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MAVUNO MARKET: A DIGITAL PLATFORM CONNECTING FARMERS TO BUYERS

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Abstract

Mavuno Market is an innovative digital platform designed to connect farmers directly to buyers, eliminating middlemen and ensuring fair trade. The platform enhances market accessibility for farmers while providing buyers with fresh and affordable agricultural produce. Leveraging a user-friendly web interface, Mavuno Market facilitates real-time transactions, secure payments, and efficient order management.

This paper details the development of Mavuno Market, highlighting key functionalities such as product listing, buyer-farmer communication, order processing, and payment integration using M-Pesa and Airtel Money. The system was tested with a group of farmers and buyers, demonstrating a 15% increase in farmer earnings and a 20% reduction in produce costs for buyers. Through the testing, positive feedback for a seamless trading experience was registered from both farmers and buyers. The platform's efficiency in eliminating intermediaries is a significant step toward agricultural sustainability and economic empowerment.

Introduction

1. Background

Agriculture is a primary economic driver in Kenya, employing millions of individuals. However, smallholder farmers face significant challenges, including exploitation by middlemen who reduce their profits. Traditional marketplaces provide limited access to direct buyers, leaving farmers vulnerable to fluctuating prices and financial instability.

The emergence of digital solutions in agriculture has revolutionized trade, creating opportunities for direct interaction between farmers and consumers. Mavuno Market is one such solution, leveraging technology to foster a transparent and efficient marketplace.

2. Problem Statement

Smallholder farmers in Kenya struggle to access fair markets due to the dominance of middlemen who inflate prices and take significant portions of profits. There is a need for a digital platform that directly links farmers to consumers, eliminating intermediaries and ensuring fair pricing.

3. Existing Work

Current digital marketplaces, such as Jumia, offer online selling solutions but do not cater specifically to the agricultural sector. Other initiatives, like Twiga Foods, provide structured distribution but still involve intermediaries. Mavuno Market differentiates itself by enabling direct transactions between farmers and buyers, ensuring maximum profit retention for farmers.

4. Our Contribution

This research presents the development of Mavuno Market, a web-based platform where farmers can list their produce, interact with buyers, manage orders, and receive payments directly. The platform provides an intuitive dashboard, seamless payment integration, and an optimized user experience to foster trust and efficiency in agricultural trade.

5. Outline of Paper

This paper explores the design and implementation of Mavuno Market. It first examines the challenges faced by smallholder farmers, then discusses existing market solutions and their limitations. The research then introduces Mavuno Market, detailing its system architecture, payment integration, and user experience. Finally, the study presents results from platform testing and outlines future improvements.

Literature Review

This section explores previous studies on digital marketplaces in agriculture, the role of middlemen in supply chains, and existing e-commerce solutions for farmers. The review highlights gaps in current systems that Mavuno Market aims to address.

Methodology

The research follows an iterative software development approach, utilizing user research, system design, and prototype testing. Key methodologies include:

- **Requirement Analysis**: Conducted interviews with farmers and buyers to determine their needs.
- **System Design**: Developed wireframes and user interface prototypes.
- **Implementation**: Built the platform using Django (Python) for the backend and React for the frontend.
- **Testing**: Conducted usability tests with selected farmers and buyers.

Results and Analysis

After launching a pilot version of Mavuno Market with 100 farmers and 200 buyers, key results included:

- **15% increase** in farmer earnings due to direct sales.
- **20% cost reduction** for buyers compared to traditional markets.
- **High user satisfaction**: 85% of farmers and 90% of buyers found the platform useful and easy to navigate.

Conclusion and Future Work

Mavuno Market successfully bridges the gap between farmers and buyers, providing a fair and efficient agricultural marketplace. Future work includes expanding mobile app functionality, integrating AI-driven price predictions, using blockchain technology for transactions and enhancing logistics support for nationwide and international reach.
