Basic Details of the Team and Problem Statement

Team Name: Codewith

Team Leader Name: Ankit Pal

Institute Name: Nitra Technical Campus Ghaziabad

Theme: Smart Agriculture

Problem Statement/Track: **Farmers can upload the photographs of disease affected plants/crops and solutions may be provided by experts linked to the app .**
Suggest the other Plants crop problemand solution by application.

Idea/Approach Details

Describe your idea/Solution/Prototype here:

' “Kishan sathi', a fully responsive and automated plant disease detection
Progressive Web Application and Application.

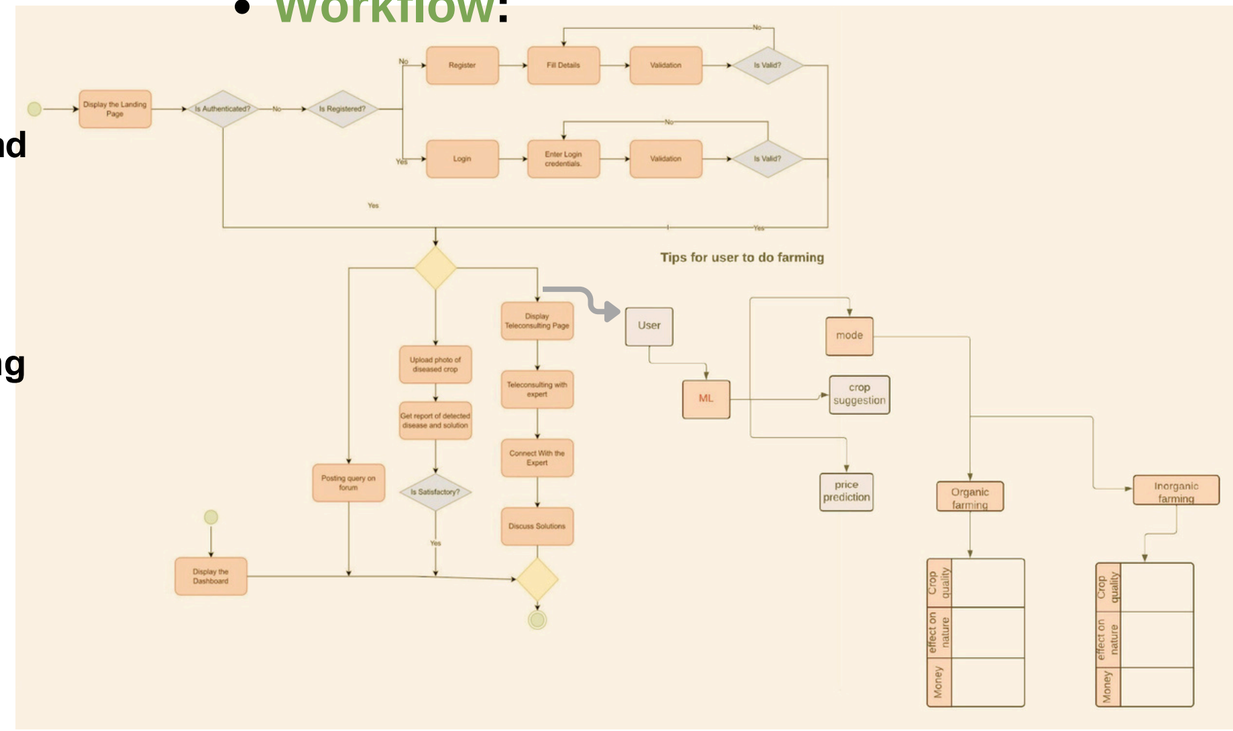
- Farmers need to upload a photo of the suspected diseased crop to our servers. A detailed report will be generated which will detect the presence of crop disease, predict the type of disease, and will also provide solutions for the same
- If required, farmers can verify the disease report from experts using our app's Teleconsulting feature.
- Text to speech feature for farmers.
- The collected data will help our system detect and predict plant/crop diseases with increasing accuracy by way of its self-learning and continuous improvement mechanism.
- The key features of our solution are:

(i) Language selection option (Indian regional languages)
(ii) Tracking of IP addresses to detect possible outbreaks and issuing alerts for the same
(iii) Prediction of upcoming outbreaks (over time, via self-learning)
(iv) A statistics dashboard with analytics
(v) A community forum for farmers
(vi) A chatbot for personal communication (alerts, updates, etc.)

Describe your Technology stack here:

Technology used	Purpose
React, Tailwind CSS, Material UI	Frontend Development
Flask, NodeJS	Backend Development
Selenium, Requests	Web Scraping for Data Collection (in addition to dataset)
OpenCV	Image Processing
PyTorch, Deep learning model (ResNet) Architecture.	Deep Learning Model Development
MongoDB, Redis	Database
Docker	Containerization
AWS/DigitalOcean	Hosting and Deployment
Nginx	Reverse Proxying and for authentication gateway

Workflow:



Idea/Approach Details

Describe your Use Cases here

- 'Kishna sathi ', a fully responsive and automated plant disease detection Progressive Web Application (PWA)
- Farmers need to upload a photo of the suspected diseased crop to our servers. A detailed report will be generated which will detect the presence of crop disease, predict the type of disease, and will also provide solutions for the same.
- If required, farmers can verify the disease report from experts using our app's Teleconsulting feature.
- Text to speech feature for farmers.
- The collected data will help our system detect and predict plant/crop diseases with increasing accuracy by way of its self-learning and continuous improvement mechanism.
- The key features of the project are:
- Our model suggests what kind of farming the former should do, which farming will give him more profit and tells what benefits and losses the former may incur if he does organic and inorganic farming
- Language selection option (Indian regional languages)
- Tracking of IP addresses to detect possible outbreaks and issuing alerts for the same
- Prediction of upcoming outbreaks (over time, via self-learning)
- A statistics dashboard with analytics
- A community forum for farmers
- A chatbot for personal communication (alerts, updates, etc.)

Describe your Dependencies / Show stopper here

1. **Photo Upload and Storage
   - **Dependencies: Reliable internet access, user-friendly interface, cloud storage.
   - **Show Stopper:Poor internet connectivity in rural areas could prevent farmers from uploading photos.
2.Image Processing and Classification**
   Dependencies:** Machine learning models, trained on a large dataset of plant disease images.
   Show Stopper:Lack of a comprehensive dataset to train the model could lead to inaccurate disease identification.
3.Expert Network
   Dependencies: A network of agricultural experts willing to participate, efficient communication tools.
   Show Stopper:** Difficulty in recruiting and coordinating experts might slow down the response time.
4. Solution Delivery**
   Dependencies:** Notification systems, translation services (if farmers and experts speak different languages).
   Show Stopper:** Delays in delivering solutions due to technical issues or language barriers could make the app less effective.

5.Feedback and Improvement**
   Dependencies:** Mechanisms for collecting user feedback, analytics tools to monitor app performance.
   Show Stopper:** Without continuous feedback and improvement, the app may fail to address user needs adequately and become obsolete.