PlantPulse – Al-Powered Plant Health & Safety Assistant

Identify plants, detect toxicity, and receive Al-driven health recommendations instantly.



The Problem

Modern plant care faces challenges like identifying toxic plants, diagnosing diseases, and ensuring plant health.

- Farmers struggle to identify toxic or invasive plants affecting crop yields.
- Pet owners and households risk exposure to toxic plants.
- Plant diseases spread undetected, leading to major losses in agriculture.

Up to 40% of crop losses globally are due to plant diseases (FAO).

The Solution, PlantPulse Al

PlantPulse is an Al-Powered Plant Safety & Health Assistant that:

- → Uses computer vision and AI to identify plants.
- → Detects toxicity levels and provides health assessments.
- → Offers actionable care recommendations based on AI analysis.

It is built for farmers, gardeners, pet owners, and agritech companies.

How it Works

From Scan to Insights in Seconds

- 1. User Uploads a Plant Image \rightarrow Taken via camera or gallery.
- 2. Al Model Analyzes the Image \rightarrow Identifies plant species, checks for toxicity, health issues.
- 3. Data Cross-Check \rightarrow Matches results with a plant health database.
- 4. Instant Insights & Recommendations \rightarrow Displays plant name, toxicity risk, and care tips.

Tech Stacks Utilised

AI/ML: watson ai

Hosting: render

Backend: IBM cloud

Frontend: React + vite

Database: SQLite

Use cases and Impact

Who Benefits from PlantPulse?

- **Farmers** → **Protect crops from invasive/toxic plants.**
- **№** Pet Owners → Identify dangerous plants for pets.
- ****** Gardeners & Botanists → Quick plant ID & health insights.
- \blacksquare Agritech & Research \rightarrow Integrated plant health monitoring for agritech platforms.

Market Scope

Total Addressable Market (TAM): The global smart agriculture market is valued at over \$18 billion and expected to grow as precision farming becomes more widespread.

Serviceable Addressable Market (SAM): The agritech AI market is projected to reach \$2.5 billion by 2028, with increasing adoption by medium and large-scale farms.

Serviceable Obtainable Market (SOM): Targeting agritech firms, greenhouse farmers, and individual users with an estimated market reach of \$500 million in the next 5 years.

Revenue Streams

B2B SaaS Model: Subscription-based API integration for agritech firms.

Freemium Model: Basic plant ID for free, premium AI insights for a fee.

Data Licensing: Providing plant health and agricultural insights to research institutions and agribusinesses.

Hardware Integration: Future expansion into Al-powered IoT sensors for smart greenhouses.

Future Roadmap

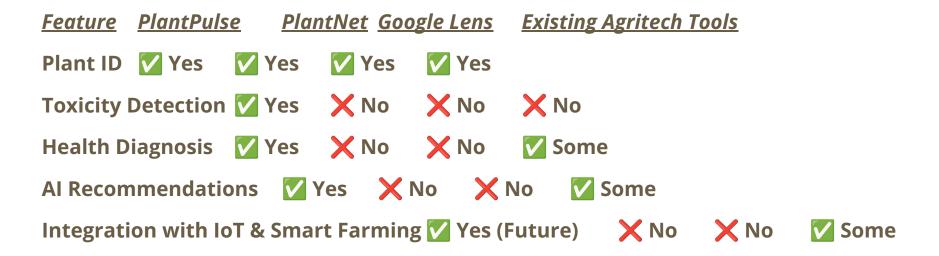
Future Roadmap - Integration with AgriGateFlow

PlantPulse is part of AgriGateFlow's long-term ecosystem, expanding into:

- ightharpoonup Automated greenhouse management ightharpoonup Integrating plant health data into AgriGateFlow's smart greenhouse system.
- **V** IoT Sensor Data Fusion → Combining AI image analysis with real-time IoT soil & air sensors.
- igwedge Predictive AI for Crop Management \rightarrow Detecting disease outbreaks early & automating interventions.

Competitive Analysis

What Sets PlantPulse Apart?



Future Enhancements

Scaling Beyond the Hackathon

- \blacksquare Expand Plant Database \rightarrow Improve AI accuracy with more species & toxicity insights.
- \blacksquare IoT Integration \rightarrow Pair AI vision with soil moisture & air sensors.
- \blacksquare Multi-Language Support \to Reach diverse farming communities globally.

Call to Action

Try PlantPulse & Join the Future of Smart Farming!

- Test the Demo application <a href=here
- View Our Code here on GitHub
- **§** Join Our Mission of climate and food sustainability by collaborating/partnering with us!

THANK YOU FOR YOUR ATTENTION

PLANTPULSE AI

Al-Powered plant health & safety assistant

By the AgriGetters

For IBM Granite Generative AI Hackathon via lablab.ai