SMART INDIA HACKATHON 2024

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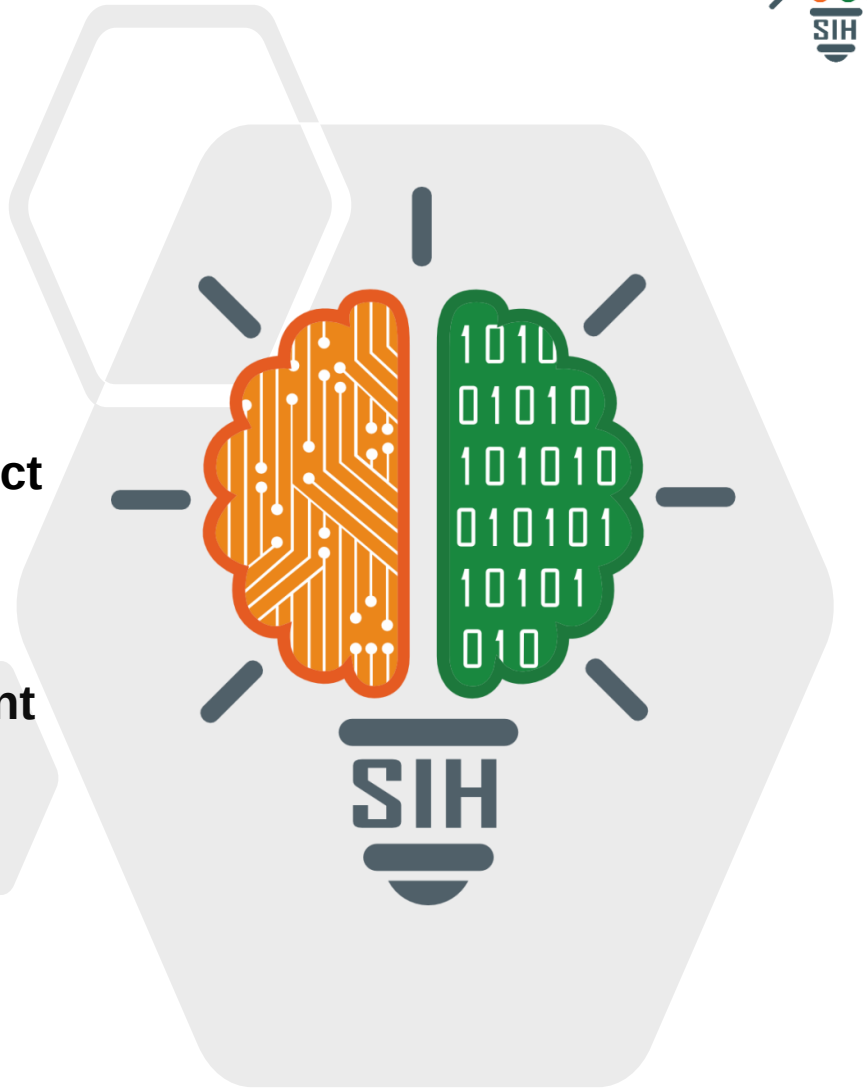


- **Problem Statement ID - 1637**
- **Problem Statement Title - Mobile App for Direct Market Access for Farmers**
- **Theme - Agriculture, FoodTech & Rural Development**
- **Team id -**
- **PS Category - Software**
- **Team Name - Agroconnect**

News Headline


INDIA TODAY

Maharashtra farmers say unable to sell cotton due to falling prices

Farmers from Babhulgaon in Yavatmal, Maharashtra, have said that they have been unable to sell cotton since last year due to declining prices.

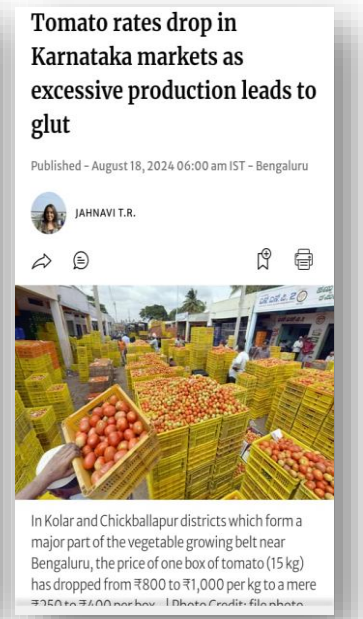
Cotton farmer Prakash Madhukar Gawande said he cultivates cotton in his 15 acre land. (Picture: India Today)


Centre setting up e-marketplace for direct farmers-consumers contact

Updated - March 08, 2024 at 09:56 PM. | Bengaluru

ICAR arm ATARI in Bengaluru developing Kisankart.online for launch in August this year

BY VISHWANATH KULKARNI


Tomato rates drop in Karnataka markets as excessive production leads to glut

Published - August 18, 2024 06:00 am IST - Bengaluru

JAHNAVI T.R.

In Kolar and Chickballapur districts which form a major part of the vegetable growing belt near Bengaluru, the price of one box of tomato (15 kg) has dropped from ₹800 to ₹1,000 per kg to a mere

Proposed Solutions

- We are developing a mobile application for **agripreneurship** that enables farmers to showcase their products, connect with stakeholders and buyers, and manage their product **listings directly**, thereby **eliminating the need for intermediaries**.
- Our app connects **key stakeholders**, including farmers, buyers, KVKs (Krishi Vigyan Kendra), FPOs (Farmer Producer Organizations), and APMCs (Agricultural Produce Market Committees), to enhance and expand the commodity network.
- The app offers modules such as **direct purchase**, **negotiation**, **auction**, **and aggregation**, enabling buyers to engage in product pricing consultations and access a diverse range of agricultural products.
- Our app integrates **third-party** local transportation services, enabling farmers to find **nearby delivery** options for transporting their products. Farmers can apply filters such as location, destination, and vehicle type to find the most suitable **transportation solutions** through our platform.
- Our solution enables buyer to select their **preferred language**, providing an optimized and personalized user experience. This **multi-language support** ensures that users from diverse linguistic backgrounds can easily access and utilize the application's features and content.
- The **advertisement module** helps the farmer to advertise their product which helps them to get the buyer for their product.

Objectives

- Develop a user-centric application for farmers to address challenges such as **weather-related damages**, **time inefficiencies**, and **high transportation** costs. The app will provide a comprehensive online platform that helps mitigate these issues effectively.
- Facilitate access **to affordable and diverse seed** varieties, including rare and heritage types, to enhance crop diversity and boost agricultural productivity.
- To empower farmers by enabling **direct compact with buyers**, bypassing **intermediaries and** associated fees. This approach ensures that farmers receive **fair compensation for** their products, maximizing their earnings while maintaining equitable pricing.
- **Market View** provide buyers and farmers with up-to-date information on product **pricing** while allowing them to adjust the market demands quickly.

Unique Features

- Provide Daily Market Price
- Price Negotiation
- Tree Renting
- Seed Trade
- Auction
- Transportation Facilitation
- Pre-Booking Options
- Secure Payments

Approach

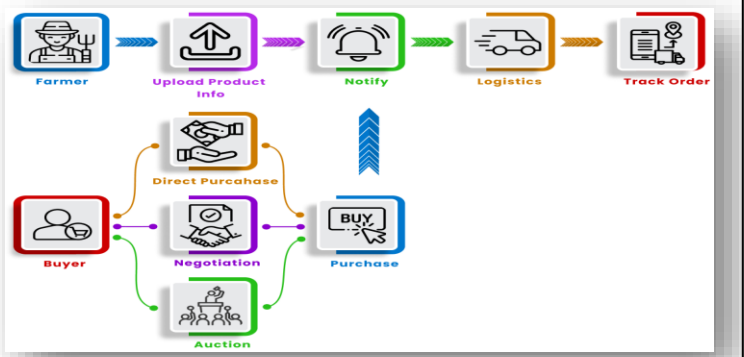


Figure 1.: Approach diagram

How we are facilitate selling through different Modules

Direct Purchase

The **Direct Purchase module** allows buyers to look through and sort items by **location, product type, and price range**. This module helps farmers by giving them access to **more markets** and boosting their sales. At the same time, it allows buyers **find the products** they want easily.

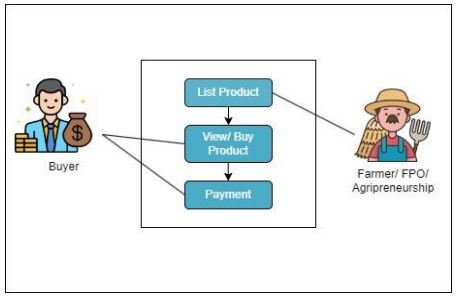
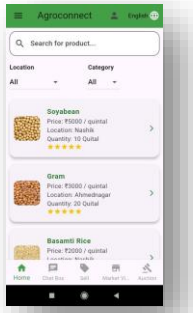


Figure 2.: Direct Purchase Diagram



Auction

The auction **module** lets farmers sell their crops through **physical and e-auction, video conferencing auction** allowing bidding in real-time. This system helps farmers get the **best prices** for their produce and depend less on middlemen. Buyers also benefit as they can access a **wide range of products** at affordable prices.

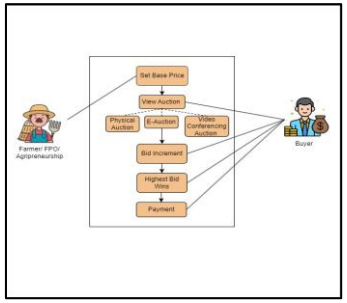
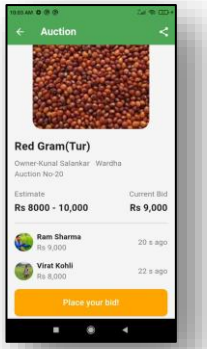


Figure 4:Auction Diagram



Negotiation

The **Negotiation module** gives buyers and sellers a way to talk about product prices through **chat and direct call**. This feature helps buyers and farmers get **better prices** by letting them talk to each other and have a fair deal.

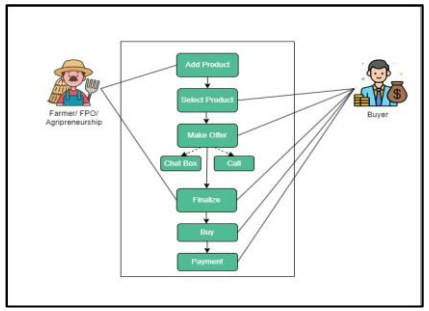
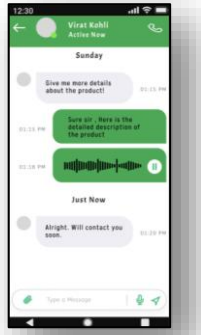


Figure 3:Negotiation Diagram



Subscription

Subscription services offer services of fresh vegetables and milk to the customer at the customer's door which helps the consumer to **save time**, **ensuring availability** and **providing convenience** to the buyer while farmers benefit from stable **demand**, **better planning**, **reduced wastage** of the farmer and also enables them to get the **higher profits** by **avoiding middlemen**

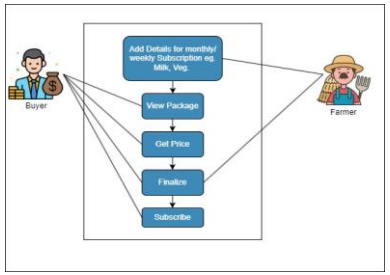
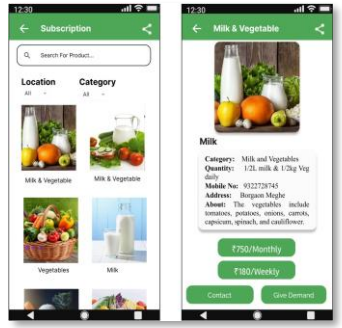


Figure 5: Subscription Diagram



Benefits to Farmer:

Dependencies

- Having a smartphone
- Internet connectivity
- User participation
- Payment Gateway

Potential Show Stoppers

- Trust and Security Concerns
- Logistics and Delivery Challenges
- Lack of Support Services

Sitemap

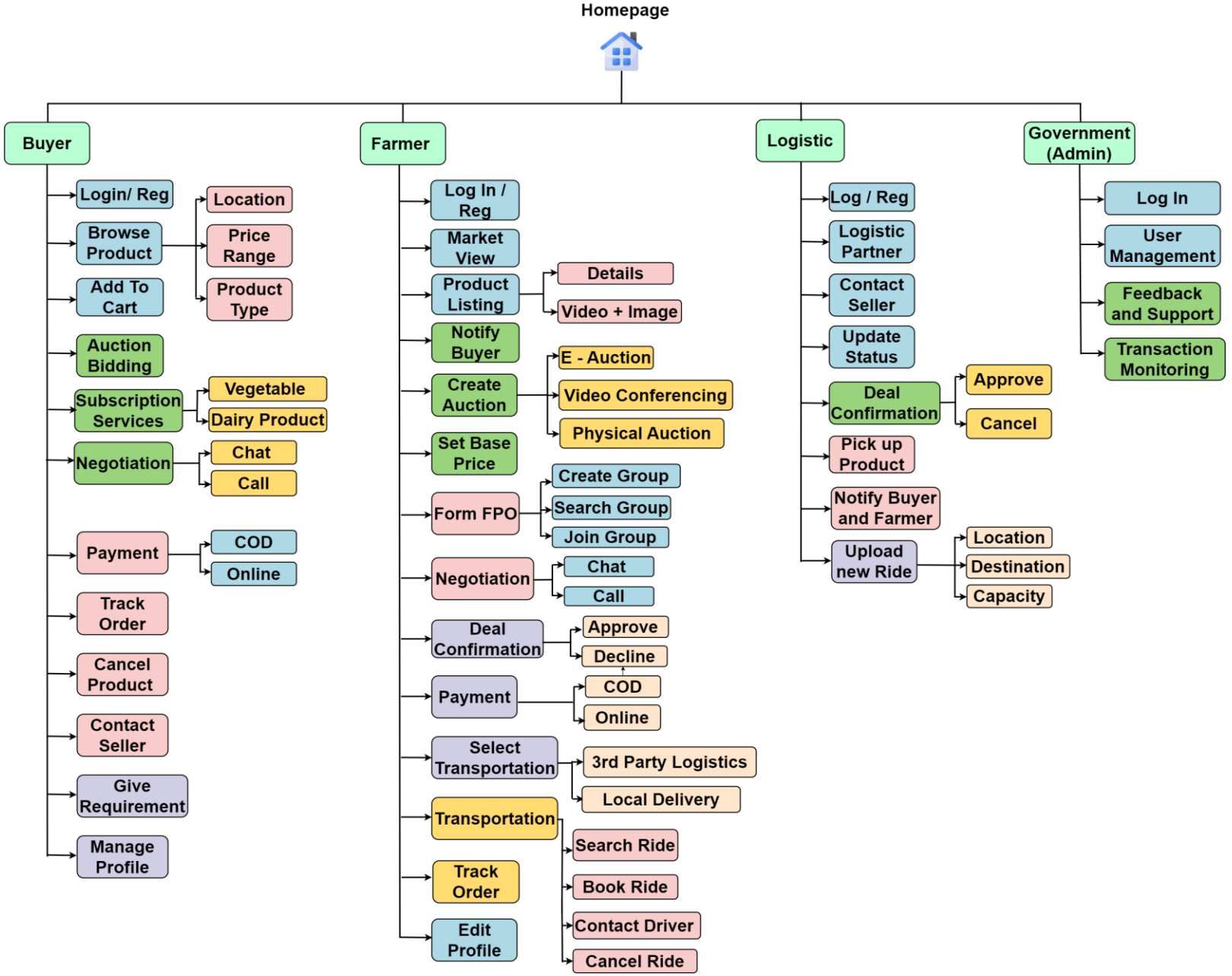
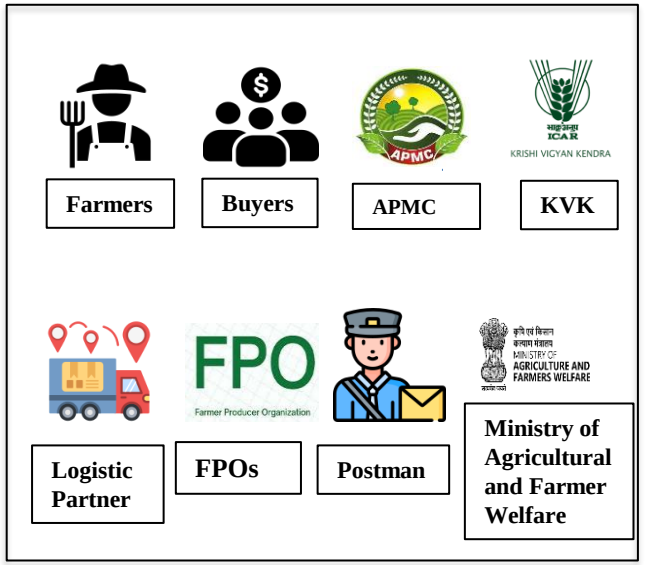
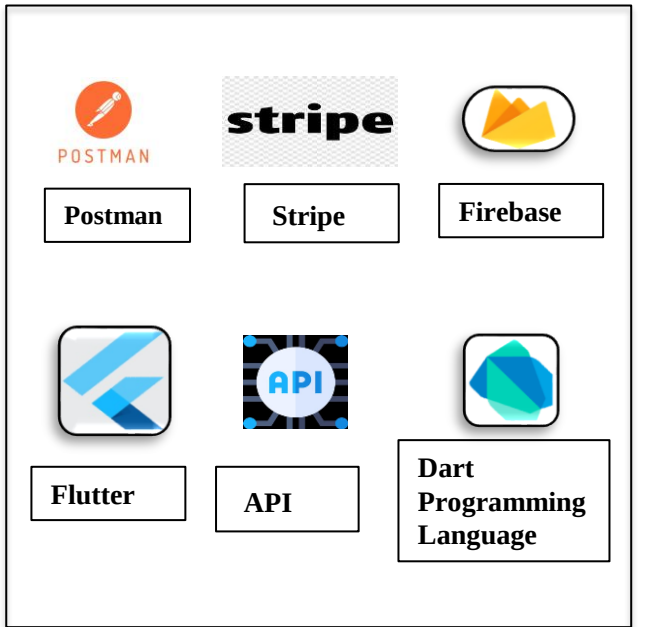


Figure 6:Sitemap

Stakeholder



Technology Stack



Logistic Integration: Why Agripreneurship / StartUp's had been failed

Local Transportation

We are integrating **local delivery suppliers** for transportation by allowing them to register and connect with farmers to deliver the produce so that farmers choose vehicles according to **produce weight** and **reduce the cost of delivery** also helps local delivery suppliers to earn extra money. We are providing a **partial delivery supplier** option which helps farmers to book the required portion of the vehicle according to produce capacity which will be passing through the farmer location

Third–party Logistics

We are facilitating farmers with third-party services. It associates services from different **courier partners.** Through third-party services, user can distinguish between various shipping rates, and delivery times and can opt for the best option according to their needs. Its features include wide rich across the country, even small villages are covered. **Real-time order tracing** caters to transparency.

Aggregation

The **aggregation** process helps minimize risk and enhance the living standards of small farmers, combining them into **FPOs** by the village with 15 to 20 members. These farmers can aggregate at places like **APMC godowns** for weighing and quality testing, and then for selling or auctioning the produce in bulk. This strategy also reduces the **overall transport** costs since local services can combine delivery requests from the same route to a **single dispatch**.

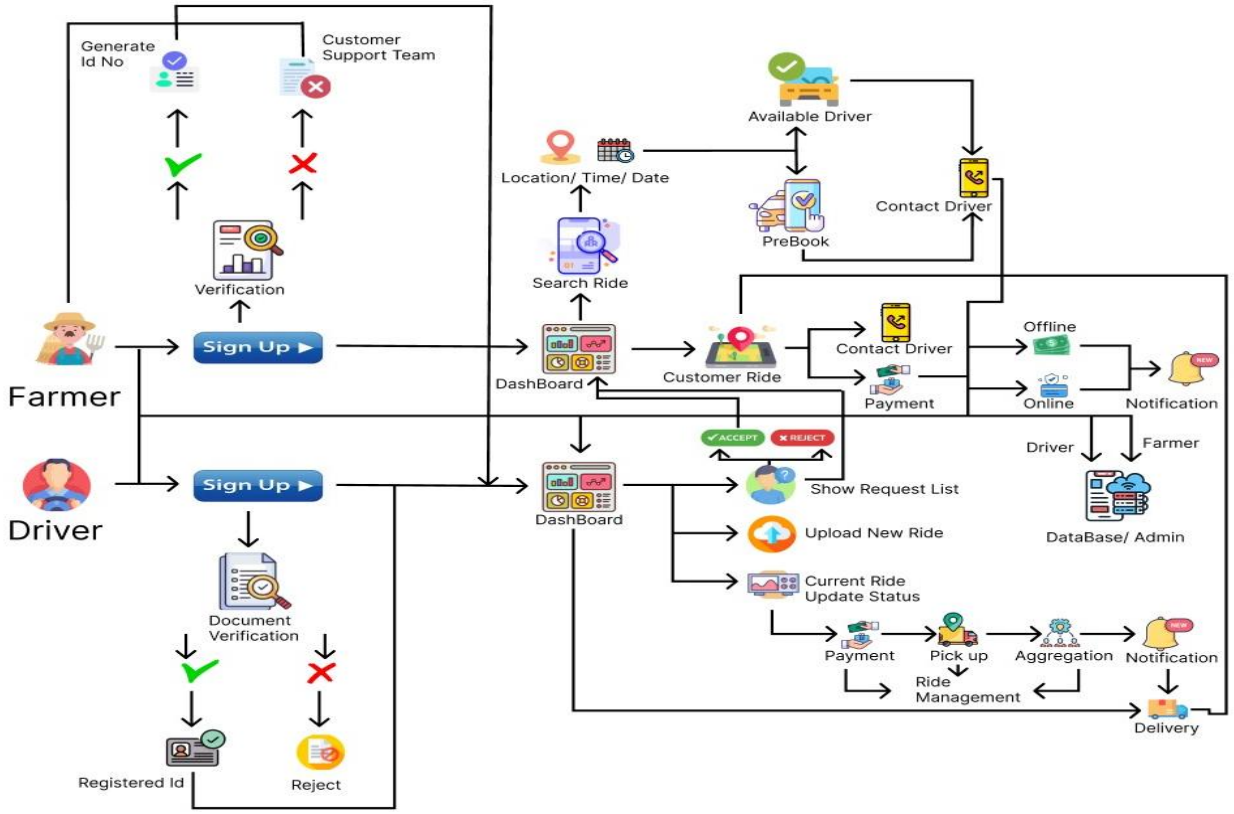
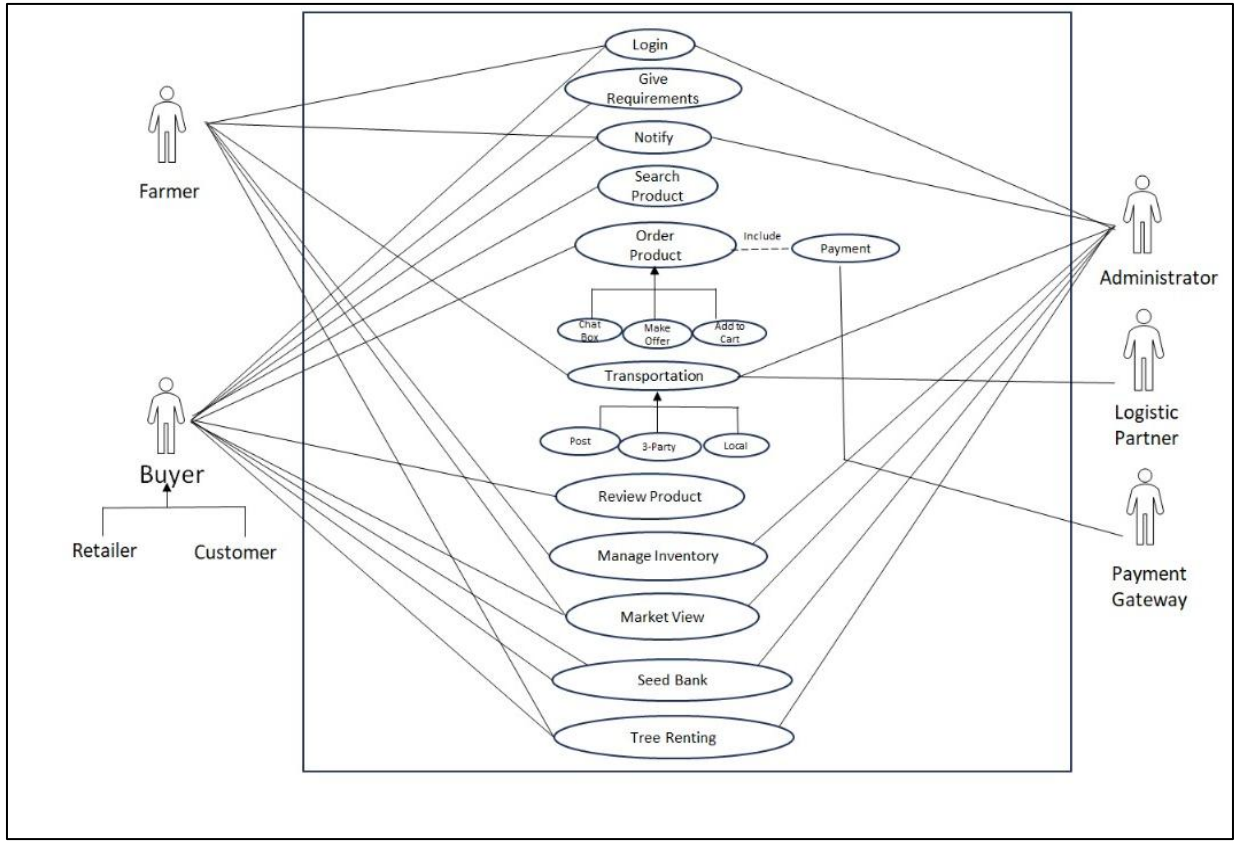


Figure 7:Transportation

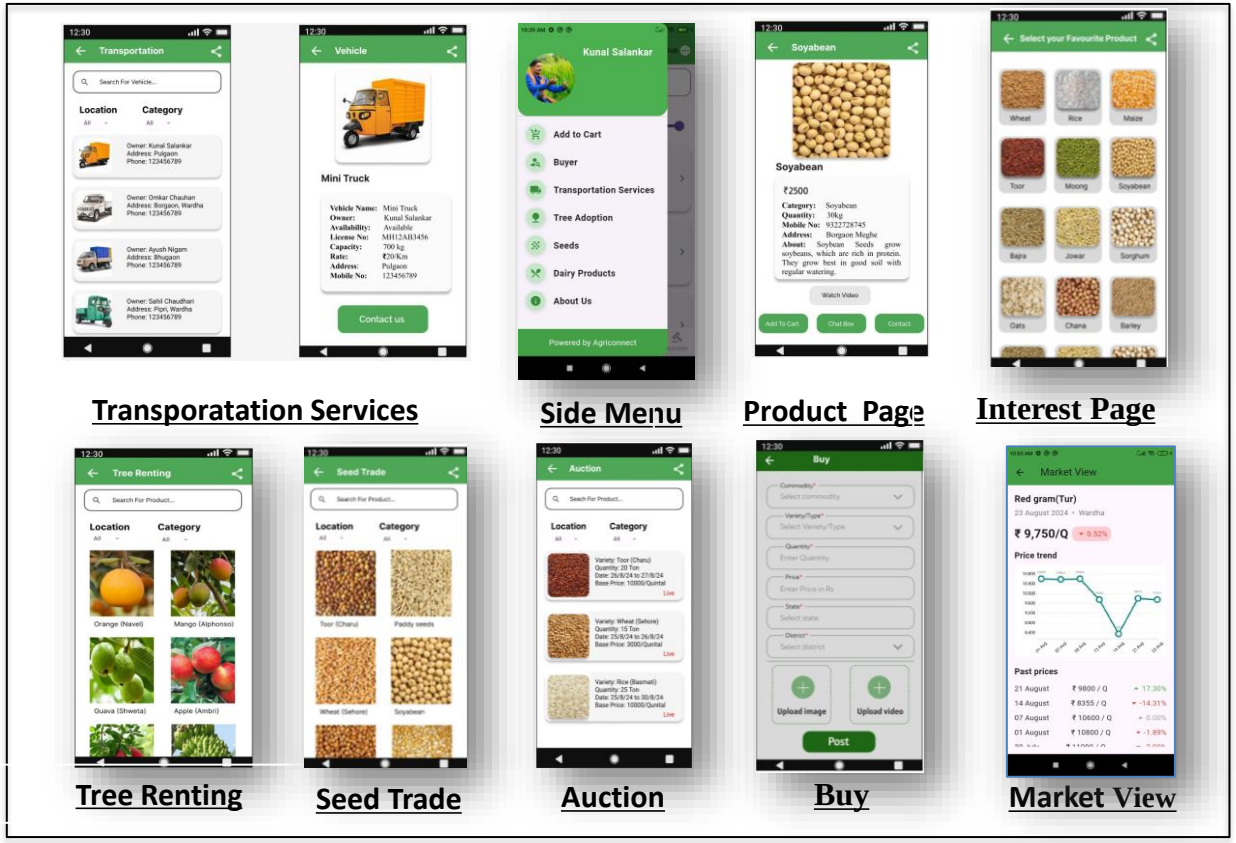
Competitive Analysis

Feature/Criteria	AgroConnect (Our app)	AgriBazaar	AgriMarket	eNAM
Products Available	Wide range of fresh produce, grains, seeds, dairy, and organic products	Limited crops (focus on grains and vegetable)	Limited to seeds, fertilizers, and farming equipment	Broad agricultural commodities but less focus on perishables
Direct Farmer-Consumer Connection	Yes (enables direct sales)	Yes (enable direct sales)	Limited (connects via middlemen)	No (auction-based, intermediaries involved)
User Interface	Multilingual and user-friendly	Basic (less focus on multilingual or non-tech-savvy users)	Moderate (improves but lacks user-friendly features)	Complex (designed for market traders, less consumer-friendly)
Delivery Options	Flexible (includes pre-ordering, partial supplier feature)	No (no integrated delivery options)	Standard (requires farmer-managed logistics)	Limited (dependent on local APMC infrastructure)
Daily Market Trends	Yes (advanced analytics for market trends)	Limited (basic market information only)	Limited (basic price trends)	No (focuses on transactional data only)

Use-case Diagram



Snapshots



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[2] **Goyal**, Aparajita. "Information, direct access to farmers, and rural market performance in central India." American Economic Journal: Applied Economics 2.3 (2010): 22-45.

[3] The Hindu Business Line, "Centre setting up e-marketplace for direct farmers-consumers contact", Apr 25, 2023.

[4] **Balkrishna**, Acharya, et al. "Virtual Farmers' Market: A Single-Step Solution to Sustainable Agriculture and Food Security." Sustainable Agriculture for Food Security. Apple Academic Press, 2021. 345-370.

Conclusion

In this way, our solution aligns with the sustainable development goals of direct market access for farmers, better economic well-being, and sustainable livelihood through fair pricing with reduced costs, while also empowering farmers with greater control over their sales and fostering a more transparent market environment.

Seed Trade:

- In the seed trade, farmers can directly purchase seeds from others. This eliminates bogus seeds and offers auctions like direct purchasing**, auctions,** followed by payment, and shipping.

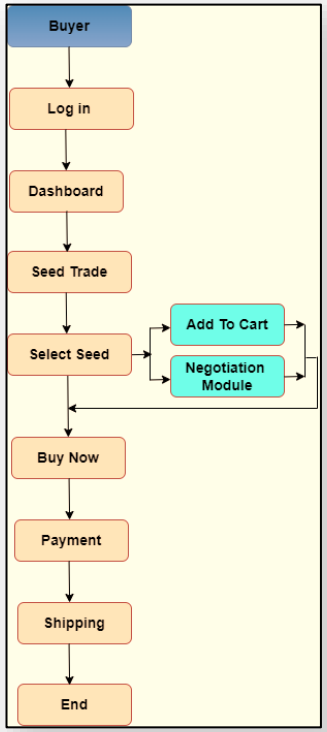


Fig.5. Seed Trade

Tree Renting:

- One of the features of our agriculture app is the ability to avail trees for use by consumers in the use of the produce such as **fruits** while at the same time supporting sustainable agriculture by engaging the consumer directly in the farming process as well as providing extra sales point for local farmers.

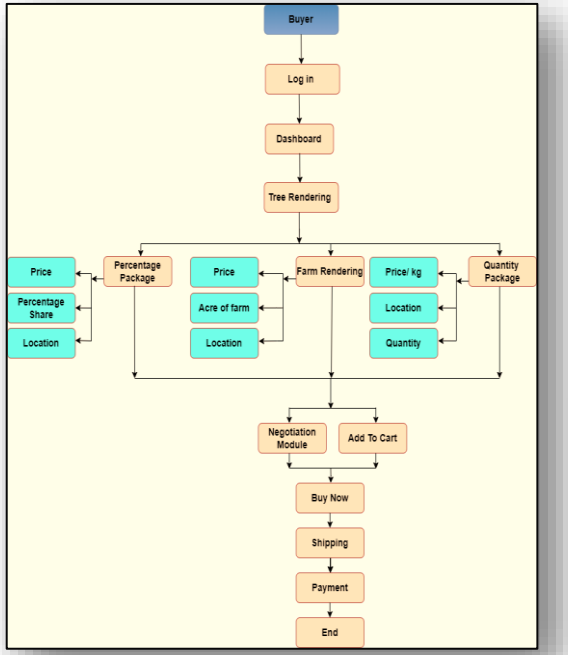


Fig.6. Tree Rendering

Future Scope

1.Predictive Analytics for Market Demand

2.Real-time Quality and Grading System

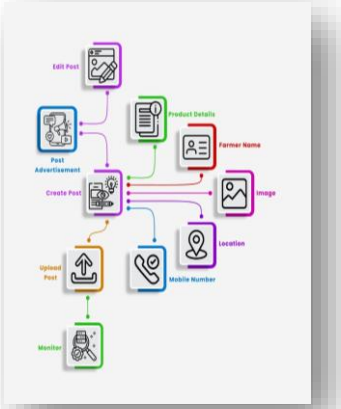
3.AI-Driven Personalization(AI Product Recommendation)

4.Blockchain-Based Traceability System

5.Farm Excess Sales Programs

Advertisement

The advertising section enables the farmers to post advertisements of their products which helps them to connect with potential buyers. An edit option is also available for farmers to provide flexibility to ensure that the posts remain relevant over time and allows the buyer to give requirement for there product.



Feasibility and Viability

Technical Feasibility:

Smartphones and Internet: Farmers are getting more access to smartphones because of cheaper devices and data plans, and better internet in rural areas.

Multi-Language Support: You can easily add different languages to your app using tools in programming frameworks like Flutter.

Transportation Integration: You can link your app to third-party logistics websites for big transport needs and allow local transport options by letting transporters sign up. Farmers can choose transportation based on their needs, feasibility can be accessible by those factors .

Economic Feasibility:

Initial Setup Costs: Can be drop because of availability of free or low-cost frameworks and cloud services (like Firebase) can keep costs manageable.

Trust and Security Concerns: Addressable by integrating with a secure payment gateway to alleviate concerns about fraud.

Economies of Scale: Can be achieve by available aggregation feature enabling farmer for better price negotiations, reduced per-unit costs, and access to larger markets.

Awareness about government schemes: Possible by providing farmers with the list of government schemes for which they are eligible and information about schemes.

Potential Challenges and Risk

- Digital Literacy and Adoption by Farmers
- High Transportation Costs
- Price Volatility and Market Fluctuations
- Lack of Trust Between Farmers and Buyers

Viability/Strategy to Overcome the above Challenges

- User-Friendly Interface/Onboarding Support
- Partnerships with Local Transporters
- Transparent Pricing Mechanism
- Interactive development and feedback