PlantSense

GFG VIT-AP HACKTOBER FEST

IN COLLOBRATION WITH CDC VIT-AP

Two Pookies

SOLUTION OVERVIEW

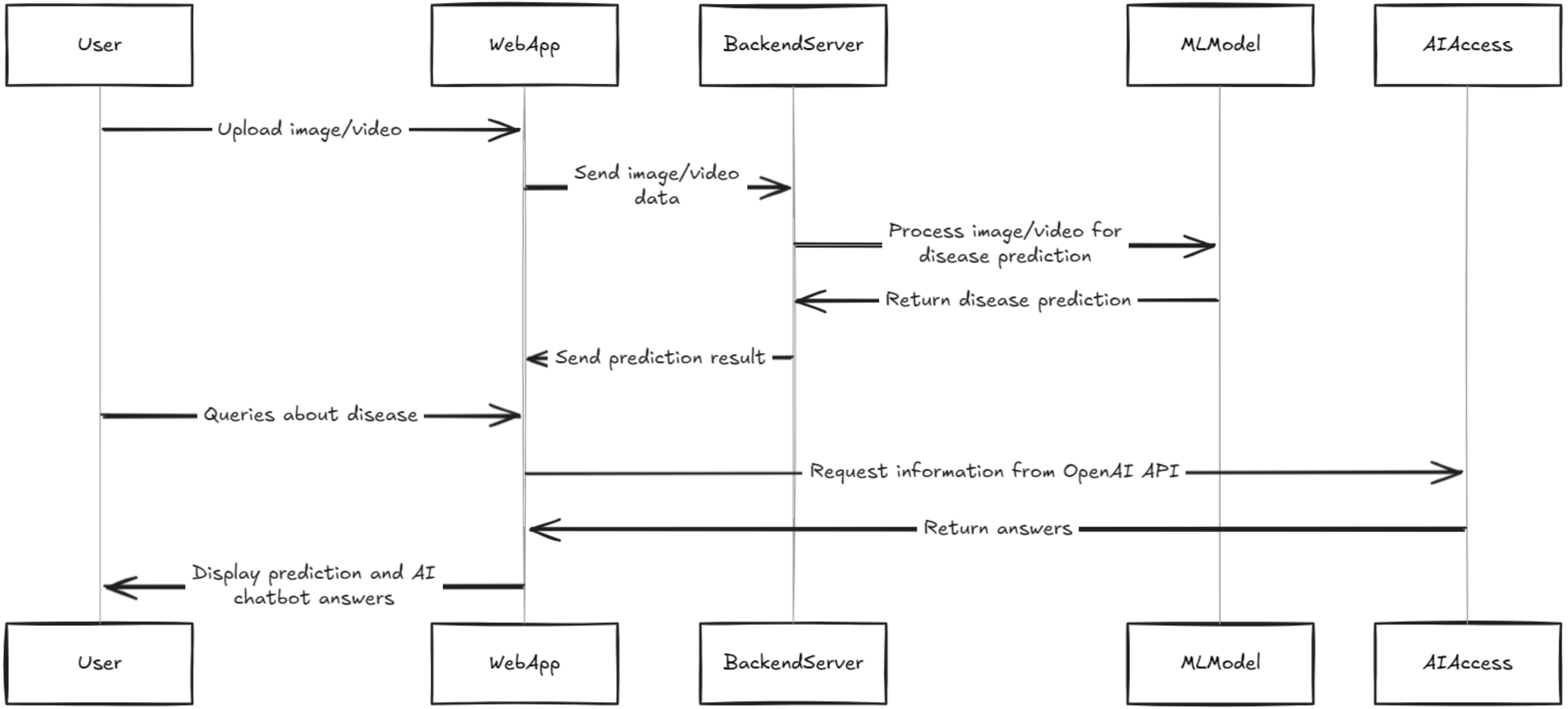
- **Our solution is a cloud-hosted web application designed to make plant disease diagnosis more accessible and affordable for farmers. Users can easily upload or capture plant images or videos, which are processed in real-time to provide accurate disease predictions. After the diagnosis, users can interact with an AI chatbot to receive detailed advice on treatments and preventive measures.**

- **Affordable**: Cloud infrastructure reduces costs for farmers**.**
- **Accessible**: Easy image/video upload from any device**.**
- **Fast:** Cloud-based processing ensures quick predictions.
- **Accurate:** AI provides reliable disease identification**.**
- **AI Chatbot Support:** Offers tailored advice on treatments.
- **Scalable:** Can handle many users simultaneously.
- **Impactful:** Helps farmers minimize crop loss and improve productivity.

TECHNICAL ARCHITECTURE

Tech stack

- **Frontend Technologies: React, Tailwind**
- **Backend Technologies: Python,Flask,FastAPI**
- **Database: Firebase**
- **Other Tools/Services: Yolov11, PyTorch, Ultralytics, AWS S3, OpenAI/Gemini**


User
WebApp
BackendServer
MLModel
AIAccess
Upload image/video
Send image/video data
Process image/video for disease prediction
Return disease prediction
Send prediction result
Queries about disease
Request information from OpenAI API
Return answers
Display prediction and AI chatbot answers
User
WebApp
BackendServer
MLModel
AIAccess

SCALABILITY AND FUTURE SCOPE

Handling Increased Load:

- **Cloud Infrastructure**: Our solution is hosted on scalable cloud platforms ; AWS ensures automatic scaling based on traffic demands.
- **Load Balancing**: Load balancers distribute traffic efficiently across multiple servers, ensuring optimal performance under heavy loads.
- **Auto-scaling**: As the number of users increases, auto-scaling mechanisms dynamically adjust the resources to maintain performance.

Architecture Considerations:

- **Microservices Architecture**: Each functionality (image processing, chatbot, database) is developed as a separate microservice, making it easier to scale individual components.

FEASIBILITY

Feasibility:
Technical Feasibility:
Cloud hosting makes the solution easy to scale and maintain.
AI Model:
Aiming for a model with high accuracy for curated plant disease detection.
AI Chatbot:
Using NLP models enables fast implementation of a knowledgeable chatbot.
Financial Feasibility:
Cloud services offer pay-as-you-go, making the platform cost-effective.
Cost Efficiency for Farmers:
Affordable service compared to traditional agricultural consultations.
Operational Costs:
Automation reduces the need for a large team, lowering operational expenses.

>Team Details

Anand Raja
23BCE8858

Atul Akella
23BEC7212

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Thanks for Joining