PROJECT REVIEW 2

ADVANCED STROKE RISK STRATIFICATION AND PREVENTION

TEAM 13

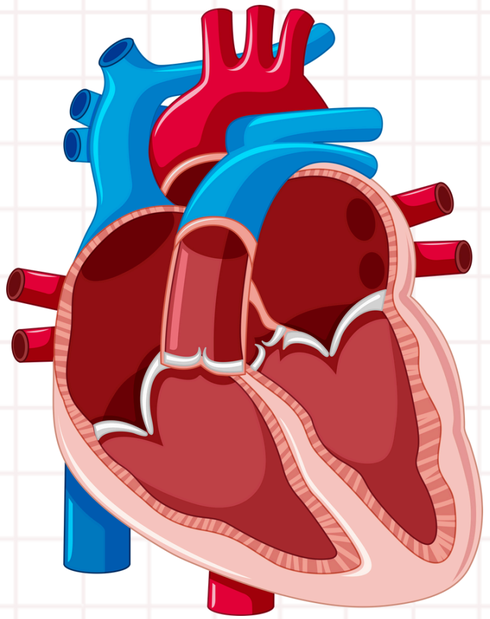
KHAROSEKAR VARADRAJ ABHAY

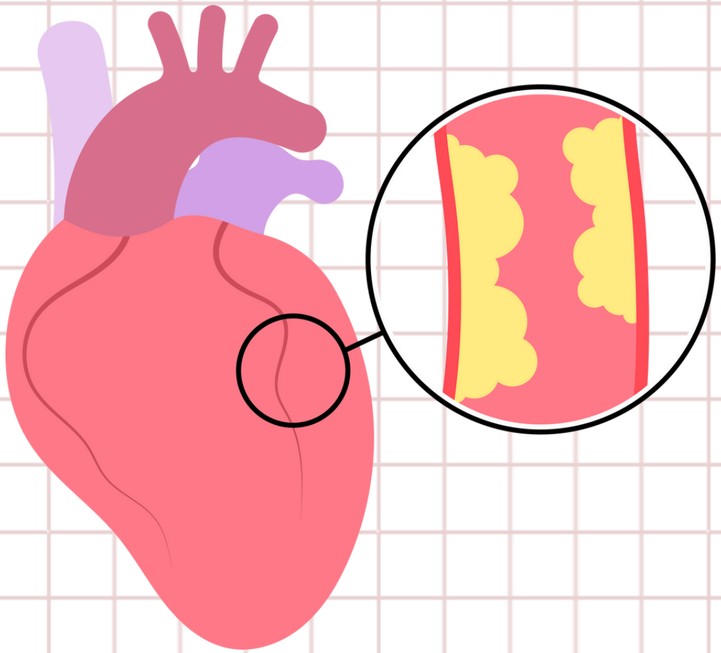
(ENG21CT0014)

VEDANT RANSHINGH

(ENG21CT0047)

GUIDE : Prof Nivetha NRP





ABSTRACT

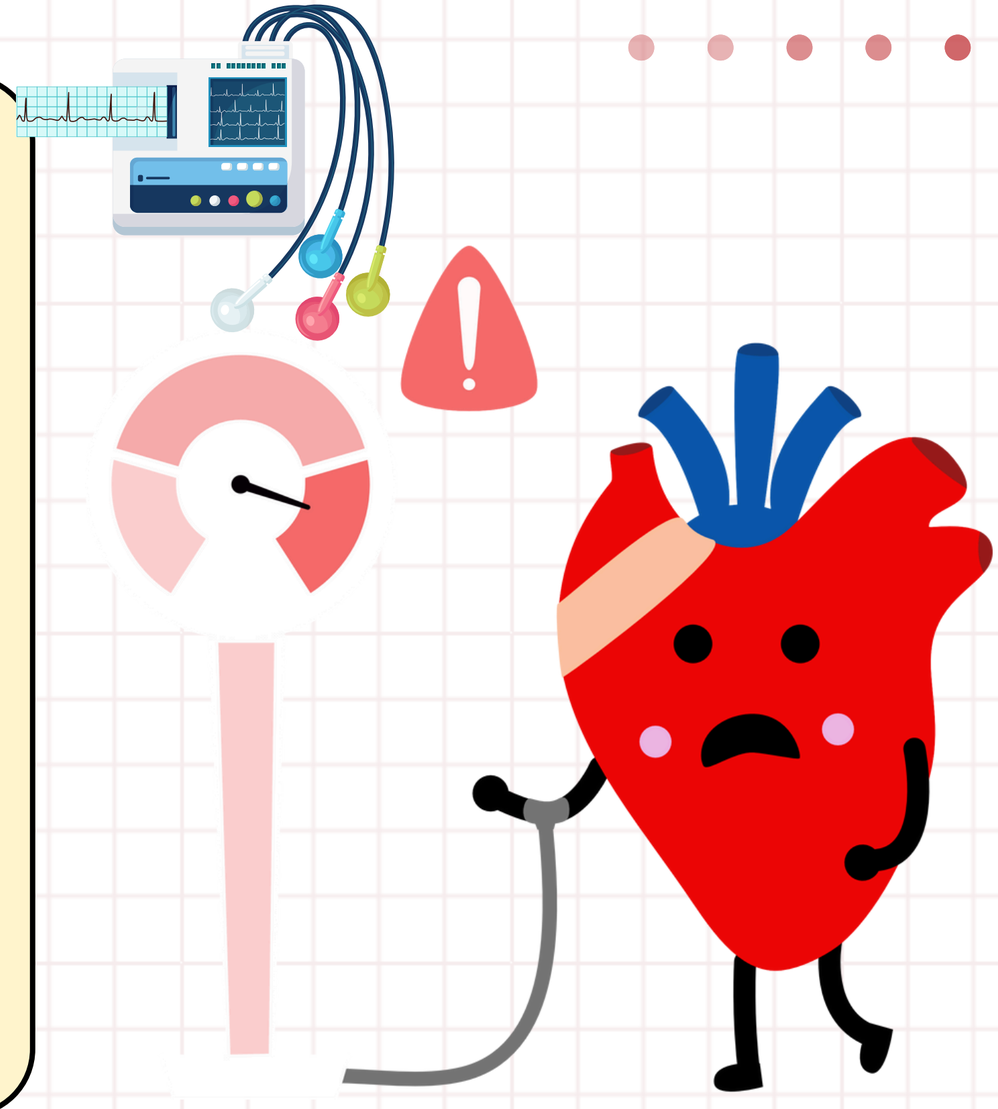
This study presents a Model approach for advanced stroke risk stratification by integrating electrocardiogram (ECG) readings, 2D echocardiography (ECHO), and clinical data through machine learning techniques. The goal is to enhance predictive accuracy and deliver personalized risk assessments. By utilizing the combined strengths of ECG and ECHO data, this research aims to improve stroke management and patient outcomes.

PROBLEM STATEMENT

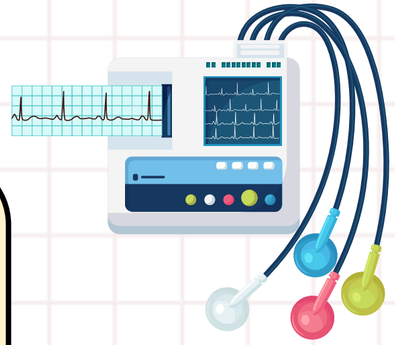
Stroke is a leading cause of death and disability globally, yet effective prediction and risk stratification remain challenging due to reliance on limited clinical data. This research aims to enhance stroke risk assessment by integrating electrocardiogram (ECG), 2D echocardiography (ECHO), and clinical data using machine learning techniques. By combining these data sources, the study seeks to provide a more accurate and personalized risk prediction model, ultimately improving early intervention strategies and patient outcomes.

THE PROPOSED SOLUTION

The proposed solution involves enhancing stroke risk stratification and prediction by integrating clinical and electrocardiogram (ECG) data. First, comprehensive clinical data will be collected, including patient medical history, and lifestyle factors, alongside high-resolution ECG readings to analyze heart rhythms. The collected data will undergo preprocessing to ensure accuracy and consistency.

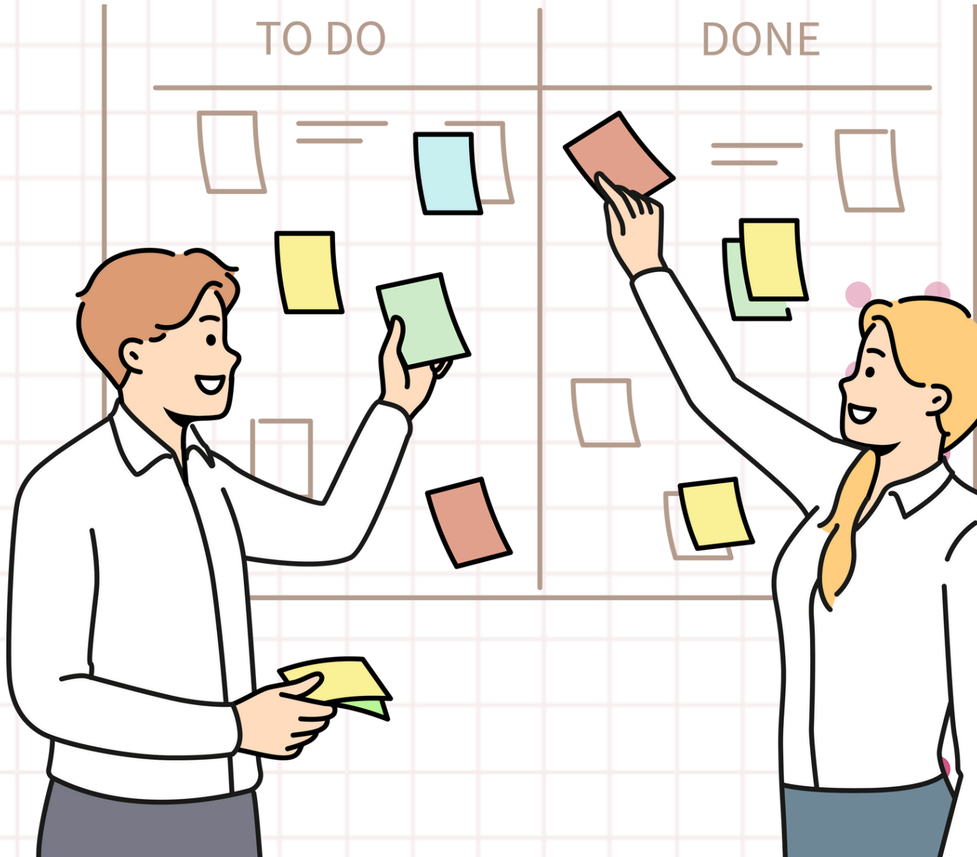


METHODOLOGY

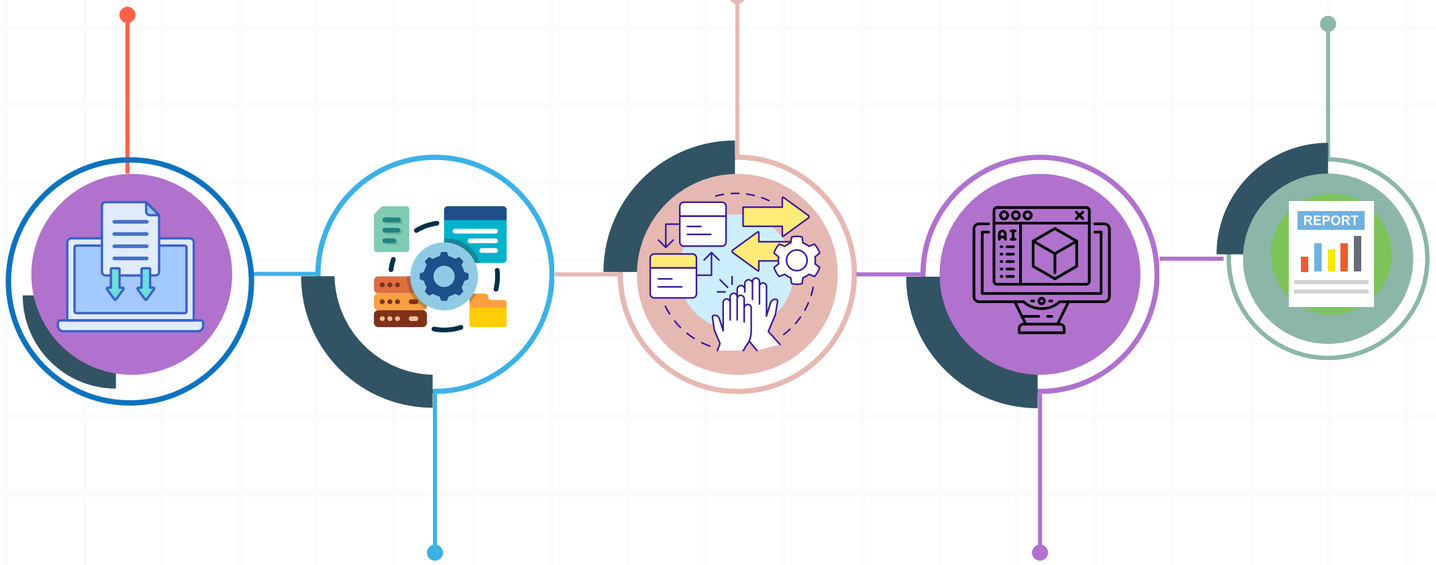


The proposed methodology involves collecting and processing of clinical, ECG, and ECHO data from a cohort of patients. Clinical data will include demographics, medical history, and lifestyle factors, while ECG readings and ECHO data will provide insight into cardiac rhythms and heart structure. The data will undergo preprocessing, including normalization, handling of missing values, and feature engineering, to ensure data quality. Subsequently, machine learning models, such as logistic regression, random forests, and neural networks, will be trained and tested on this integrated dataset. Model performance will be evaluated based on accuracy, sensitivity, specificity, and other relevant metrics. Finally, the best-performing model will be selected for deployment as a risk assessment tool, enabling personalized stroke prevention strategies .....

technology used

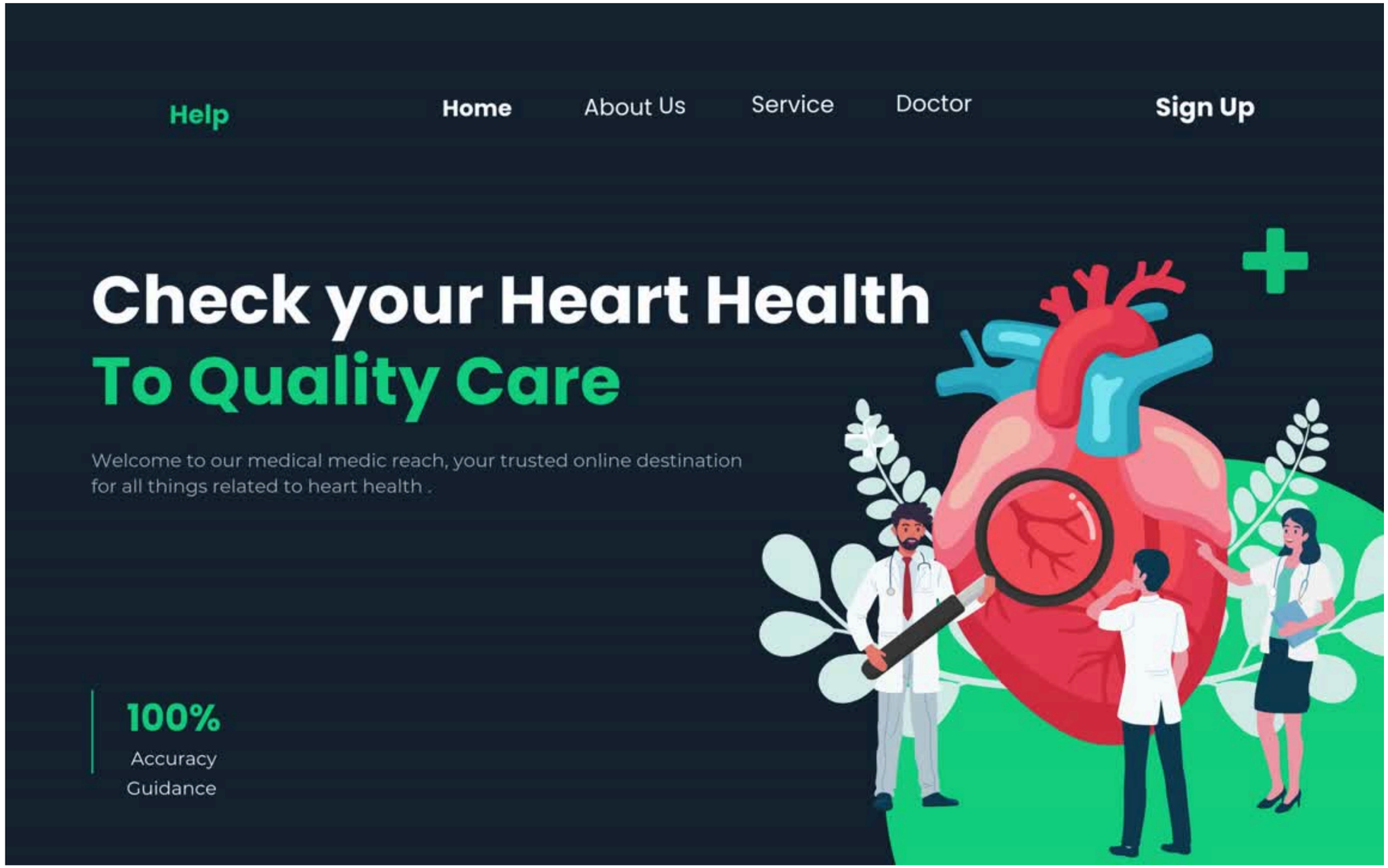


Advanced Stroke Risk Stratification and Prevention



SYSTEM ARCHITECTURE DIAGRAM

POC DEMO WEBSITE



CONCLUSION

This project combines clinical data, ECG signals, and ECHO images using machine learning to improve stroke risk prediction. By integrating these data sources, the model provides accurate and personalized results, helping doctors Or Patients make better decisions and ensure early treatment. This approach aims to improve patient care and reduce stroke risks effectively.

Thank You