Project Design Phase-I
Proposed Solution Template

Date	16 October 2023
Team ID	Team-593012
Project Name	Project - Alzheimer Disease Prediction

Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The current challenge lies in the early detection and prediction of Alzheimer's disease, which significantly impacts the effectiveness of treatment and care. Existing diagnostic methods often fail to identify the disease at its initial stages, leading to delayed interventions and suboptimal patient outcomes. This delay also contributes to increased healthcare costs and places additional emotional and financial burdens on patients and their families. The goal of the project is to predict the current Alzheimer's stage of the patient using an efficient model for early intervention and diagnosis.
2.	Idea / Solution description	The idea is to use the four pre-trained transfer learning models VGG16, ResNet50, Inception and Xception on an image dataset which shows various scanned images of the brain to predict the state of Alzheimer's progression. Then a comparative study is performed for the four models to determine which among them provides most accurate results. The parameters used in the CNN networks within the transfer learning models have to be fine-tuned for best results. After the best model prediction is chosen, a website is created to display the appropriate treatment plan according to the prediction made.

3.	Novelty / Uniqueness	Use of Convolutional Neural Networks (CNNs) for Alzheimer's detection ensures precision and efficiency, reducing the burden on medical staff. It promotes early intervention, protects patients' health, and contributes to early diagnosis and treatment leading to better Patient treatment and making the project a holistic and innovative approach to healthcare.
4.	Social Impact / Customer Satisfaction	Early detection of a disease goes beyond the medical setting. It affects people's lives in a positive way, by detecting the disease early and enabling treatment to begin sooner. This can lead to a better quality of life for patients and their families. In addition, it has a positive impact on the healthcare industry, as it can reduce costs and improve outcomes. Finally, the project has an economic impact, as it can lead to increased productivity and reduced healthcare costs.
5	Business Model (Revenue Model)	We intend to collaborate with healthcare providers and research institutions, offering them subscription-based access to our predictive model platform. Additionally, we plan to provide data analysis services for medical research and partner with pharmaceutical companies for the development of targeted treatments, creating a sustainable revenue stream. Furthermore, we will offer customizable solutions tailored to the specific needs of healthcare organizations, enabling us to establish long-term partnerships and ensure the continuous growth of our business.
6.	Scalability of the Solution	Our solution is designed to accommodate a vast amount of data from various sources, ensuring seamless integration with different healthcare systems. With a scalable infrastructure in place, we aim to deploy the model across multiple healthcare facilities and research institutions,

		continually updating it based on the latest research findings and data insights. Additionally, we will invest in a robust data management system and implement stringent security measures to maintain data integrity and protect patient confidentiality, thereby fostering trust and enabling the widespread adoption of our solution.