Kisan AI – Your Pocket Crop Doctor

Problem Statement

India has over 85% small and marginal farmers, who often:

- Don’t know their soil quality or crop health
- Use the wrong fertilizers or pesticides
- Can’t afford expert advice or lab testing
- Suffer from low productivity and income loss

Due to lack of knowledge and access to affordable solutions, these farmers are stuck in a cycle of poor yield, rising costs, and debt.

Problem Solution

Kisan AI is a mobile app that uses AI to help farmers check the health of their soil and crops by simply taking a photo.

The app:

- Detects diseases, pests, and soil issues from images
- Gives a health score and treatment suggestions (organic + chemical)
- Works offline and in local languages with voice support
- Recommends best practices and connects to government schemes

How Kisan AI helps:

1. Farmer opens the app and takes a picture of the crop/soil
2. AI scans the image and shows results like:
    - What problem is detected (e.g., nitrogen deficiency, fungal disease)
    - What to do (suggested fertilizer, natural remedy)
3. App also gives a Crop Health Score and prevention tips

Benefits:

- Helps farmers identify problems early
- Reduces chemical overuse and cost of farming
- Increases crop yield and income
- Easy to use — works on basic smartphones and in regional languages
- Supports Digital India, PM-KISAN, and Smart Agriculture goals

Key Features:

1. **Image-Based Crop Diagnosis**
   Farmers upload photos of crops/soil for instant health reports
2. **Crop Health Score & Soil Tips**
   Simple health score + suggestions for treatment and improvement
3. **Weather-Linked Alerts**
   Notifies users of upcoming rain/drought conditions (optional extension)
4. **Voice Support in Local Languages**
   App reads out tips and alerts in Telugu, Hindi, etc.
5. **Offline Mode**
   Works without internet using lightweight AI models
6. **Smart Recommendations**
   Personalized advice on fertilizers, irrigation, pest control (organic & chemical)
7. **Progress Tracker**
   Lets farmers track crop health and yields over time
8. **Government Scheme Suggestions**
   Connects users with PM-KISAN, soil health card, PMFBY, etc.

Technologies:

1. **Artificial Intelligence (AI) & Machine Learning (ML)**
   Image recognition to detect crop diseases, soil quality, and pest attacks
   Model training using plant pathology and agronomy datasets
2. **Mobile App Framework (e.g., Flutter / React Native)**
   Cross-platform mobile app development (Android-first focus)
3. **Computer Vision (OpenCV / TensorFlow Lite)**
   For analyzing plant and soil images directly on the device
4. **Voice Recognition & Text-to-Speech APIs**
   For regional language support and ease of use for illiterate farmers
5. **Offline Storage + Local AI Model Support**
   To work in low or no internet areas
6. **Cloud Backend (Firebase / AWS / GCP)**
   For syncing user data, pushing updates, and storing analysis logs (optional)

Block Diagram: