

# Project Design Phase-I

## Proposed Solution

### Template

Date	14 October 2022
Team ID	PNT2022TMID41050
Project Name	Fertilizer Recommendation system for Disease Prediction
Maximum Marks	2 Marks

#### Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Mostly, the plant leaf diseases are caused by pathogens which are positioned on the stems of the plants. These different symptoms and diseases of leaves are predicted by different methods in image processing. These different methods include different fundamental processes like segmentation, feature extraction and classification and so on. Mostly, the prediction and diagnosis of leaf diseases are depending on these segmentations such as segmenting the healthy tissues from diseased tissues of leaves. Detection and recognition of plant diseases using machine learning are very efficient in providing symptoms of identifying diseases at its earliest.
2.	Idea/Solution description	Leaves are affected by bacteria, fungi, virus, and other insects. Support Vector Machine (SVM) algorithm classifies the leaf image as normal or affected. Vectors are constructed based on leaf features such as colour, shape, textures. Then a hyperplane is constructed with conditions to categorize the pre-processed leaves and also implement a multi-class classifier to predict diseases in leaf images with improved accuracy.
3.	Novelty/Uniqueness	Recommends the fertilizer for affected leaves based on severity level. Fertilizers may be organic or inorganic. Admin can sort the fertilizers based on disease categorization with severity levels. The measurements of fertilizers are also suggested based on disease severity.
4.	Social Impact/ Customer Satisfaction	Presently, your farmers are not effectively using technology and analysis, so there may be a chance of wrong selection of fertilizer for crops that will reduce their income. To reduce this type of losses, we have developed a farmer-friendly system with GUI, that will predict which would be the best suitable fertilizer for particular crop disease. So, this makes the farmer to take right decision in selecting the fertilizer for crop diseases such that the agricultural sector will be developed by innovative ideas.

