

Project Title:

KRISHISAARTHI

TEAM NO: 15

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Project Details:

KrishiSaarthi is a unified digital ecosystem designed to support farmers from farm to finance using Artificial Intelligence and Blockchain technologies. The platform integrates crop disease detection, personalized business advisory, and a blockchain-backed green credit marketplace.

Problem Statement:

Farmers face multiple interconnected challenges including delayed disease diagnosis, lack of financial planning after land acquisition compensation, and absence of incentives for sustainable agricultural practices. These issues collectively result in yield loss, economic instability, and environmental degradation.

Need of Project:

Existing solutions focus on isolated problems such as crop advisory or finance, but fail to address the farmer's holistic ecosystem. There is a critical need for a platform that provides personalized crop diagnostics, guides financial decision-making, and monetizes sustainable actions.

Proposed Solution:

KrishiSaarthi provides an AI-powered crop disease detection system, a data-driven business advisory model, and a blockchain-based green credit system. Together, these modules empower farmers with actionable insights, financial stability, and incentives for sustainable practices.

Technology Used:

- Convolutional Neural Networks (CNN)
- TensorFlow
- Image Processing (OpenCV)
- Blockchain (Ethereum, Smart Contracts)
- Firebase (Hosting & Authentication)
- Web Technologies (React, Node.js)

Project Outcomes:

- Enabled real-time AI-based crop disease detection with actionable treatment guidance.
- Provided personalized business advisory to convert farmer capital into sustainable income.
- Implemented a blockchain-backed Green Credit system to reward verified eco-friendly practices.
- Developed a live, multi-role platform for farmers, validators, and buyers.
- Successfully deployed a working proof-of-concept demonstrating scalability and real-world impact.

Modelling:

The system consists of three major modules:

1. AI Crop Disease Detection – Farmers upload crop images which are processed using CNN models to identify diseases and recommend treatments.
2. Business Advisory Model – Uses farmer inputs such as capital, land, skills, and market access to recommend high-ROI and sustainable business models.
3. Green Credit System – Farmers upload proof of eco-friendly activities which are verified by validators and rewarded as blockchain-backed credits.

The steps can be visualized by seeing the below block diagram:

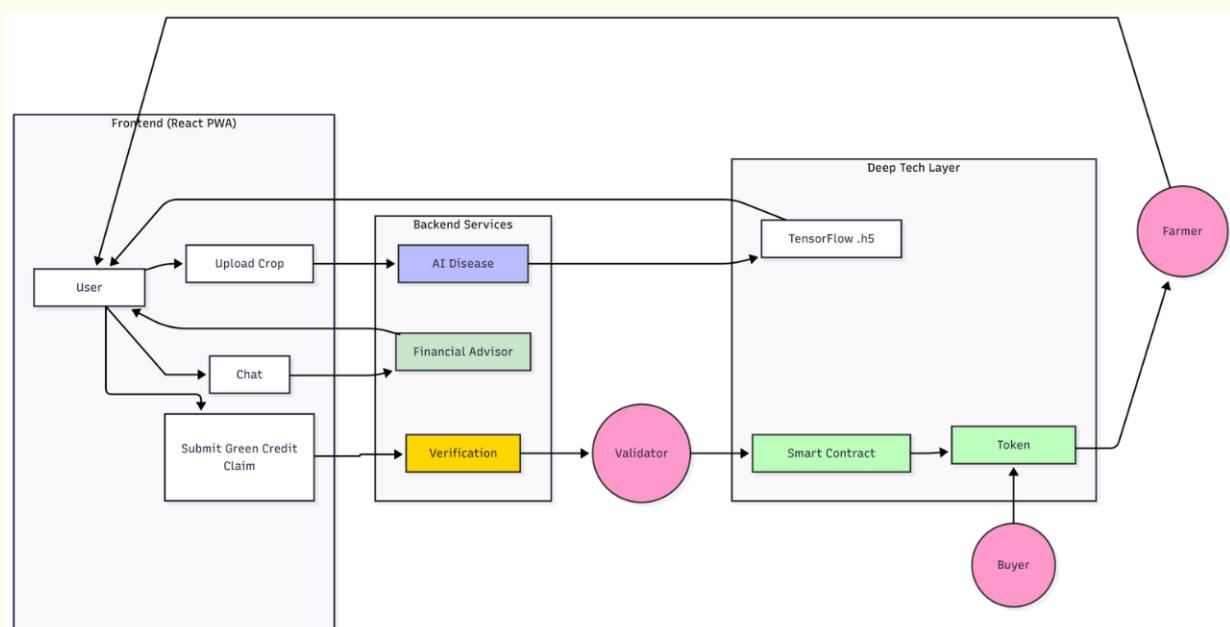


Figure 1: Project Workflow

Results:

The system successfully demonstrates real-time disease detection, advisory recommendations, and a working green credit marketplace. A live prototype is deployed and accessible via web.

WEBSITE LINK: [KrishiSaarthi - Empowering Farmers](#)

YOUTUBE DEMO: [Video Demo](#)

GITHUB REPOSITORY: [GitHub Repo Link](#)

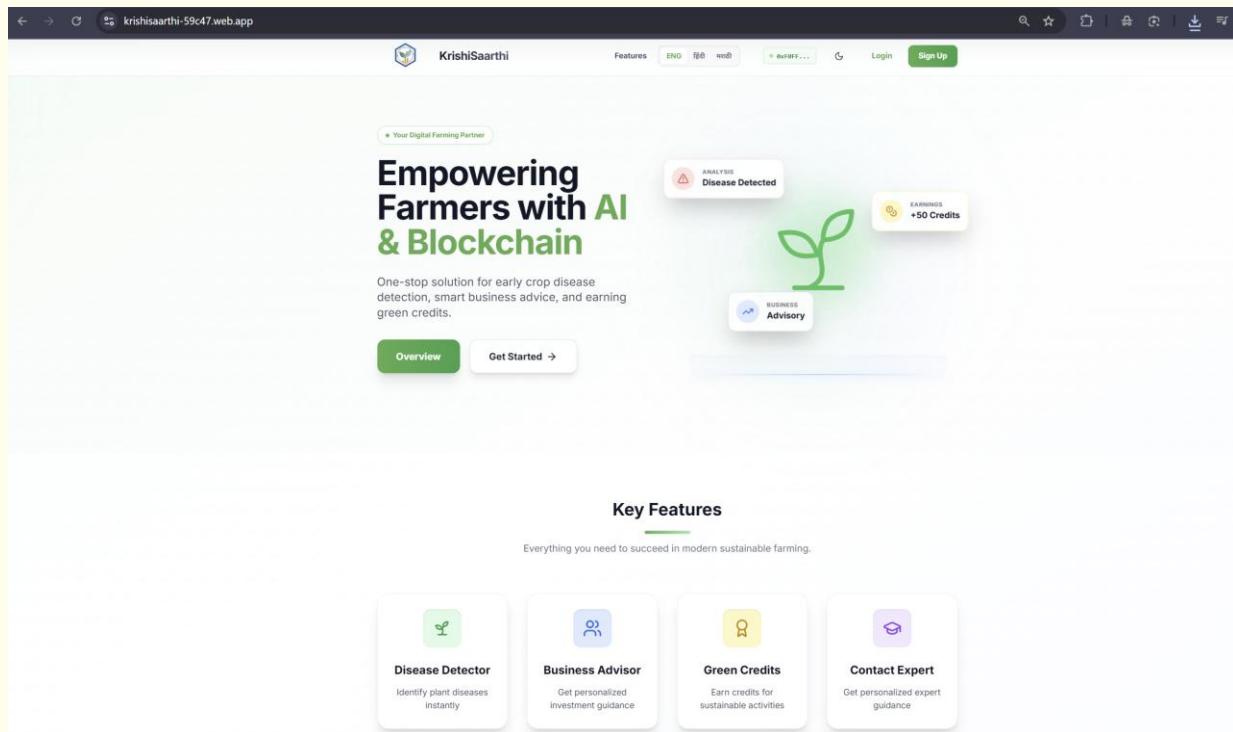


Figure 2:Landing Page

The screenshots illustrate the user interface for inputting resources and exploring business opportunities.

- Tell us about your resources:** A form asking for budget (₹20k), land (4 acres), water source (Borewell), and experience (10 years). It also lists interests in various farming types like Dairy Farming, Fodder, Greenhouse Farming, Soil Farming, Sheep Rearing, Farmacy, and Mushroom Cultivation.
- Recommended Businesses:** Three cards are shown:
 - DAIRY FARMING (6-8 COW UNIT)**: 90% Match. This card details a business matching existing skills in dairy farming, requiring Land and Capital, with an investment of ₹10L - ₹13L and a profit of ₹20k - ₹40k.
 - GOAT MILK FARMING (20-25 MILCH GOATS UNIT)**: 85% Match. This card leverages existing goat farming experience, requiring Land and Capital, with an investment of ₹6.5L - ₹9.5L and a profit of ₹30k - ₹60k.
 - COW DUNG ORGANIC MANURE & BIO-INPUTS**: 80% Match. This card utilizes existing cow dung assets, requiring Land and Capital, with an investment of ₹1.2L - ₹2.5L and a profit of ₹15k - ₹35k.
- Business Advisory Detail:** A card for "DAIRY FARMING (6-8 COW UNIT)" provides a basic idea (rearing milk cows for daily milk), requirements (Local Milkman), location (Uruli Dewachi, Hadapsar, Pune), land requirement (4,000 - 6,000 sq ft), and investment breakdown (Total: ₹10 lakh - ₹13 lakh, Purchase of 6-8 crossbred cows, Cattle shed construction, Equipment and initial feed).

Figure 3:Business Advisory

Disease Detector
Identify plant diseases instantly

Northern Leaf Blight 100% Confidence

Detected in Corn (maize). Severity: High.
Detected high severity Northern Leaf Blight in Corn (maize).

Recommended Treatment

- Use resistant hybrids. Practice crop rotation and tillage to bury residue.
- Chemical: Foliar fungicides like Pyraclostrobin or Tebuconazole.

Prevention

- Keep area clean
- Use resistant varieties

Figure 4:Plant Disease Detection

Green Credit Marketplace
Invest in verified sustainable farming projects

ORGANIC FARMING

Tree Plantation Credit
Green Valley • Nashik, MH

| Quantity | 50 Credits |
|------------|------------------------|
| Eco Impact | 50kg CO ₂ e |
| Price | ₹1500 |

TREE PLANTATION

Water Conservation Credit
Blue River • Satara, MH

| Quantity | 120 Credits |
|------------|------------------------|
| Eco Impact | 50kg CO ₂ e |
| Price | ₹3600 |

WATER CONSERVATION

Figure 5:Trading Marketplace

Project Impact:

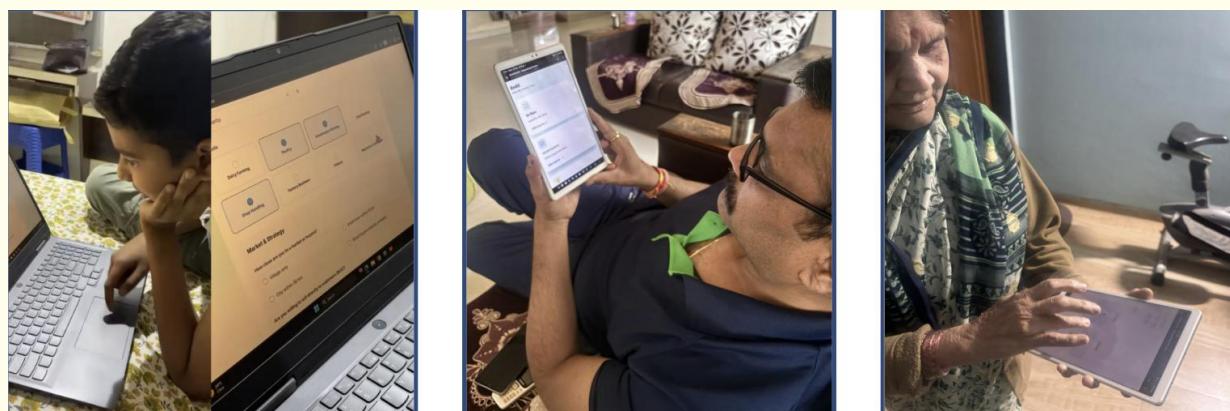


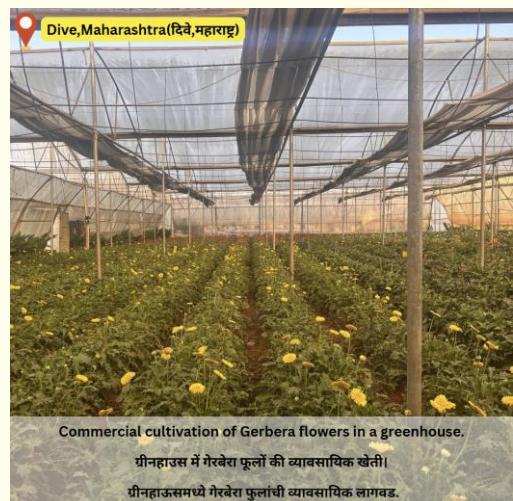
Figure 6:Different Age group of farmers and new generation trying our KrishiSaarthi

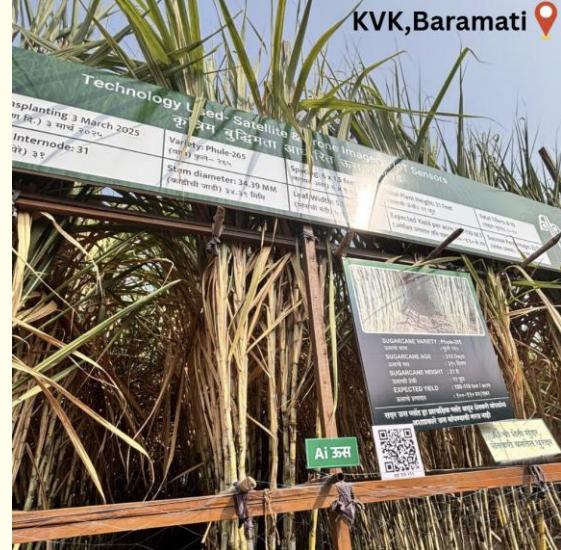
We tested our prototype with farmers across all age groups, including the next generation.

Next-gen was highly engaged with the Business Advisory feature, proving it as a standout differentiator.

Digitizing Green Credits into instant + monthly payouts received strong validation — users said they're ready to adopt it immediately, with real potential to empower farmers and transform livelihoods.

Our Research:





Future scope for project enhancement:

- Seamless farmer onboarding through password less blockchain access and identity abstraction.
- Nationwide expansion via government-linked carbon credit registries and compliance frameworks.
- Stable farmer incomes enabled by corporate-backed pricing and assured credit buy-backs.
- Partnering with Agri-businesses for training programs at reasonable costs.
- Gamified sustainability adoption driving long-term environmental engagement.
- Pan-India AI advisory coverage delivering crop-specific, region-aware intelligence.
- We aim to establish a specialized marketplace for high-value crops (e.g., strawberries, blackberries) by partnering with hospitals and 4-5 star hotels. This ensures guaranteed orders, encouraging farmers to adopt modern technology without the fear of market uncertainty or unsold produce.