Problem Background and Stats

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It is less known that many people consume commercially grown vegetables, which are mostly grown with the use of harmful chemicals and toxins. While there is an encouragement for people to utilize any available land for home gardening, most of them underrate the potential of small spaces in terms of yields. This little knowledge will lead them to fresh and safe produce and even economic opportunities that come from a surplus harvest.

**Benefits and Potential Impact**

Among the many advantages of home gardening are:

• Availability of safe and fresh food, which lessens dependency on potentially hazardous commercial produce.

• The possibility to make extra money by selling extra produce, which promotes economic self-sufficiency.   
  
• Support for sustainable living, since home gardens lessen the environmental impact of growing and distributing food.

Even on small plots, people can maximize their yields through effective land management, which has positive economic and health effects on both an individual and group level.

**Resource Requirements**

Hardware Requirements (Optional)

* Mobile Device: Compatible Android/iOS device with GPS, camera, and internet access for real-time data, location-based services, and alerts.
* Processor & RAM: Minimum of 2 GHz CPU and 2 GB RAM recommended for smooth operation, especially for AI processing.
* Storage: ~500MB for data caching, plant and weather databases, and offline access.

Software Requirements

1. Operating System: Android 9.0+ / iOS 13+.
2. Database: Local SQLite for offline data storage and caching.
3. Internet Connectivity: Necessary for real-time updates, such as weather, disease alerts, and market prices.

Technology Stack

1. Frontend:
   * Flutter or React Native for cross-platform mobile app development.
   * Map APIs for geolocation and mapping (e.g., Google Maps API).
   * Notification API for alerts and reminders (Firebase or iOS Push Notifications).
2. Backend:
   * Node.js with Express for API development.
   * Weather and Market APIs to integrate real-time data (e.g., OpenWeatherMap, AgriMarket APIs).
   * Machine Learning Frameworks: TensorFlow Lite or Core ML for AI-driven features like disease identification.
3. Database:
   * Firebase for real-time database support.
   * SQLite for offline storage and user history tracking.
4. Cloud Services:
   * AWS or Google Cloud for data storage, real-time analysis, and secure user data handling.