

AI-Powered Personal Farming Assistant

Problem Statement :

Farmers often make critical decisions about irrigation, pest control, fertilizers, and harvesting with limited access to personalized and real-time information. Weather fluctuations, crop diseases, and soil conditions can significantly affect yield, yet most farmers rely on generic advice that does not consider their specific crop, region, or farming practices.

Additionally, many farmers are more comfortable communicating in their regional language and may prefer speaking rather than typing.

There is a need for a smart, personalized farming assistant that provides real-time insights, disease detection, and voice-based guidance in multiple languages —making advanced agricultural support accessible to every farmer.

Description :

FarmAI – Personal Farming Assistant is an AI-powered digital companion designed to support farmers throughout the crop lifecycle.

The platform creates a personalized profile during onboarding and continuously provides real-time insights based on crop type, location, and environmental conditions.

FarmAI helps farmers:

- Detect crop diseases from leaf images
- Monitor crop health
- Receive weather-based alerts
- Get personalized farming tips
- Interact using voice
- Access support in their preferred language

The goal is to combine simplicity, personalization, and accessibility into one intelligent farming solution.

Features :

1. Personalized Onboarding

- Collects farmer details (location, crop type, farm size, irrigation method, etc.)
 - Generates a customized crop profile
 - Creates a personalized crop health dashboard
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2. Crop Disease Detection

- Upload a leaf image
 - Identifies possible disease or deficiency
 - Provides treatment suggestions
 - Shows severity level
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3. Real-Time Weather Insights

- Location-based weather updates
 - Rain probability and temperature trends
 - Weather-based farming recommendations
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4. Smart Alerts & Notifications

- Irrigation reminders
 - Disease risk alerts
 - Weather warnings
 - Growth stage updates
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5. Crop Health Dashboard

- Overall crop health score
 - Risk indicators
 - Growth tracking
 - Activity history
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6. Multi-Language Support

- Supports multiple regional languages
 - Easy language switching
 - Simple and farmer-friendly communication
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7. Voice Assistant

- Farmers can ask questions using voice
 - Voice-based responses for better accessibility
 - Helpful for farmers who are less comfortable typing
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8. AI Farming Assistant (Chat Support)

- Ask farming-related questions
- Context-aware responses based on crop and location
- Simple and practical guidance

Tools :

Frontend:

- Next.js
- Tailwind CSS
- Recharts

Backend:

- Node.js
- MongoDB

Voice & Language:

- Browser Speech Recognition API
- Text-to-Speech API
- Multi-language support via AI model

Automation:

- Inngest

APIs:

- Weather API (location-based forecasts)
- Data.Gov.in API
- OpenAI API , Gemini API

Deployment:

- Vercel

