanderis Animal Feeds Management System will have a Database in which all the feed records will be stored. The database will have independent entities which will have attributes and relationships that define them. The following are the major entities that will be stored in the database;

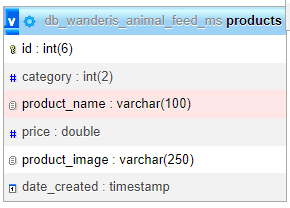
|  |  |
| --- | --- |
| **ENTITIES** | **ATTRIBUTES** |
| Admin | First name, last name, email address, phone number, password. |
| Farmer | First name, last name, email address, phone number, password. |

## 4.4. INPUT CONTENT, FORMAT, AND VALIDATION.

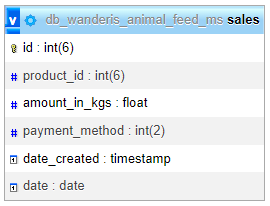
Users Table



Products Table



Sales Table



## 4.5. INPUT DESIGN.

Wanderis Animal feedsManagement System will be used to enter data into a database through a keyboard connected to the computer system. The system user will be able to key in details such as full names, email addresses, phone numbers, passwords, products, prices of products, and the sales for the product. For access to the system, a user will be required to key in the email address and a password which will be validated and checked for a secure login process.

## 4.6. DATA OUTPUT DESIGN.

The proposed Wanderis Animal feedsManagement System will be able to produce performance reports of every sale made and the details have been captured by the system. Financial sales and management reports will be printed for each sale made and also displayed visually on the screen for allowed personnel to view. A printer will be used to produce hard copy receipts for the customers after making a purchase and a financial record for the administrator when one is needed for record keeping.

## 4.7. SYSTEM CONTROL DESIGN.

To protect the data and information stored in the system, Wanderis Animal feedsManagement System will be accessed only by the personnel in charge of sales in the Firm however, there will be a consumer interface from which the customers will be able to purchase goods. These will be some of the control measures put into place to protect unauthorized access to the system by third parties. The user of the system will be required to provide a username and a unique password to log into the system and use it.

## 4.8. FORM FILLING DIALOGUE.

Wanderis Animal feedsManagement System will have forms that will contain textboxes for data capture. A system user will also be able to use other buttons such as edit, save, update, and delete to perform various tasks using the system. On the forms, labels will provide information on the type of data that needs to be filled in the text boxes.

# CHAPTER FIVE.

## 5.0 SYSTEM IMPLEMENTATION.

## 5.1. INTRODUCTION.

System implementation is the process by which a user assumes control of a system's operations for use and evaluation. It entails user training to handle the system and plan for a smooth transition. A series of activities were carried out to successfully implement the Wanderis Animal Feeds Management System.

## 5.2 CODING OF THE SYSTEM.

This stage involves the system developer building the proposed system by writing codes using a chosen programming language. Wanderis Animal feedsManagement System was designed and developed using PHP. This language provides a platform where codes were written and executed. For the storage of data and information, CSS and HTML were used.

## 5.3. HARDWARE AND SOFTWARE ACQUISITION.

This involves procuring the needed software and hardware elements that would be used in designing an entire system. Wanderis Animal feedsManagement System was developed using software and hardware that was directly obtained from the information technology market. The computer system, printers, secondary storage media, and associated peripheral devices were all bought from a well-known vendor at the prevailing market prices which were fair. The system developer also acquired PHP, antivirus software, HTML, and Microsoft Office which are readily available. There were no complications in the acquisition of either software or hardware.

## 5.4. SYSTEM TESTING.

This stage involves evaluating how the different components of a system interact together in the full and integrated system. System testing is done to achieve the following;

1. To check software adaptability.
2. To identify and correct errors and bugs in the system.
3. To accelerate software development.
4. To avoid extra costs.

### 5.4.1. TESTING PLAN OF THE SYSTEM.

The following features were evaluated and tested to determine the flow of operations within the system:

### 5.4.2. TYPES OF TESTING.

For Wanderis Animal feedsManagement System, the system developer used the following techniques of testing;

#### 5.4.2.1. UNIT TESTING.

This type of testing was done on individual modules to determine if any issues exist. The main aim was to isolate each unit of the system to identify, analyze and fix the defects. The main advantages of this type of testing are;

a) Reduce defects in newly developed features or reduce bugs when changing the existing functionality. b) Improves the design and allows better code refactoring.

c) It reduces the costs of testing as defects are captured in very early stages.

#### 5.4.2.2. SYSTEM TESTING.

This type of testing involves validating the complete fully integrated system. The main aim of this type of testing is to evaluate end-to-end end system specifications. Wanderis Animal feedsSystem was tested on how well it interfaces and functions around other devices. The identified defects were corrected at this stage.

## 5.5. USER TRAINING PHASE.

User training is an important part of system development as it enables users of a particular system to do thrown problem-solving. The following were the various techniques that the system developer of Wanderis Animal feeds System used to train the user

## 5.5INSTRUCTOR-LED LED TRAINING.

This method involves both the trainer and the trainee, who have to meet at the same time for training purposes. Using this method, the system developer met the users of the Wanderis Animal feeds system in a class setup where overhead projectors were used for learning how the system was to be operated.

5.5.2. MENTORING.

This method involves placing the trainees under the supervision of a trainer. The system developer undertook this initiative to make sure that every detail concerning the system functionality has been passed on and correctly to the users who would be using the Animal Feed system at the Firm.

## 5.6. CONVERSION.

This is the process of migrating from the old system to the new one. It provides an understandable approach to improving the communication between the management and the developer team. For the proposed Wanderis Animal Feeds management system, the system developer and Wanderi feeds management agreed to implement the following;

### 5.6.1. DIRECT CUTOVER CONVERSION.

This method involves the new system being implemented and the old manual system being replaced completely. This technique was chosen because of its immediate benefits from new methods and control and the management had complete confidence in it.

## 5.7. DOCUMENTATION OF THE SYSTEM.

This is a framework of documents that describes the capabilities, limitations, design, requirements, and, maintenance of a system. The following types of documentation were provided to the users of Wanderis Animal feedsManagement System by the system developer;

### 5.7.1. END-USER DOCUMENTATION.

This type of documentation is meant to assist users in both the initial learning and the ongoing use of the system. It includes documents describing the installation procedure, user manual, and explanations of defects that may occur from the system during use.

#### 5.7.1.1. PROCESS OF INSTALLING THE SYSTEM.

Insert a flash disk or portable storage media with the standalone system into a computer. ⎫ Open the flash disk and copy the installation files of the system to a suitable disk partition. ⎫ Open the files and click on the set-up file. ⎫ Follow the installation procedure. ⎫ Install the system into the computer.

### 5.7.2. PROGRAM DOCUMENTATION.

This type of documentation included the description of processes. Layouts reports, comments with program codes, and printed copies of the programs within the system. The correctness and accuracy of this documentation met the threshold required from the system developer.

## 5.8. LAUNCHING THE SYSTEM.

To access Wanderis Animal feedsManagement System, the system user will do the following;

• Open a computer where the system is installed.

• Click on the search feature.

• Type the name Wanderis Animal Feeds.

• Select the icon of the system as displayed.

• Click open to log into the system.

# CHAPTER SIX.

## 6.0 LIMITATIONS AND RECOMMENDATIONS.

## 6.1 LIMITATIONS

This chapter summarizes the limitations experienced by the system developer during the stages of development and the recommendations given thereafter. The following are some of the limitations the system developer faced during the creation of Wanderi’s Animal Feed Management System.

### 6.1.1 INADEQUATE FUNDS

Shortage of funds was experienced in the event where the researcher had to travel to Wanderi’s and buying hardware and software equipment required to generate the system. This caused some delays in the data analysis and the overall completion of the proposed system on the set time. The budget allocated for the completion of the entire project was so strict that misllineous expenses were not catered for causing inconveniences in the project completion.

### 6.1.2 TIME FACTOR

Time is an essential priority when developing systems for users. The time schedule set by the development team must be achievable and in favour of all parties. Wanderi’s Animal Feed Management System was affected by the limited time set. The system developer was not able to thoroughly complete the system to entail extra and addition user’s preferences. The system was delivered on the agreed time though it lacked the developer’s extra initiatives which would make it more effective.

### 6.1.3 LIMITED NUMBER OF RESPONDENTS

During data collection process, the research could not collect data from the expected sample of respondents as it was not easy to input all the staff’s details into the system. The researcher collected only samples through interviews, and questionnaires. This challenge provided a little information which was not completely effective in the recommendations made.

## 6.2 CONCLUSION

In summary, Wanderi’s Animal Feed Management System should automate the establishment by introducing a management system to aid in its operations. This would be a step in the right direction as many animal feed companies nowadays rely on technology for operations

## 6.3 RECOMMENDATIONS

As the system developer, I highly recommend the implementation of this system at Wanderi’s as this will help the company maintain it’s competitive especially at a time like now when technology is a crucial tool in running any business. The challenges currently being experienced due to the manual existing system will be fully addressed by the new system.

# Appendices.

## Appendix 1: Sample Observations.

The researcher noted down the following data collection phase:

1. Calculations of sales were done manually by use of a calculator, pen and paper.
2. Data about farmers was captured and recorded in books.
3. Records of available products was not easily delivered to clients.

## Appendix 2: Sample Interviews.

The following were some of the sample questions asked to respondents.

1. Do you think introducing a new automated system will make work easier for you as a staff member?
2. How do you think the amount of work the staff puts into paper work instead of more important work will be affected?
3. What are some of the challenges you face when working with the current system and how do you think they can be overcomed by introducing a new system that is automated?
4. What has you experience been working with the current manual system currently in place?
5. How willing are you to use a new system once it has been introduced?
6. How often do you experience erroneous financial calculations using the current system?
7. What are some of the features you would like an automated system to contain?

## Appendix 3: Project Time Schedule

|  |  |
| --- | --- |
| **Activity** | **Duration (Weeks)** |
| Proposal Writing | 2 |
| System Analysis | 2 |
| Interface Design | 1 |
| System Design | 2 |
| System Coding | 3 |
| Installation and Testing | 1 |
| System Implementation | 1 |
| **Total** | 12 |

## Gannt Chart

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | DURATION (WEEKS) | | | | | | |
|  | 5th Sept – 8th Sept | 9th Sept – 15th Sept | 17th Sept – 25th Sept | 26th Sept – 30th Sept | 2nd Oct – 6th Oct | 7th Oct – 11th Oct | 13th Oct – 19th Oct |
| Task 1 |  |  |  |  |  |  |  |
| Task 2 |  |  |  |  |  |  |  |
| Task 3 |  |  |  |  |  |  |  |
| Task 4 |  |  |  |  |  |  |  |
| Task 5 |  |  |  |  |  |  |  |
| Task 6 |  |  |  |  |  |  |  |
| Task 7 |  |  |  |  |  |  |  |

## Appendix 4: FLOWCHARTS

Figure 1: Login Flowchart.

Enter email address and password

Is email address and password correct?

Login

No

Flowchart for saving a record.

Enter Product Details.

Details Exist?

Save Product Details

Yes

No

Flowchart for deleting a record

Display Available Records.

Confirm if you want to delete?

Delete Record

No

Yes

## Appendix 5: Data Flow Diagram of the System.

ADD, EDIT, DELETE PRODUCTS

MAKE A SALE

VIEW REPORTS

LOGIN

VIEW USER DETAILS

# GLOSSARY.

1. Flowcharts-Type of diagram that represents a workflow or a process.
2. Cost Benefit Analysis- This is a technique used to compare the total costs of a project with its benefits using monetary units.
3. Gannt Chart-A commonly used graphical depiction of a project schedule.
4. Net Present Value- This is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.
5. HTML- A standard language for storing, manipulating and retrieving data in databases.
6. System Limitations- This refers to what the defined system is unable to do as of its present date.
7. Data Flow Diagrams (DFDS) - These are used to graphically represent the flow of data in a business information system.