Smart Kishan

- A complete solution for smart farming

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Introduction

- Agriculture is the major sector in Nepalese Economy
- Provides employment to 66% in the total economy
- Contributes 33% in the total GDP
- Increasing gap between supply and demand for food
- Climate change impacts in crop production in Nepal
- Smart Kishan integrates AI with agriculture to provide intelligent solutions
- Designed to address the challenges faced by Nepali farmers.
- Provides easy interface to the farmer for keeping up their inventory
- Helps farmer to know about their soil information

AI in Agriculture

- AI-driven crop recommendations tailored to geographical and soil data.
- Predictive analytics for crop yield optimization.
- Weather forecasts integrated into farming schedules.
- Smart monitoring tools to track crop health and growth.
- Data-driven insights for resource-efficient farming.
- Automates repetitive tasks, allowing farmers to focus on critical operations.
- Encourages precision farming to maximize output and minimize waste.

Problem Statement

- Nepali farmers face challenges such as limited access to resources and market connectivity.
- Lack of data-driven insights affects crop yield and profitability.
- Very less use of technology in field of agriculture in current scenario
- Limited technological adoption in rural areas hinders agricultural advancement.
- Climate unpredictability creates risks for farming activities.
- No application for farmer for better stock management in the inventory
- Lack of agricultural applications in Nepali language for semi-educated farmers
- Customers face difficulties accessing fresh and local agricultural products.

Objectives

- Leverage AI to empower farmers with precise and actionable insights.
- Create a comprehensive platform for managing farming, selling, and buying activities.
- Improve agricultural productivity and sustainability in Nepal.
- Bridge the urban-rural divide by connecting farmers to broader markets.
- Promote inclusivity through a multilingual platform accessible to all.
- Reduce wastage and inefficiencies with data-driven decision-making tools.
- Foster collaboration between farmers, vendors, and customers for a thriving agricultural ecosystem.

System Requirements

- Minimum android version – Oreo
- Minimum IOS version – IOS 12.0
- PHP version >8.0 for web application

Tools & Technology

- Frontend – Flutter for mobile application
- Backend –Laravel
- Database – MySQL
- Python for AI model (Flask for API for crop recommendation)

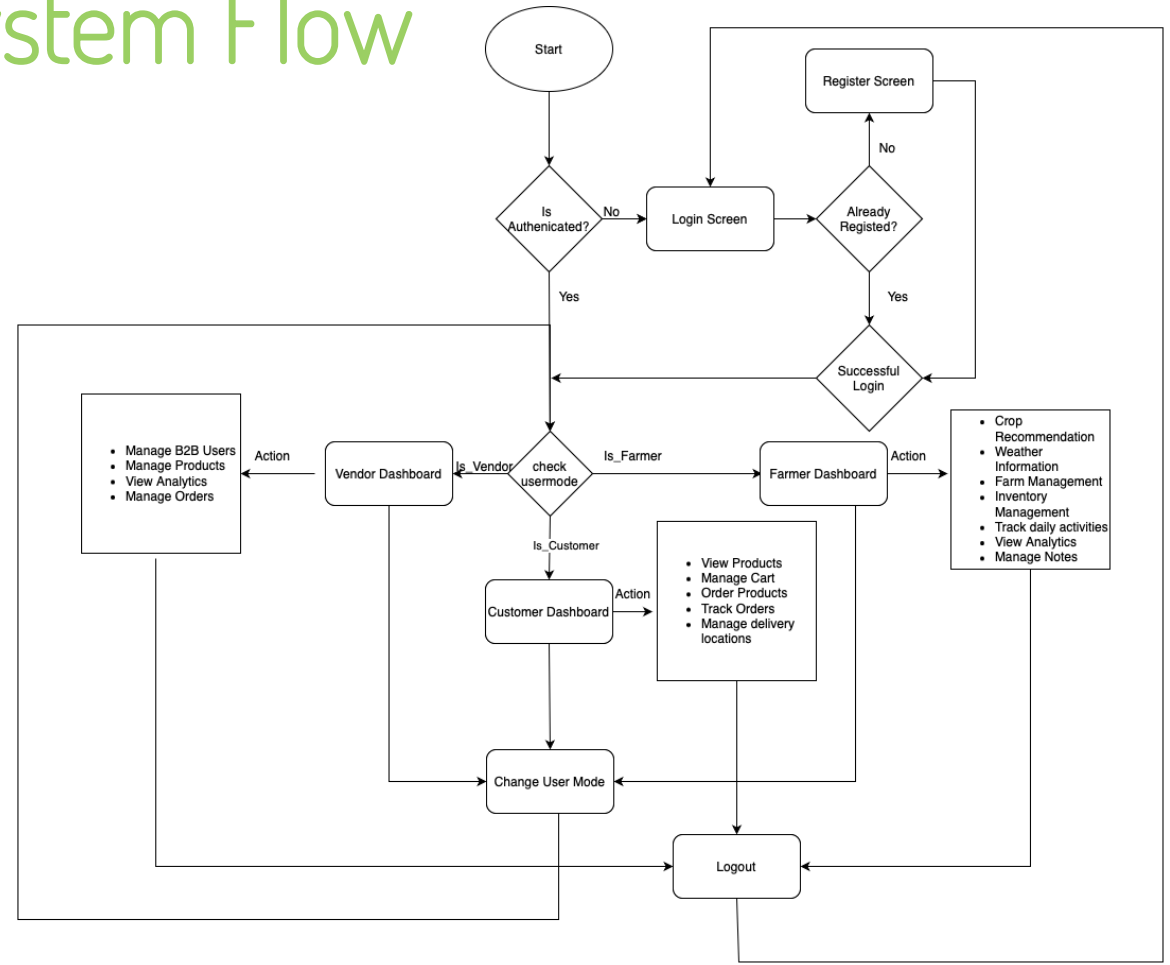
Modes of Operation

- Farmers can manage farms, inventory, and activities efficiently.
- Vendors (farmers) can sell products in both B2B and B2C markets.
- Customers can buy products, filter options, and track orders easily.
- AI-driven insights are integrated across farmer mode for better decision-making.
- Multilingual interface ensures usability for all.

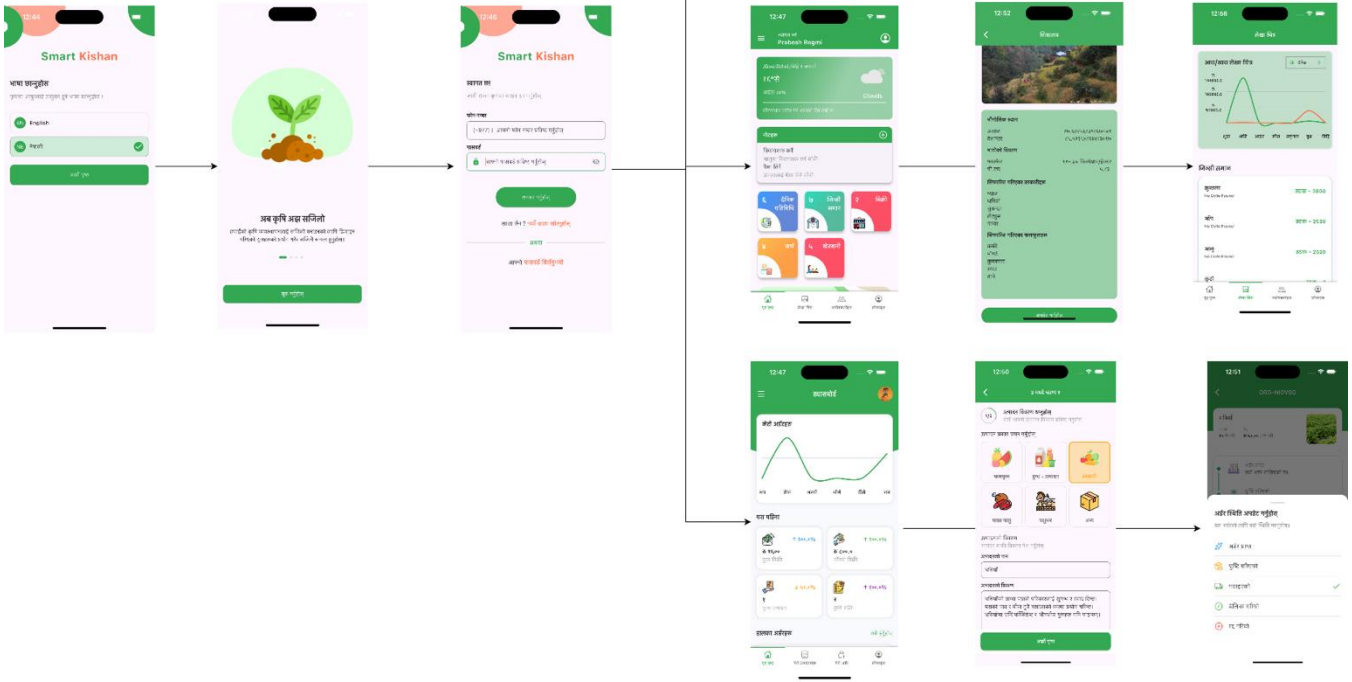
Our System Includes

- Inventory Management
- Keeping up records as notes for reminder
- Graphical analysis for income and expenditure in farm
- Soil Information based on geographical location
- Prediction for condition to apply pesticides
- Daily activity management in the farm
- Allows to use multiple farms as a sub-user from super-user
- Crop recommendation to farmers based on their geographical location
- Market place for farmers to sell their product to customers (B2B & B2C)
- Data visualization with admin control in web application

System Flow


Start
Register Screen
No
Is Authenicated?
No
Login Screen
Already Registed?
Yes
Yes
Successful Login
Manage B2B Users
Manage Products
View Analytics
Manage Orders
Action
Vendor Dashboard
Is_Vendor
check usermode
Is_Farmer
Farmer Dashboard
Action
Crop Recommendation
Weather Information
Farm Management
Inventory Management
Track daily activities
View Analytics
Manage Notes
Is_Customer
Customer Dashboard
Action
View Products
Manage Cart
Order Products
Track Orders
Manage delivery locations
Change User Mode
Logout

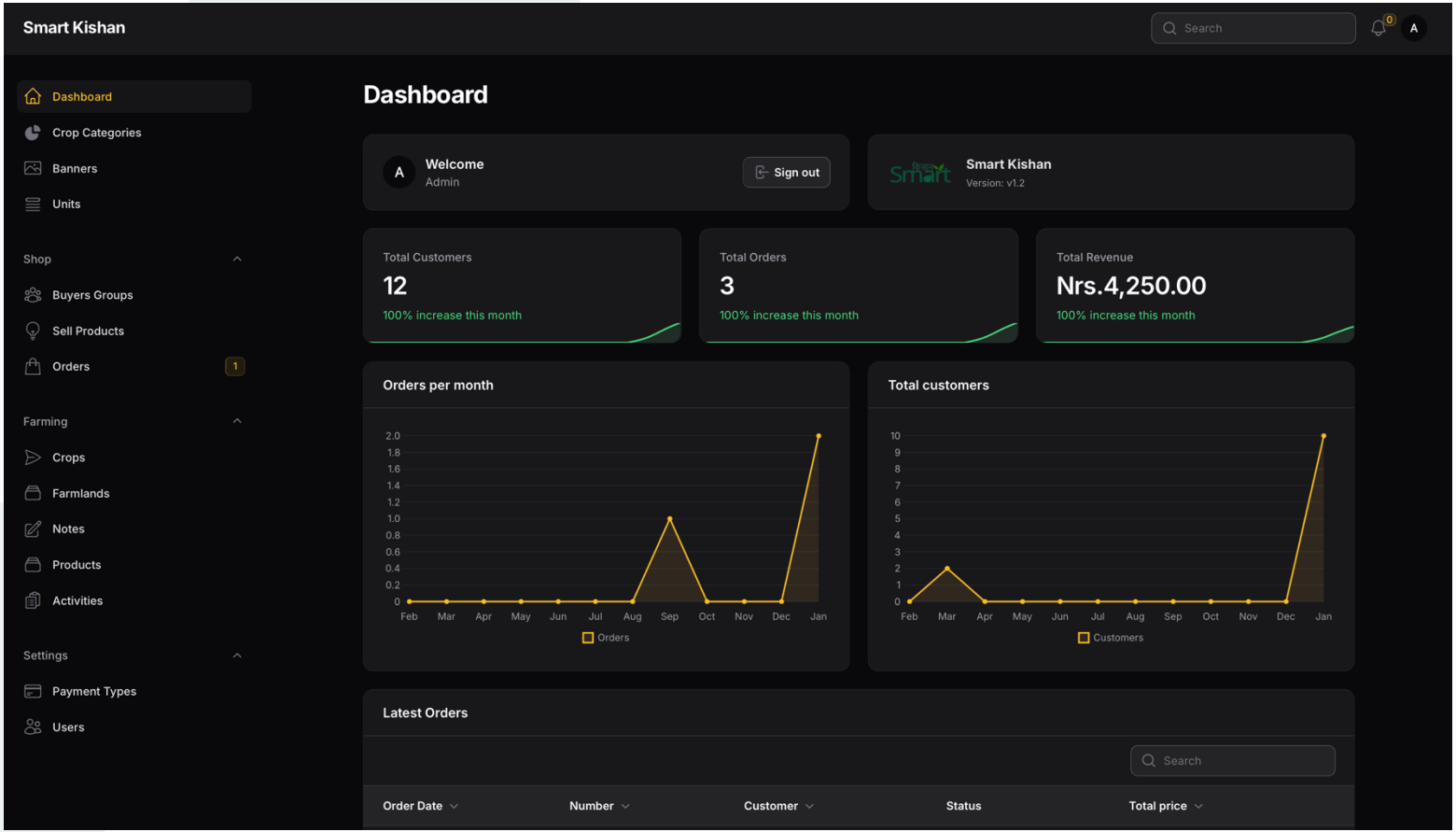
App Flow


Smart Kishan
Smart Kishan
Are you a Farmer ?
Sell your Products here

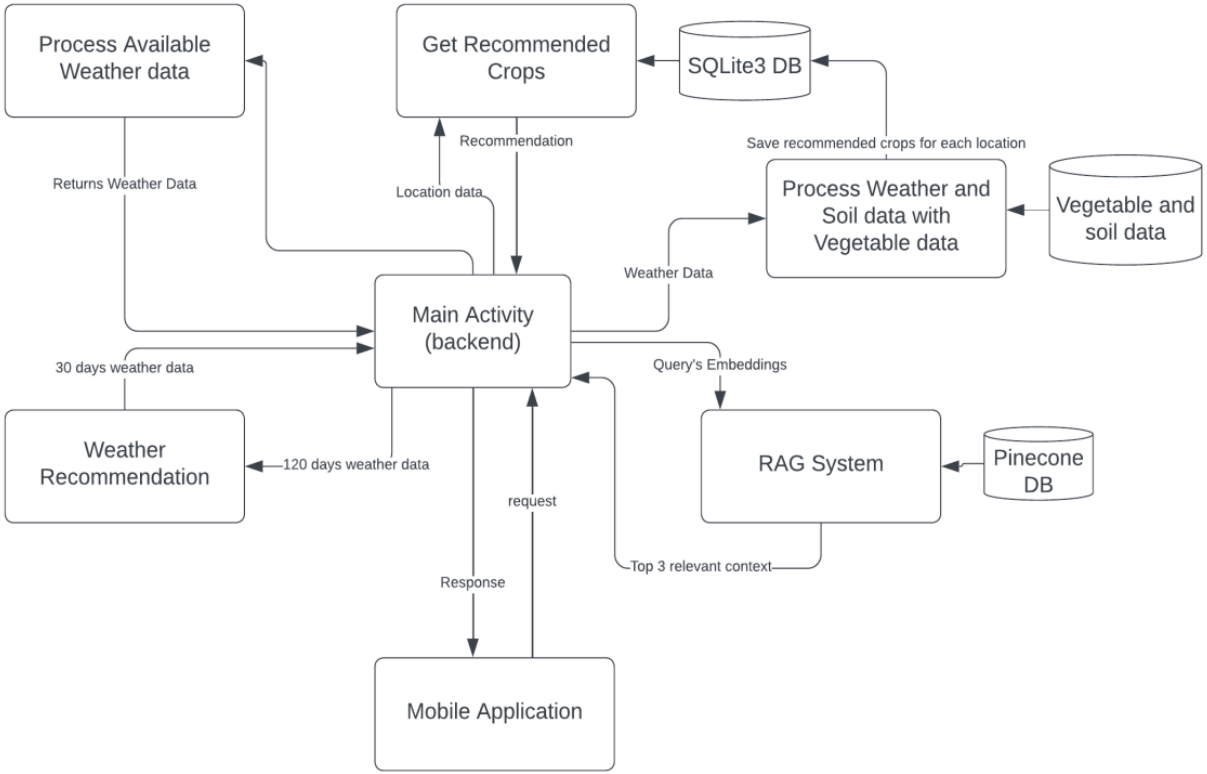
Web Application

- Web-based panel to manage all activities across the platform.
- Master users can monitor farmers, vendors, and customers.
- Enables management of product listings and transactions.
- Provides tools for detailed analytics and insights.
- Ensures a secure and seamless user experience.
- Supports real-time updates for efficient oversight.
- Tracks overall platform performance and user engagement.

Web Application



Activity Diagram for AI Model



Socio-Economic Impacts

- Empowers farmers with tools to increase productivity.
- Bridges the knowledge gap with easy-to-use AI technology.
- Helps farmers maximize their income through better management.
- Streamlines the supply chain, reducing inefficiencies.
- Drives economic growth in the agriculture sector of Nepal.
- Supports rural economies by connecting local producers to broader markets.
- Provides tools to adapt to Nepal’s diverse geography and climate.

Future Enhancement(Pipeline Features)

- Agriculture news and updates
- Implementation of weather prediction based on our model
- Crop yield prediction
- Implementation of AI chatbot
- Plant disease identification
- Tracking different activities based on farmlands
- User notification system for alerts on weather

Conclusion

- Smart Kishan can be very useful for the farmers from stock management to different farming activities
- Our App can be made better with addition of AI features like crop yield prediction, disease forecast, chatbot and more
- Use of Nepali language in our application will be highly beneficial for less educated users
- Users being able to add employee and farm helps users to manage farming in better and effective way
- Ecommerce module will help farmers to sell their products directly to the consumers hassle free

References

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Thanks!

ANY QUESTIONS?