



Fertilizer Recommendation System for Disease Prediction

Agriculture is the most important sector in today's life. Most plants are affected by a wide variety of bacterial and fungal diseases. Diseases on plants placed a major constraint on the production and a major threat to food security. Hence, early and accurate identification of plant diseases is essential to ensure high quantity and best quality. In recent years, the number of diseases on plants and the degree of harm caused has increased due to the variation in pathogen varieties, changes in cultivation methods, and inadequate plant protection techniques.

An automated system is introduced to identify different diseases on plants by checking the symptoms shown on the leaves of the plant. Deep learning techniques are used to identify the diseases and suggest the precautions that can be taken for those diseases.

- 15 minutes to prepare
- 30-60 minutes to collaborate
- 4 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

15 minutes



"How Might We" Questions

- How should we develop the disease prediction system?
- Is it based on an existing problem or insight?
- How might we increase awareness of the full product offerings?
- How might we make users feel confident they have all the information they need?
- How might we make our application more usable?



Setting the stage for creativity and inclusivity

Some brain storming rules followed are

- Encourage wild ideas** - If none of the ideas sound a bit ridiculous, then there is too much of filtering.
- Defer judgement** -This can be as direct as harsh words or as subtle as a condescending tone or talking over one another.
- Build on the ideas of others** - "I want to build on that idea" or the use of "yes, and..."
- Stay focused on the topic at hand**
- Have one conversation at a time**
- Be visual** - Draw and/or upload to show ideas, whenever possible
- Go for quantity**



Team Gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

1

Choose your best "How Might We" Questions

Share the top 5 brainstorm questions that you created and let the group determine where to begin by selecting one question to move forward with based on what seems to be the most promising for idea generation in the areas you are trying to impact.

10 minutes

QUESTION
How should we develop the disease prediction system?

QUESTION
Is it based on an existing problem or insight?

QUESTION
How might we increase awareness of the full product offerings?

QUESTION
How might we make users feel confident they have all the information they need?

QUESTION
How might we make our application more usable?

2

Brainstorm solo

Have each participant begin in the "solo brainstorm space" by silently brainstorming ideas and placing them into the template. This "silent-storming" avoids group-think and creates an inclusive environment for introverts and extroverts alike. Set a time limit. Encourage people to go for quantity.

10 minutes

Harini.R

Website for fertilizer Recommendation	Admin can view the recommended fertilizer	Interactive UI to upload images
Identify User preferences	Can create a smart chat bot to clear doubts	Automation resolution of low quality images

Snega.S

Provide location of the store where the fertilizer is available	Provide offers and discounts who use this application	Securing the data of the user
Pre-trained model for image classification based on the disease	Generating report for the suggested fertilizer	Providing information about how much fertilizer to use

Shalini.B

Build keras image classification model	Responsive and easy to interact UI	The application must be cross platform
Using minimal amount of hardware resources for prediction	Provide authorized person's suggestion along with the prediction	Get the field size as input to predict the amount of fertilizer to be bought

Meera.M

Get review with images of the healthy crops after the use of fertilizer	Employ several image processing algorithms	Setting dark mode and light mode for the application UI
Based on the type of soil suggest the diseases that the soil is prone to	Based on the crop suggest the diseases that the crop is prone to	Suggest fertilizer to prevent the relapse of the disease

3

Brainstorm as a group

Have everyone move their ideas into the "group sharing space" within the template and have the team silently read through them. As a team, sort and group them by thematic topics or similarities. Discuss and answer any questions that arise. Encourage "Yes, and..." and build on the ideas of other people along the way.

15 minutes

Provide location of the store where the fertilizer is available

Automation resolution of low quality images

Provide offers and discounts who use this application

Responsive and easy to interact UI

Generating report for the suggested fertilizer

Suggest fertilizer to prevent the relapse of the disease

4

Idea Prioritization

Jot down different ideas your team is interested in trying out. These could be different solutions, or different approaches to the same solution. As a team, go through the ideas in the Idea bank one by one and place them on the grid. Take the time to discuss each idea and come to a consensus on where it should go.

15 minutes

