Instant Health Scan

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Overview

Introduction

- Integrating technology in healthcare enhances patient care and drives cost-saving opportunities for stakeholders.
- A Profound understanding of data processing is crucial, facilitating rapid, precise analysis in medical diagnostics.
- Cutting-edge methods are revolutionizing medical diagnostics, achieving near-human accuracy in interpreting large medical images, from MRI's to X-rays.

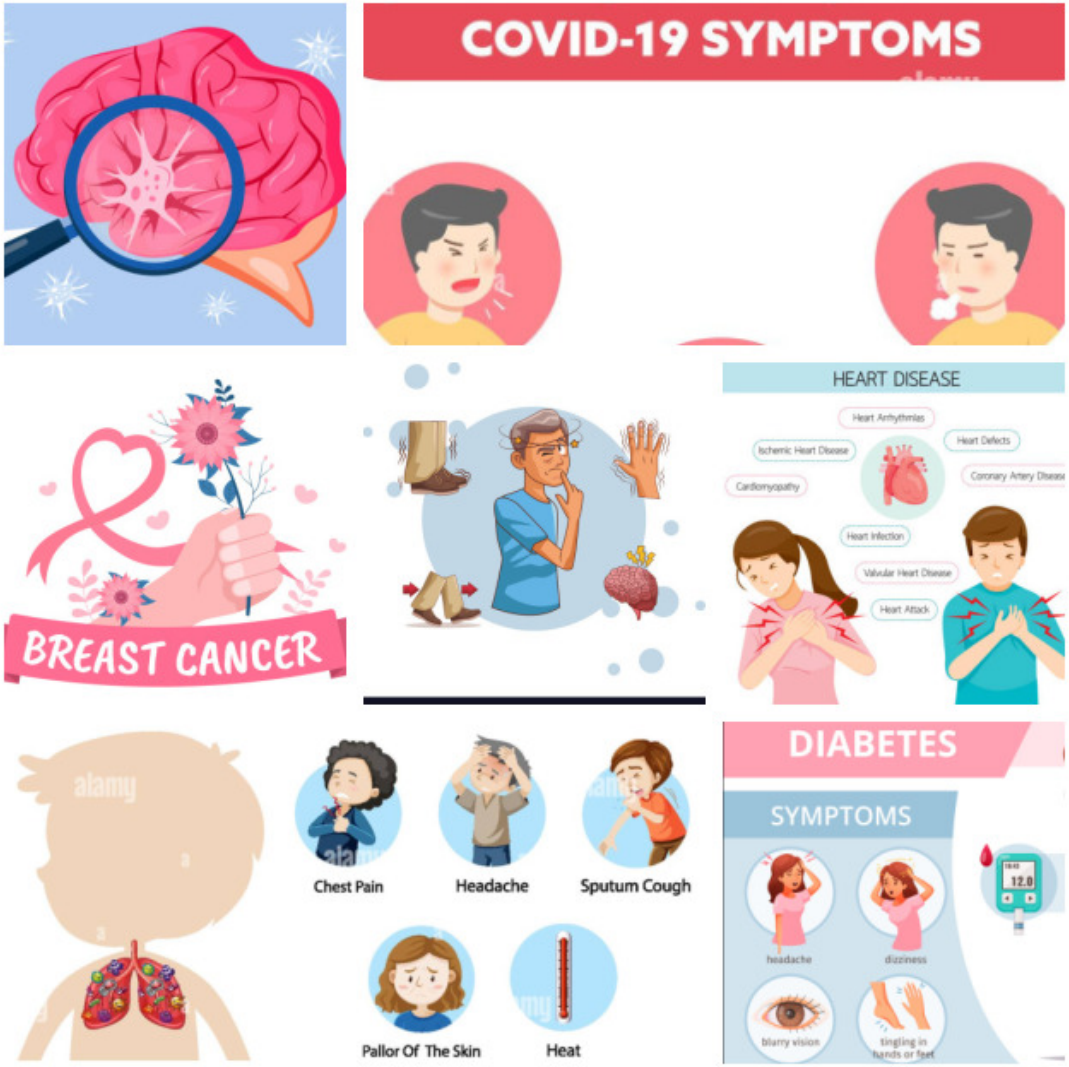

Figure: Instant Health Scan

Literature Survey

S. No	Title of the paper	Author(s) & Journal Details	Description
1	Predicting disease from several symptoms using machine learning approach.	MD. Atikur Rahman, Tania Ahmed Nipa, Md. Assaduzzaman - 2023	In this paper, they have used algorithms e KNN (K-Nearest Neighbor) that is 98.37 and the lowest accuracy for NB (Naive Bayes) which was 97.76. Moreover, other models are DT, SVM, LR and RF Classifiers also the accuracy is accordingly 98.27, 98.17, 98.0, and 97.86).
2	Health Care Application using Machine Learning and Deep Learning	Ajinkya Padule, Aman Patel, Arsalan Patel, Aman Shaikh, Jyoti Gavhane - 2022	In this paper, they have predicted 5 diseases: Diabetes(Random Forest - 84.01) Heart(SVM - 81.57) Liver(Random Forest - 83.33) Malaria(VGG16 - 94.29) Pneumonia (VGG16 - 95.48).

S. No	Title of the paper	Author(s) & Journal Details	Description
3	Prediction Of Diseases using Machine Learning	Vaibhav Kulkarni, Sushant Surwase, Kedar Pingale, Saurabh Sarage, Prof. Abhijeet Karve - 2020	The system utilizes machine learning with Naïve Bayes for disease prediction, KNN for classification, Logistic Regression for feature extraction, and Decision Trees for dataset partitioning.

Problem Statement

- Amidst COVID-19 disruptions, this project employs technology for accessible disease detection, addressing healthcare barriers caused by limited hospital access or online consultations.

Proposed Method

- Developing a hybrid disease detection framework using machine learning and deep learning techniques to replace traditional doctor consultations, enabling faster and more accurate diagnoses for seven diverse diseases in the healthcare sector

Modules and Functionalities of modules

- MultiDisease Predictor Module:
  - Module 1 performs disease prediction (heart, diabetes, brain tumor, Alzheimer's) using advanced data analysis
  - It is done by aggregating datasets from diverse sources, preparing, and analyzing them for predictive modeling and insights.
- Infection and Imaging Module:
  - Module 2 focuses on infection detection (COVID-19, Breast cancer, Pneumonia) through clinical assessments and diagnostic tools.

Implementation

Module	**Description**	**Status**
Module 1	MultiDisease Predictor Module(Heart, Diabetes, Brain tumor, Alzheimer's)	In progress
Module 2	Infection and Imaging Module (COVID-19, Breast cancer, Pneumonia)	Information Gathering and Algorithm Justification

MultiDisease Predictor Module	**Datasets**	**Proposed Algorithm**
Heart	UCI Dataset	Supprot vector machine
Diabetes	PIMA Dataset	Random forest
Brain Tumor	Brain Tumor MRI Dataset(demo)	Conventional Neural Networks
Alzheimer	Alzheimer Dataset(demo)	Conventional Neural Networks

References

- MD. Atikur Rahman, Tania Ahmed Nipa, Md. Assaduzzaman, "Predicting disease from several symptoms using a machine learning approach.", International Research Journal of Engineering and Technology (IRJET),2023
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- Ajinkya Padule, Aman Patel, Arsalan Patel, Aman Shaikh, Jyoti Gavhane. "Health Care Application using Machine Learning and Deep Learning", International Research Journal of Engineering and Technology (IRJET),2022
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- Kedar Pingale, Sushant Surwase, Vaibhav Kulkarni, Saurabh Sarage, Prof. Abhijeet Karve."Disease Prediction using Machine Learning", International Research Journal of Engineering and Technology (IRJET),2019
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Thank you