

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	Team-592004
Project Name	Project - Alzheimer's disease prediction
Maximum Marks	4 Marks

Technical Architecture:

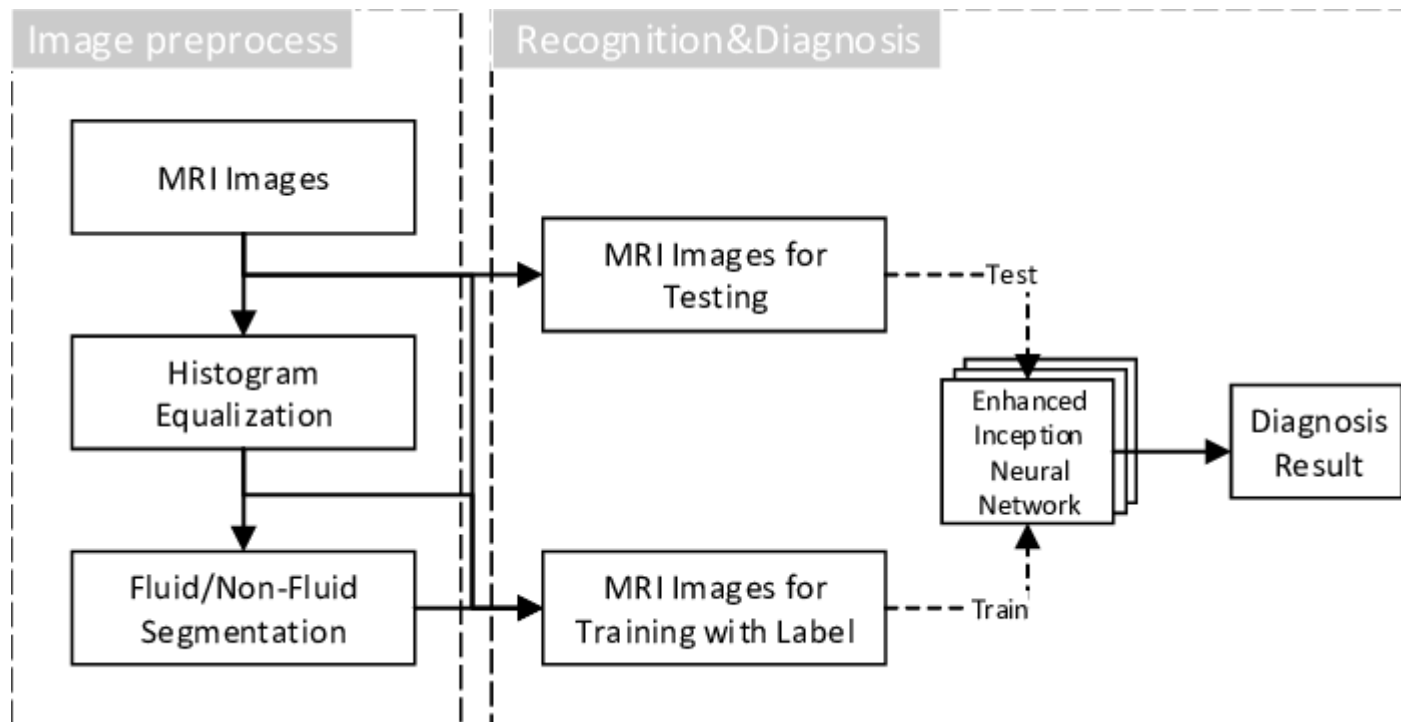


Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI etc.	HTML, CSS, Python etc.
2.	Application Logic-1 (Data Collection and Preprocessing)	1) Utilize IP cameras or video streams as data sources. 2) Preprocess video frames to ensure consistency.	Python Libraries Like OpenCV
3.	Application Logic-2 (Anomaly Detection and Alert Generation)	1) Employ pre-trained deep learning models for object detection. 2) Utilize facial recognition models for identifying individuals. 3) Generate real-time alerts when anomalies are detected.	TensorFlow, deep Learning Frameworks.
4.	Application Logic-3 (User Interface, Logging, and Monitoring)	1) Update the web-based user interface to display video feeds with anomaly indicators. 2) Maintain a database to store information about detected anomalies, including timestamps and descriptions. 3) Implement cloud or server clusters for scalability.	Flask, load balancing
5.	Database	Varchar, Int, Float etc.	Kaggle
6.	File Storage	File storage requirements	Kaggle, RAM, ROM
7.	External API-1	NA	NA.
8.	External API-2	NA	NA
9.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration Cloud Server Configuration	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Visual Analysis	Visual analysis in Alzheimer's prediction uses tools like heat maps to reveal patterns, and ROC curves to assess model performance..	Python with Deep Learning
2.	Pattern Recognition	Pattern recognition in Alzheimer's prediction involves identifying meaningful patterns or trends within data, such as cognitive scores or biomarkers, to enhance the accuracy of predictive models.	Python with Deep Learning
3.	Surveillance and Prevention	Alzheimer's prevention combines ongoing surveillance, regular health assessments, and lifestyle interventions based on predictive models to reduce the risk of developing the disease.	Python with Deep Learning
4.	Data Privacy and Security	In Alzheimer's disease prediction, safeguarding data involves stringent privacy and security measures. This ensures the ethical handling of sensitive health information, protecting individuals' privacy and maintaining the integrity of predictive models..	Python with Deep Learning
5.	Adaptive and Evolving	Alzheimer's disease prediction evolves by adapting to new data and research, incorporating advanced techniques, and staying updated. This adaptability enhances the model's effectiveness over time.	Python with Deep Learning
6.	Ethical Considerations	Ethical considerations in Alzheimer's prediction involve safeguarding privacy, ensuring informed consent, and responsibly handling sensitive health data to maintain trust and protect individuals' rights.	Python with Deep Learning