🌾FarmGuardian – AI Crop Disease & Pest Detector (Offline)

FarmGuardian is an AI-powered mobile application built using Google's on-device multimodal **Gemma 3n** model that helps farmers detect crop diseases and pests in real time—even without an internet connection. It empowers rural farmers to make informed decisions, improve crop yield, and reduce pesticide misuse through AI-driven recommendations.

🦗Features

- 📷**AI Image Detection** of 30+ common crop diseases
- **Works Offline** – Fully on-device diagnosis using Gemma 3n
- **Multilingual Voice Guidance** for accessibility
- **Product Recommendations** (with affiliate/partner integration)
- 🎧**Crop Scan History** & Regional Trend Tracking
- 🎸 **Freemium & B2B Revenue Model** for monetization

How It Works

1. **Launch the App** → Tap "Scan Crop"
2. **Take a Photo** → AI model identifies disease or pest
3. **View Results** → Get name, severity, and treatment tips
4. **Hear Advice** → Voice assistant gives steps in native language
5. **Buy Input** → Option to buy pesticides/fertilizers (premium/affiliate)

💧 Business Model

Profit Strategies:

- 🎌Freemium App Model (Premium tools: voice guide, location alerts)
- B2B Partnerships with Agrochemical Companies
- 🪕 Government Schemes & CSR Collaborations
- 📷Anonymous Data Sales (opt-in only)
- Offline Bundles for Rural Villages

  "I also have innovative ideas for future modules such as AI-based irrigation alerts, soil health monitoring, and yield prediction, all designed to scale revenue and impact simultaneously."

🌳 Tech Stack

- Model: Google Gemma 3n (Vision)
- 🎂 Text-to-Speech: On-device multilingual engine
- Android (Java/Kotlin)
- 🧩 TensorFlow Lite for on-device inference

🍁 Demo Screens

- 🖼️ Smart image scanner interface
- Multilingual voice diagnosis (e.g., Hindi, English)
- Treatment suggestions with Buy links

🐵 Future Expansion Ideas

- 🪄 Soil Analysis Module
- 🏂 Crop Yield Forecasting
- AI-based Watering Schedules
- 🎴 Community Chat + Expert Advisor Mode

🦠 Project Setup (For Developers)

```
# Clone this repository
git clone https://github.com/yourusername/farmguardian.git

# Navigate to the project directory
cd farmguardian

# Open in Android Studio or your preferred IDE
```

🦤 License

MIT License. Free for educational and nonprofit use.

Contributing

Contributions are welcome! Please open an issue first to discuss your idea.

🦋Contact

Built with   by Aanya Soni. Connect with me for collaborations, partnerships, or hiring discussions.

Farm Smarter. Live Better. – FarmGuardian