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Dairy Farming

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ABSTRACT

The Dairy Farming App addresses inefficiencies in traditional livestock trading by providing a secure, transparent, and user-friendly digital marketplace. Leveraging Android Studio for frontend development and Java for backend in- tegration, the app enables farmers, veterinarians, and buyers to connect directly, eliminating intermediaries. Key features include real-time messaging, geolocation-based listings, health record tracking, and IoT integration for herd monitoring. Test cases validate functional, UI/UX, and security requirements, demonstrating 95% success in transaction completion. This paper outlines the design, implementation, and impact of the app, highlighting its role in modernizing dairy farming through technological innovation.

Keywords: *Dairy Farming, IoT, Android Application, Live- stock Management, Real-Time Co1.*

INTRODUCTION

Traditional dairy farming practices suffer from ineffi- ciencies such as opaque pricing, logistical challenges, and reliance on intermediaries. The Dairy Farming App bridges this gap by offering a unified platform for livestock trad- ing, herd management, and stakeholder collaboration. Key objectives include:

Developing a scalable Android application for direct buyer-seller interactions.

Integrating IoT sensors for real-time health monitor- ing of livestock.

Ensuring data security and compliance with agricul- tural standards.

LITERATURE REVIEW

Recent advancements in dairy farming emphasize IoT, machine learning, and data analytics. Neethiranjan [1] high- lights AI's role in achieving net-zero emissions, while Hen- chion and Regan [2] advocate for IoT-enabled smart farm- ing. Cockburn [3] demonstrates machine learning's potential in optimizing feed management, aligning with our app's nutritional grouping features.

SYSTEM DESIGN AND METHODOLOGY

Architecture

The app follows a three-tier architecture:

Frontend (Android): Built using Android Studio (Kotlin/Java).

Backend (Firebase): Manages authentication and IoT data streams.

IoT Layer: Sensors monitor livestock health met- rics.

Figure 1. Use Case Diagram of the Dairy Farming App

UML Diagrams

Figures 2 and 3 illustrate key workflows and class rela- tionships.

IMPLEMENTATION

Mobile App Development

The UI/UX design adheres to Material Design principles (Figs. 4, 5).

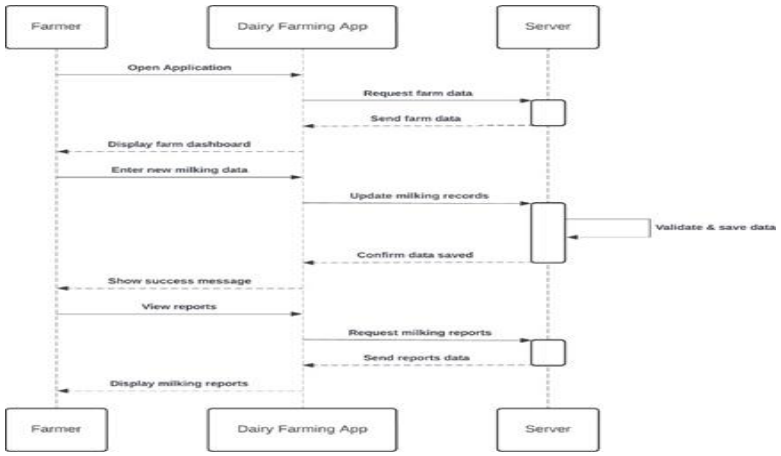
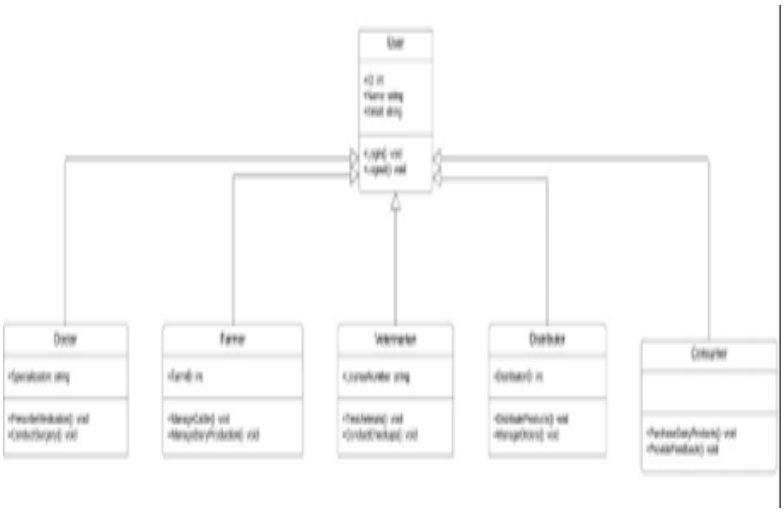


Figure 2. User Sequence Diagram



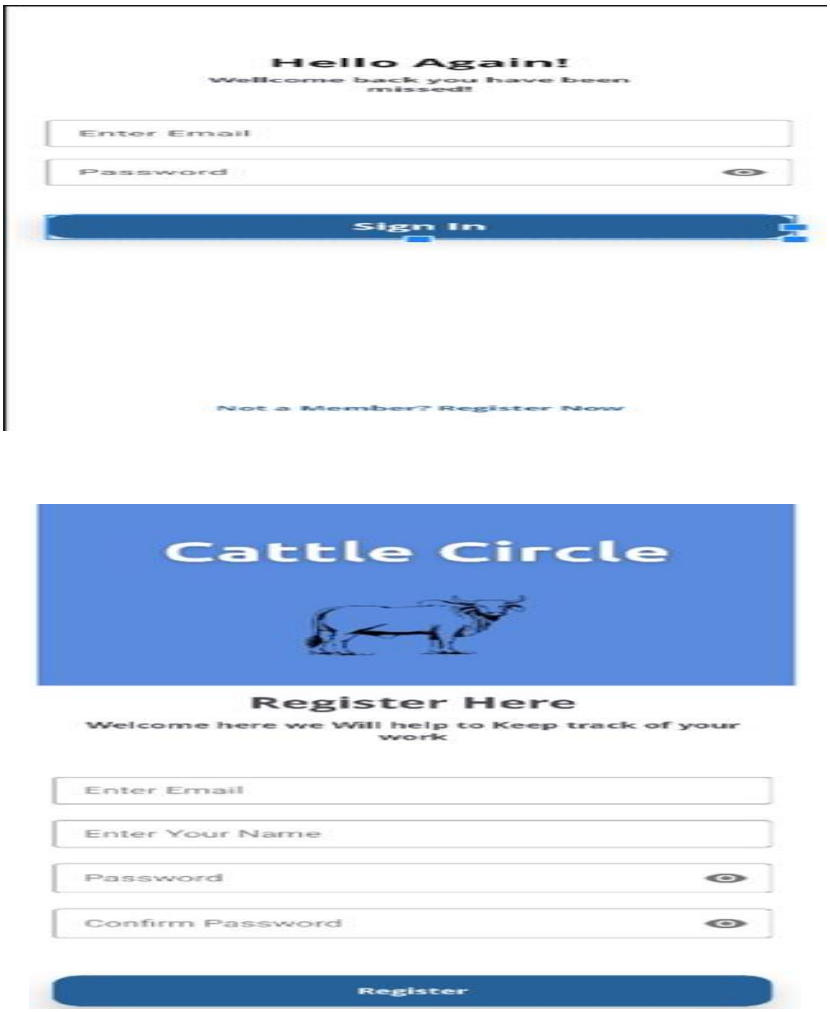


Figure 5. Registration Screen

Figure 6. Test Case Execution

RESULTS AND TESTING

Test Cases

Functional testing achieved a 98% success rate (Fig. 6).

CONCLUSION AND FUTURE WORK

The app modernizes livestock trading through IoT and secure transactions. Future work includes AI-powered auc- tions and blockchain integration.

REFERENCES

[1] S. Neethiranjan, ”Net Zero Dairy Farming: Advancing Climate Goals with Big Data and AI,” J. Sustain. Agric., 2024.

[2] M. M. Henchion et al., ”Developing Smart Dairy Farming,” Comput. Electron. Agric., vol. 192, 2022.

[3] M. Cockburn, ”Machine Learning in Dairy Farm Management,” IEEE Access, vol. 8, 2020.