

AgriSathi: AI Powered Farming Advisor

Problem Statement

In India, many farmers don't get the right information on time about weather, soil, crops, and government schemes. Because of this, they face crop loss and less profit. Most information is in English or complex websites, which farmers find hard to understand. They need a simple, local-language solution that works like a personal farming guide.

Solution

My project AgriSathi is an AI-based farming assistant. It works like a chatbot where farmers can ask questions in their own language (Hindi, Marathi, etc.) and get answers in simple words. I used Retrieval-Augmented Generation (RAG), where the system searches agricultural datasets and then generates an answer. This helps reduce hallucination and keeps responses relevant.

Key Features

- Multilingual support – answers in local languages.
- Public dataset integration – IMD weather, soil health cards, agri market data.
- Offline-friendly option – SMS/WhatsApp support for farmers without internet.
- AI agent pipeline – RAG + LLM for reliable answers.

Tech Stack

- Backend: Python, FastAPI, HuggingFace Transformers, LangChain
- Frontend: React (planned for web app), WhatsApp/SMS adapter
- Database: Vector DB for embeddings (FAISS)
- Testing: Pytest
- Deployment: Can be extended to cloud (Azure/AWS)

Datasets Used

- IMD Weather Data (public)
- Soil Health Card Scheme (Govt of India)
- Agri Market Prices (data.gov.in)
- Farming best practices from govt portals

Challenges Faced

- Handling AI hallucination and making sure answers are fact-based.
- Collecting datasets in local languages.
- Designing a system that can work even with low internet or SMS.

Future Scope

- Full mobile app for Android with voice support.
- Adding more datasets like crop disease detection.

- Integration with government schemes and subsidy alerts.
- Expand to multiple states with regional languages.