# CHAPTER THREE

# SYSTEM ANALYSIS AND DESIGN

## 3.1 Introduction

This chapter will focus on analysis of the existing system, methodology in which the proposed system will adopt. System design, architectural designer will also be discussing in this chapter. Database table’s entity relationship and table queries will be discussed in this chapter. System requirement will also be discussed in this chapter.

## 3.2 Disadvantages of the Existing System

The existing system of linking farmers to buyers often involves traditional methods and practices that can come with various disadvantages. These disadvantages can hinder the efficiency of the agricultural supply chain and create challenges for both farmers and buyers. Here are some common disadvantages of the existing system:

1. Limited Market Access: Traditional systems might restrict farmers to local or regional markets, limiting their ability to reach a wider customer base and potentially leading to oversupply or undersupply issues.
2. Middlemen Exploitation: Intermediaries or middlemen can take advantage of their position to manipulate prices, leading to unfair compensation for farmers and higher costs for buyers.
3. Lack of Transparency: In traditional systems, price information and market trends might not be readily available to farmers and buyers, leading to uncertainty and potentially unfair pricing.
4. Inefficient Supply Chain: Lack of coordination and communication in the supply chain can result in delays, wastage, and increased transportation costs.
5. High Post-Harvest Losses: Inadequate storage and handling facilities can lead to significant post-harvest losses due to spoilage and deterioration.

## 3.3 Advantages of the Proposed System

Designing and implementing a system that links farmers to buyers can offer several advantages for both parties involved, as well as the overall agricultural ecosystem. Here are some of the key advantages of such a system:

1. Increased Market Access: Farmers gain access to a broader market, allowing them to reach potential buyers beyond their local region. This can lead to higher demand for their produce and increased profitability.
2. Reduced Middleman Dependency: By connecting directly with buyers, farmers can potentially reduce their dependency on intermediaries or middlemen, leading to better price realization for their products.
3. Price Transparency: The system can provide price information for various products, helping farmers make informed decisions about what to grow based on market demand and pricing trends.
4. Fair Pricing: Buyers and farmers can negotiate prices directly, leading to fair pricing that benefits both parties. This can help farmers receive fair compensation for their efforts and encourage buyers to purchase at reasonable rates.
5. Reduced Food Waste: With better coordination between farmers and buyers, surplus produce can be managed effectively, reducing instances of food waste due to overproduction.

## 3.4 The Proposed Method

The waterfall model is a traditional sequential approach to software development that consists of distinct phases that follow a linear sequence. Here is a simplified version of the waterfall model for the development of a System that will link farmers to buyers:

**Requirements Gathering and Analysis**

1. Identify the requirements and objectives of the System that will link farmers to buyers.
2. Conduct interviews and discussions with stakeholders to understand their needs.
3. Define the system's functionalities, user roles, and security requirements.

**System Design**

1. Design the system architecture, including the client-side and server-side components.
2. Create the database schema and define the data model.
3. Develop the user interface design, considering usability and accessibility.

**Implementation**

1. Develop the client-side application using web technologies like HTML, CSS, and JavaScript.
2. Implement the server-side application using a suitable programming language and framework.
3. Integrate the user interface with the backend functionalities.
4. Implement security measures such as encryption, authentication protocols, and access control.

**Testing**

1. Conduct unit testing to verify the correctness of individual components.
2. Perform integration testing to ensure the proper functioning of the system as a whole.
3. Carry out system testing to validate the system against the defined requirements.
4. Perform security testing to identify and address any vulnerabilities.

**Deployment**

1. Prepare the system for deployment by configuring the necessary infrastructure and servers.
2. Install and set up the required software and dependencies.
3. Migrate the database and ensure data integrity.
4. Conduct user acceptance testing to gain feedback and ensure readiness for production use.

**Maintenance and Support**

1. Provide ongoing maintenance and support for the System that will link farmers to buyers.
2. Address any reported issues, bugs, or security vulnerabilities.
3. Perform regular system updates and enhancements based on user feedback and changing requirements.
4. Ensure the system remains secure, reliable, and up-to-date.

## 3.5 Method of Data Collection

This study will adopt two methods of data collection which are the Primary and Secondary sources of data.

## 3.6 System Design

System design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements.

## 3.6.1 Algorithm Diagrams

**CUSTOMER**

**ADMIN**

Figure 3.1 Use case diagram

User Login

Is Login

Successful?

Does the Product exist?

Customers Slips print

Display different farm product?

Search Product

Customers Select farm Product

**NO**

**YES**

**YES NO**

**YES**

**NO**

**YES**

Figure 3.2 flowchart

## 3.6.3 Database Design

The database system that will be used to store the information for this system will be My SQL.

Below are the descriptions and structure of the database files to be used by the system:

Table 1: User login

|  |  |  |  |
| --- | --- | --- | --- |
| **FIELD NAME** | **DATA TYPE** | **FIELD SIZE** | **DESCRIPTION** |
| Username | Varchar | 20 | Username for accessing The system |
| Password | Varchar | 30 | Password for accessing the system |

This database file will contain the information about the users of the system.

Table 2: Product structure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **FIELD NAME** | **DATA TYPE** | **FIELD SIZE** | **DESCRIPTION** |
| 1. | Category | Varchar | 40 | Category of the product |
| 2. | Name | Varchar | 20 | Name of the product |
| 3. | Quantity | Varchar | 50 | Quantity of the product |
| 4. | price | Varchar | 20 | Price of the product |

Thisdatabasefile will contain the information about the product that has been registered.

Table 3: Customer Application

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **FIELD NAME** | **DATA TYPE** | **FIELD SIZE** | **DESCRIPTION** |
| 1. | Firstname | Varchar | 20 | ID of the customer that made the order |
| 2. | Lastname | Varchar | 40 | Name of the product |
| 3. | Email | Varchar | 20 | Address of the customer |
| 4. | Password | Varcher | 10 | Password of the customer |
| 5. | Mobile | Varchar | 20 | Phone number of the consumer making the order |
| 6. | Address | Varcher | 20 | Address of the customer |

Table 4: Admin structure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **FIELD NAME** | **DATA TYPE** | **FIELD SIZE** | **DESCRIPTION** |
| 1. | ID | Int | 20 | Unique Identification Number |
| 2. | Name | Varchar | 20 | Username accessing the system |
| 3. | Password | Varchar | 20 | Password for accessing the system |

Thisdatabase file will contain the information about the admin of the system.

Table 5.5: Payment form

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **FIELD NAME** | **DATA TYPE** | **FIELD SIZE** | **DESCRIPTION** |
| 1. | Select card | Varchar | 20 | Select card type |
| 2. | DD/MM | Int | 30 | This is month and year. |
| 3. | Card Number | Int | 20 | Card number of the customer. |
| 4. | Card cvv | Int | 10 | Card cvv pin |
| 5. | Pay slips | Varcher | 20 | Pay slip for customer |

## 3.6.4 Input Design

**LOGIN FORM**

**USER NAME:**

**PASSWORD:**

Enter User name

Enter Password

**LOGIN**

**CANCEL**

Figure 3.3: User Login

Figure 3.4: Showing Output Desi

First Name:

Last Name:

Email:

Choose Password:

Phone Number:

Address:

**USER PERSONAL INFORMATION**

**SUBMIT**

**CANCEL**

Figure 3.4: Application form

## 3.6.5 Output Design

**FARM PRODUCTS**

N23,00

PRODUCT

**ADD TO CART**

N23,00

PRODUCT

**ADD TO CART**

N23,00

PRODUCT

**ADD TO CART**

Figure 3.5: Farm Products.

## 3.7 System Requirements Specification

The requirement for the installation of the online website system are mentioned in the following sections.

## 3.7.1 Hardware Requirements

For proper installation of the system, the following minimum hardware requirements are:

1. Color Monitor
2. 2GB Random Access Memory (RAM)
3. 250 Gigabyte Hard Disk Drive
4. Keyboard
5. Mouse

## 3.7.2 Software Requirements

The following minimum hardware the software requirements for the installation of the system are listed below:

1. Windows 8 Operating System
2. Web browser (Google chrome)
3. Local server (XAMPHP)
4. My SQL connector
5. My SQL data
6. My SQL Database server

## 3.7.3 Personnel Requirements

The proposed system is to be managed and operated by

1. Admin
2. Visitors
3. Customers (registered member)