

# AI for Bharat Hackathon

Powered by **aws**



Team Name : Team Agrinext

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Problem Statement : Limited access to real-time agronomy advice, language barriers in accessing government schemes, and lack of early crop disease detection for farmers in rural India.

**The Idea:** "KisanMitra GenAI" – A Multimodal, Vernacular AI Assistant for Indian Farmers.

**Description:** An intelligent WhatsApp-integrated chatbot powered by AWS Bedrock. It allows farmers to interact in their local dialect (voice or text), upload photos of crops to detect diseases instantly, and get simplified explanations of complex government schemes (MSPs, subsidies) personalized to their land holding.

## How different is it from existing ideas?

**Multimodal Capability:** Unlike text-only SMS services, we accept voice notes (for illiterate farmers) and images (for visual disease diagnosis).

**Context-Aware:** It remembers the farmer's location, soil type, and crop history to give specific advice, rather than generic weather alerts.

**Generative vs. Static:** Uses LLMs to generate answers from verified agricultural manuals rather than limited "menu-based" static responses.

## How will it solve the problem?

Bridge the Knowledge Gap: Democratizes access to expert-level agronomy advice 24/7 without waiting for a physical field visit.

Early Intervention: Detects pest attacks from photos immediately, preventing crop loss.

## USP (Unique Selling Proposition):

"Speak to your Farm": Zero-typing interface (Voice-first).

Powered by Amazon Bedrock for highly accurate vernacular translation (Hindi, Marathi, Tamil, etc.).

Works on low-bandwidth networks (using SMS fallback).

## List of Features

**Crop Doctor (Vision AI):** Upload a photo of a leaf; the AI identifies the disease (e.g., Rust, Blight) and suggests the exact dosage of remedies.

**Voice-to-Voice Vernacular Chat:** Farmers speak in their native tongue; the AI responds in audio.

**Scheme Simplifier:** Explains complex government PDF circulars in simple audio summaries.

**Mandi Price Predictor:** Analyzes historical data to suggest the best time to sell produce.

**Weather-based Action Plans:** Instead of just "Rain predicted," it says "Rain predicted, cover your harvested wheat immediately."

## Process flow diagram or Use-case diagram

Input: Farmer sends a voice note ("My tomato leaves are turning yellow") + Photo via WhatsApp/App.

Processing (AWS):

Amazon Transcribe converts Audio → Text.

Amazon Translate converts Local Language → English.

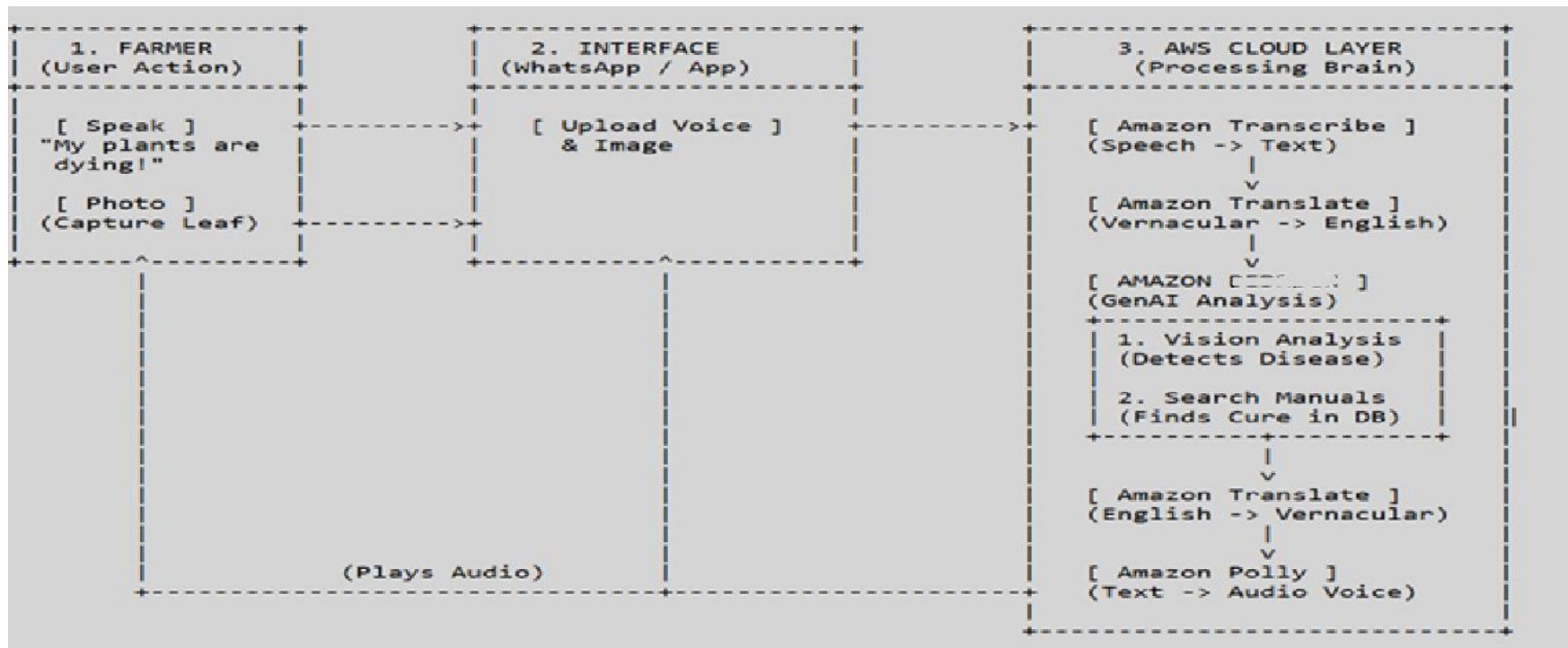
AWS Lambda sends the text + image to Amazon Bedrock (Claude 3.5 Sonnet).

Intelligence: Bedrock analyzes the image for disease and retrieves cure data from the Knowledge Base (RAG) containing agricultural university manuals.

Output: AI generates a response → Translated back to Local Language → Amazon Polly converts Text → Audio.

Delivery: Farmer receives a voice message with the solution.

## Wireframes/Mock diagrams of the proposed solution





## Architecture diagram of the proposed solution:

Frontend: Mobile App / WhatsApp Business API.

Entry Point: Amazon API Gateway.

Orchestration: AWS Lambda (Serverless Compute).

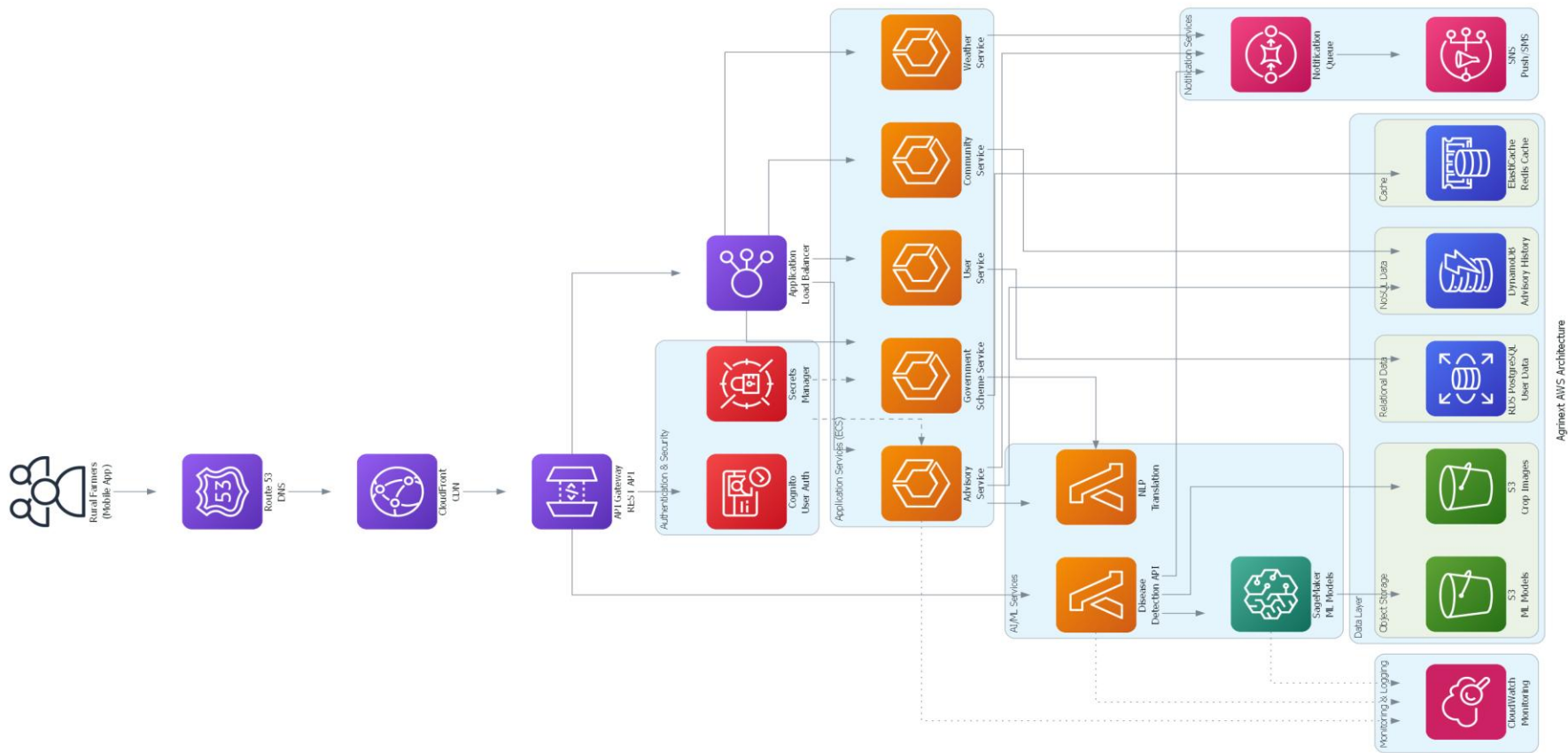
The Brain (GenAI):

Amazon Bedrock: Accessing Claude 3 (for reasoning) and Titan Multimodal Embeddings (for image analysis).

Knowledge Base: Amazon OpenSearch Serverless (stores PDFs of Govt Schemes & Farming techniques).

Storage: Amazon S3 (to store uploaded crop images) & Amazon DynamoDB (User profiles/History).

Notifications: Amazon SNS (SMS alerts).



## Technologies to be used in the solution:

Core AI Model: Amazon Bedrock (Claude 3.5 Sonnet, Amazon Titan).

Compute: AWS Lambda (Serverless).

Storage: Amazon S3, Amazon DynamoDB.

Database/Vector Store: Knowledge Bases for Amazon Bedrock (OpenSearch).

API Management: Amazon API Gateway.

DevOps: AWS Amplify (for hosting the web dashboard).

## Estimated implementation cost (optional):

Prototype Phase (Hackathon): \$0 - \$5 (Covered under AWS Free Tier & Bedrock trial credits)

Production Scale (per 10,000 users/month):

Bedrock Tokens: ~\$500 (Input/Output tokens).

Lambda/API Gateway: ~\$100.

Storage (S3/DynamoDB): ~\$50.

Total Estimated: ~\$650/month (approx. ₹54,000 INR).

Note: This is highly cost-effective compared to hiring physical agri-consultants.

## **Add as per the requirements for the hackathon:**

This solution is a game changer for Indian Agriculture.

This solution will innovate existing process further and will add on to the GDP if implemented successfully and in large scale.

