Project Design Phase-I

Date	06 May 2023
Team ID	NM2023TMID00113
Project Name	Cognitive Care: Early Intervention for Alzheimer's Disease

Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The current methods for diagnosing Alzheimer's disease rely heavily on clinical assessments, neuropsychological tests, and manual analysis of brain imaging techniques. However, these methods can be time-consuming, costly, and may not provide accurate results in early stages of the disease. In addition, there is a shortage of trained healthcare professionals to perform and interpret these tests. There is a critical need for new approaches that can improve the speed, accuracy, and accessibility of Alzheimer's disease diagnosis.
2.	Idea / Solution description	We propose to develop an AI-based model that can accurately classify MRI brain scans to aid in the detection of Alzheimer's disease. The model will be trained on a large dataset of MRI scans from patients with and without Alzheimer's disease, using machine learning/deep learning algorithms to identify patterns in the data that are predictive of the disease. The model will be designed to provide a classification of Alzheimer's Disease progression in the patient from mild to severely demented stage with 4 classes of classification.
3.	Novelty / Uniqueness	1. **Improved accuracy:** The AI-based model can identify subtle patterns in MRI scans that may be difficult for human radiologists to detect, leading to more accurate and reliable diagnoses. 2. **Faster diagnosis:** The AI-based model can process MRI scans quickly, leading to faster diagnosis and treatment. 3. **Non-invasive:** MRI scans are a non-invasive and widely available diagnostic tool, making this proposed solution accessible to a broad range of patients. 4. **Cost-effective:** The proposed solution has the potential to reduce the need for expensive and time-consuming diagnostic tests, making Alzheimer's disease diagnosis more cost-effective.
4.	Social Impact / Customer Satisfaction	By enabling early detection of the disease, patients can receive earlier treatment and support, potentially leading to better outcomes

		and quality of life. Furthermore, the proposed solution has the potential to reduce the financial burden on patients and healthcare systems, making Alzheimer's disease diagnosis more cost-effective and accessible to a broader range of people.By providing a faster and more accurate diagnosis, patients and their families can receive a timely diagnosis and begin planning for their future care needs. This can reduce the anxiety and uncertainty that often accompanies a long and drawn-out diagnostic process. Additionally, the non-invasive nature of MRI scans makes this proposed solution more comfortable and accessible for patients, improving their overall experience with the healthcare system
5.	Business Model (Revenue Model)	The proposed solution for Alzheimer's disease diagnosis through AI-based MRI classification can have a revenue model that includes both one-time and recurring revenue streams. One-time revenue streams may include revenue generated from the sale or licensing of the software to healthcare institutions or diagnostic centers. Recurring revenue streams may include maintenance fees for the software and potentially ongoing service fees for healthcare institutions. To generate revenue through the sale or licensing of the software, we can develop a pricing model based on the market's willingness to pay. This depends on competitor pricing. Additionally, we can explore the possibility of revenue-sharing models with healthcare institutions that use our software. To generate recurring revenue, we can offer maintenance and support services for the software. This will include software updates and troubleshooting services. Furthermore, we may explore offering ongoing service fees to healthcare institutions to support the integration of the software into their existing systems
6.	Scalability of the Solution	1. The AI-based model can be easily integrated with existing healthcare systems, allowing for seamless integration and scalability. 2. The solution is highly adaptable and can be customized to meet the specific needs of different healthcare institutions and patient populations.

		3. New data can be easily incorporated into the model, improving its accuracy and scalability over time.