Project Design Phase-I
Proposed Solution Template

Date	06 May 2023
Team ID	NM2023TMID15563
Project Name	**Deep Learning Model For Detecting Diseases In Tea**

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Deep Learning Model for Detecting diseases in Tea Leaves
2.	Idea / Solution description	The proposed deep learning model for detecting diseases in tea leaves will be based on a convolutional neural network (CNN) architecture trained on a dataset of tea leaf images labeled as healthy or diseased. The model will use transfer learning to fine-tune a pre-trained CNN model, and can be deployed as a web or mobile application to help tea farmers detect diseases early and improve the quality of their tea production.
3.	Novelty / Uniqueness	One unique aspect of the proposed deep learning model for detecting diseases in tea leaves is its ability to detect different types of diseases that commonly affect tea leaves. By using a large and diverse dataset of tea leaf images labeled with various types of diseases, the model can learn to distinguish between healthy tea leaves and those affected by specific diseases. Additionally, by using transfer learning, the model can be trained more efficiently and effectively, which can be especially important for small-scale farmers with limited resources. Finally, by deploying the model as a web or mobile application, the technology can be made accessible to tea farmers in remote areas who may not have access to traditional diagnostic tools.
4.	Social Impact / Customer Satisfaction	The proposed deep learning model for detecting diseases in tea leaves has the potential to have a significant social impact by improving the efficiency and sustainability of tea production. By helping farmers detect diseases early, the model can reduce crop losses and improve the quality of their tea, leading to higher incomes and improved food

		security for their families and communities. The use of modern technology in agriculture can also promote sustainable farming practices and reduce the environmental impact of tea production. Furthermore, by making the technology accessible to small-scale farmers through a web or mobile application, the project can promote inclusive growth and help bridge the digital divide in rural areas. Overall, the social impact of this project can be significant in tea-growing regions where agriculture is a critical source of livelihood.
5.	Scalability of the Solution	One potential scalability solution for the Deep Learning Model for Detecting diseases in Tea Leaves project is to use cloud computing services to handle the computational demands of training and deploying the model. By using cloud-based resources, the project can scale up or down depending on the demand, without the need for significant upfront investments in hardware and infrastructure. Another scalability solution is to adopt a modular architecture for the model, allowing for the addition of new disease detection modules as needed. This would allow the model to continuously improve and expand its capabilities over time. Finally, partnerships with tea growers and tea research institutes in different regions can help the project scale to new geographies and adapt to local disease patterns. By collaborating with local stakeholders, the project can gather more diverse data, refine the model, and tailor the application to specific regional needs. Overall, by leveraging cloud computing resources, adopting a modular architecture, and partnering with local stakeholders, the Deep Learning Model for Detecting diseases in Tea Leaves project can be scaled up to meet the demand and expand its impact in different regions.