CODECELL - CMPN, VESIT

SYRUS HACKATHON 2025

Category Code: C1

Problem Statement Title: KrishiConnect: AI-Powered Smart Marketplace for Indian Farmers

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Idea / Approach details

Problem:

- Farmers receive only 33-50% of consumer price due to middlemen exploitation.
- 30-40% post-harvest losses due to poor cold storage/logistics.
- No AI-driven, multilingual platform tailored for Indian farmers.

Solution:

- Direct Farmer-to-Consumer AI Marketplace eliminating middlemen.
- Dynamic Pricing using real-time mandi data & demand trends.
- Voice-First Accessibility in 8 Indian languages.

Target Audience:

- Small/mid-scale farmers & rural cooperatives.
- Urban consumers & bulk buyers (wholesalers/exporters).

implemented features

1. **AI Crop Recommendation**
   - Analyzes soil, weather, and historical market data to suggest high-profit crops.
   - Predicts optimal harvest timing and pricing.
2. **Bulk Buy & Negotiation**
   - Farmers set price floors; bulk buyers negotiate via AI-assisted bidding.
   - Automated order allocation based on stock availability.
3. **Farmer Training Module**
   - Voice-based tutorials on farming best practices.
   - WhatsApp chatbot for real-time expert advice.
4. **Hybrid Logistics**
   - Cold-storage mapping with real-time capacity tracking.
   - Hybrid delivery: farmer-led + third-party logistics (Dunzo/Shadowfax).

Innovation & Technologies used

AI-Powered Agricultural Ecosystem:
In India's agricultural landscape, farmers typically receive only **33-50% of the final consumer price** due to multiple intermediaries. KrishiConnect revolutionizes this system by creating a **direct marketplace powered by advanced AI**.

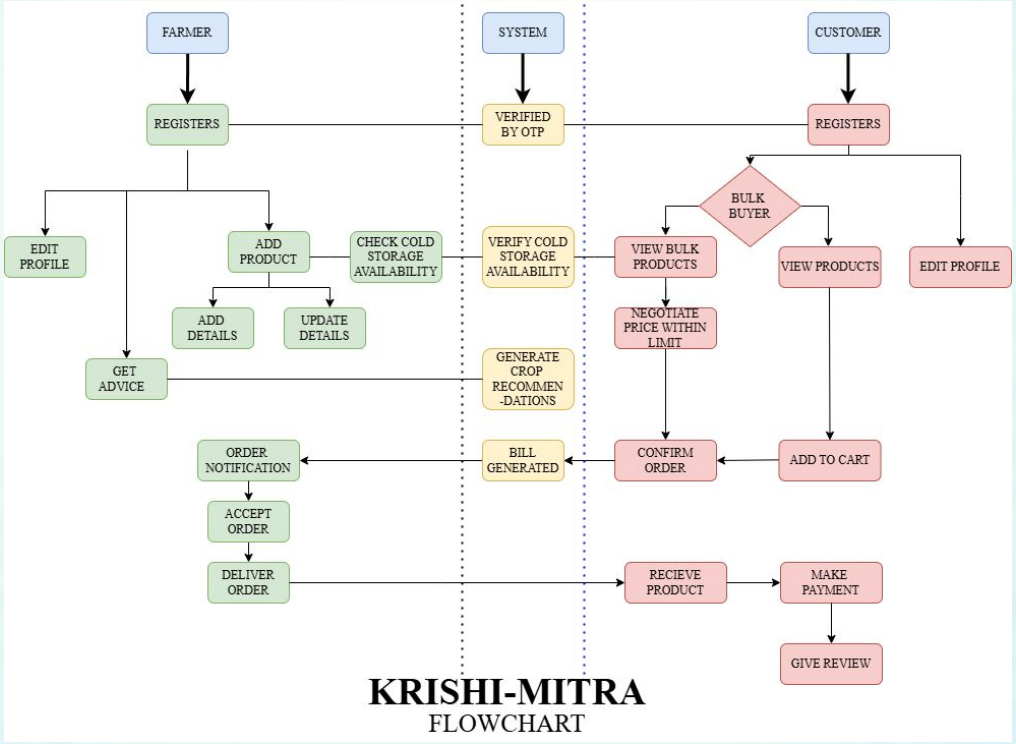
Smart Crop Recommendation:

- Predictive analytics to forecast market trends and pricing
- **Historical pricing** data will inform farmers about optimal selling times based on **3-5 year patterns.**
- **AI Fair Price Corridor:** Prevents exploitation during market volatility.

Tech Stack:

- **Frontend:** React + Tailwind CSS (low-bandwidth optimization).
- **Backend:** Node.js + Firebase (real-time updates).
- **AI/ML:** TensorFlow (crop recommendations) + Hugging Face (NLP for voice).
- **APIs:** Google Maps (logistics) + DialogFlow (chatbot).

Flow diagram / Architecture



Demo video link:

AI Crop Recommendation : https://youtu.be/RKvJytfsF1Y

Payment Gateway: https://youtu.be/IJM45JDJntQ

Future Objectives

Enhanced AI Prediction Models:

- Implement advanced weather impact analysis on pricing
- Create predictive models for optimal harvest timing

Marketplace Expansion:

- Integrate with international export platforms
- Develop specialized categories for organic and specialty crops
- Direct B2B deals with international Agri-corps.

Agricultural Ecosystem Transformation:

- Creating a self-sustaining, tech-enabled agricultural economy

Farmer Financial Empowerment:

- Increasing farmer income by 40-60% through direct market access
- Reducing post-harvest losses by 30-50%