Harvest Circle – Digital Agricultural Marketplace System

1. Project Overview

Harvest Circle is a web and mobile-based digital agricultural marketplace system designed to connect farmers directly with buyers, provide real-time market information, enable secure digital payments, and reduce post-harvest losses in Kenya.

2. Background and Justification

Small-scale farmers in Kenya often rely on middlemen due to lack of market access and price information. This results in low profits, delayed payments, and food wastage. Harvest Circle leverages information technology to create a transparent, efficient, and inclusive agricultural market.

3. Problem Statement

Farmers lack direct access to buyers, real-time pricing data, and reliable payment mechanisms, leading to exploitation and reduced income.

4. Project Objectives

General Objective

To develop a digital marketplace that links farmers directly to buyers and improves agricultural trade efficiency.

Specific Objectives

- To enable farmers to list and sell produce online
- To provide real-time market price information
- To support secure digital payments
- To facilitate logistics and delivery tracking

5. Scope of the System

In Scope

- Farmer and buyer registration
- Product listing and search
- Price display and negotiation
- Mobile money payments (e.g., M-Pesa)
- Order management

Out of Scope

- Physical storage of produce

- International export compliance

6. Stakeholders

- Farmers
- Buyers (wholesalers, retailers, processors)
- Transport providers
- System administrators
- Government agencies (support role)

7. Functional Requirements

- User registration and authentication
- Product upload and management
- Search and filter products
- Order placement and tracking
- Payment processing

8. Non-Functional Requirements

- Security (data encryption, access control)
- Performance (fast search and transactions)
- Availability (24/7 access)
- Usability (mobile-friendly interface)

9. High-Level System Architecture

- Frontend: Web and Mobile App
- Backend: Application server and APIs
- Database: Centralized relational database
- Integration: Mobile money APIs, SMS notifications

10. Expected Benefits

- Increased farmer income
- Reduced exploitation by middlemen
- Improved food security
- Transparent agricultural markets

11. Risks and Mitigation

- Low digital literacy → User training and simple UI
- Poor internet connectivity → SMS-based features
- Trust issues → Ratings and verification system

12. Conclusion

Harvest Circle provides a sustainable IT-based solution to improve agricultural trade and farmer livelihoods in Kenya.