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Multiple Disease Prediction System

Manoj Katkar[1], Prathamesh Kokkula[2], Anusha Vasala[3], Sandeep Shanbhag[4] , Dr. Rais Mulla[5]

[1,2,3,4]*Dept. of Computer Engineering, VPPCOE, Sion , Maharashtra, India*

[5]*Dr. Rais Mulla, Dept. of Computer Engineering, VPPCOE, Sion , Maharashtra, India*

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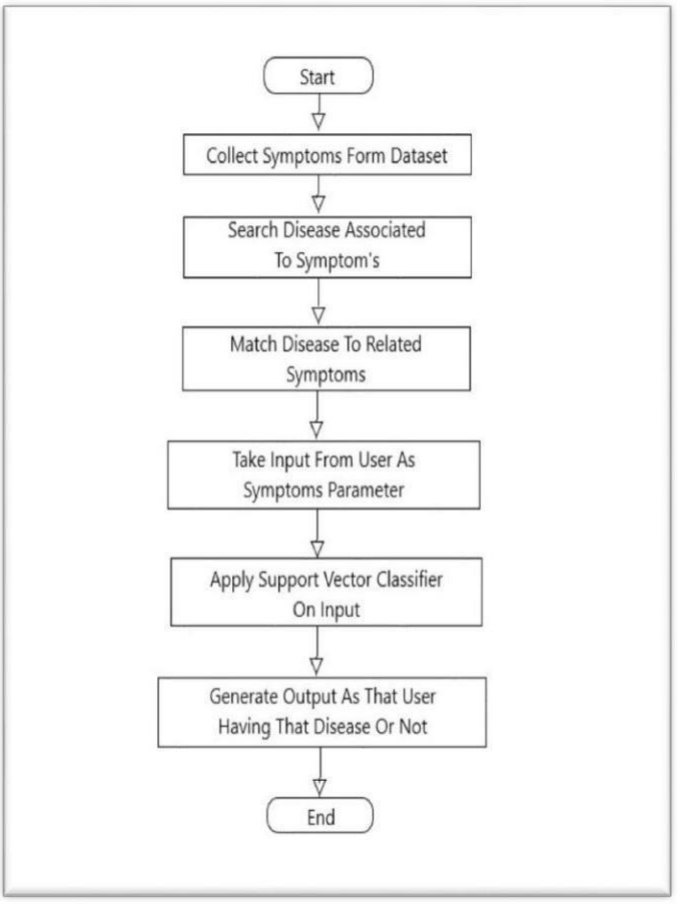
Abstract - Machine learning and Artificial Intelligence are playing a huge role in today's world. From self-driving cars to medical fields, we can find them everywhere. The medical industry generates a huge amount of patient data which can be processed in a lot of ways. So, with the help of machine learning, we have created a Prediction System that can detect more than one disease at a time. Many of the existing systems can predict only one disease at a time and that too with lower accuracy. Lower accuracy can seriously put a patient's health in danger. We have considered three diseases for now that are Diabetes, heart disease, and Parkinson's and in the future, many more diseases can be added. The user has to enter various parameters of the disease and the system would display the output whether he/she has the disease or not.

Introduction

Multiple Disease prediction system provides the facility to the end user that he/she can test the medical disease with which he/she is diagnosed so the end user can early understand his medical problems and work on it so we have designed the Multiple Disease prediction System with the help of machine learning algorithms such line SVM, Random Forest which gives the high accuracy.

It is easily accessible with smartphone and also the model is the cost-effective. with this it will easy to save the time and system also gives high accuracy

Design



Functional Requirement

- The system allows the patient to predict the disease.
- The user adds the input for the particular disease and based on the trained model of the user input the output will be displayed.

Non-Functional Requirement

- The website will provide range of the values during the prediction of the disease.
- The website should be reliable and consistent.

Problem statement

Many of the existing machine learning models for health care analysis are concentrating on one disease per analysis. For example first is for liver analysis, one for cancer analysis, one for lung diseases like that. If a user wants to predict more than one disease, he/she has to go through different sites. There is no common system where one analysis can perform more than one disease prediction. Some of the models have lower accuracy which can seriously affect patients' health. When an organization wants to analyse their patient's health reports, they have to deploy many models which in turn increases the cost as well as time Some of the existing systems consider very few parameters which can yield false results.

Proposed system

In multiple disease prediction, it is possible to predict more than one disease at a time. So the user doesn't need to traverse different sites in order to predict the diseases. We are taking three diseases that are Liver, Diabetes, and Heart. As all the three diseases are correlated to each other. To implement multiple disease analyses we are going to use machine learning algorithms and Django When the user is accessing this API, the user has to send the parameters of the disease along with the disease name. Django will invoke the corresponding model and returns the status of the patient.

Accuracy For Each Disease

Table No 6.1:Diabetes Disease

ALGORITHM	Diabetes
Random Forest	88%
SVM	89%

Table No 6.2:Heart Disease

ALGORITHM	Heart
SVM	85%
Random Forest	77%

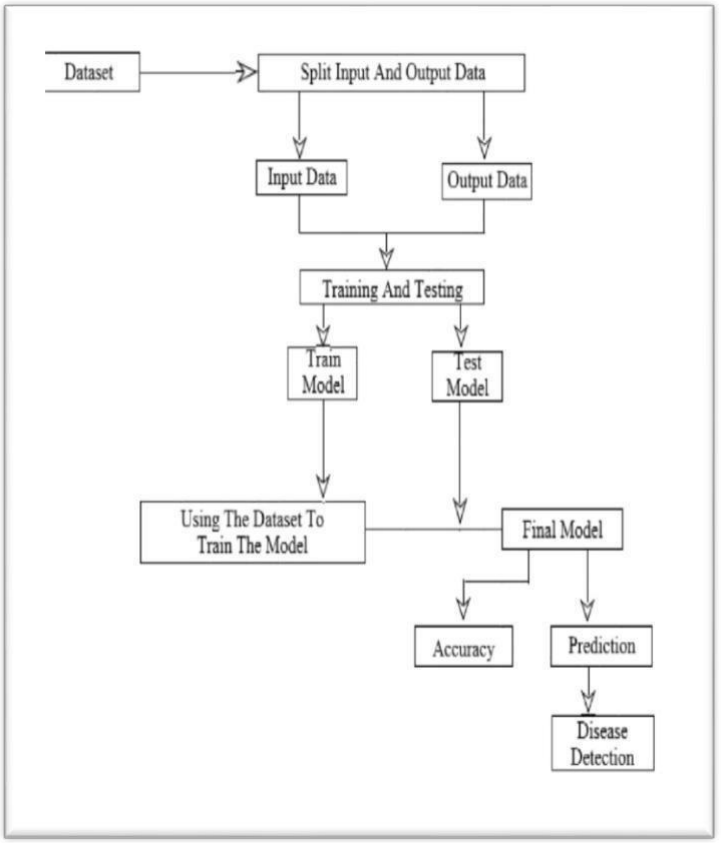
Table No 6.3: Parkinson's Disease

ALGORITHM	Parkinson's
Random Forest	73%

Future Scope

- In the future we can add more diseases in the existing API**.**
- We can try to improve the accuracy of prediction in order to decrease the mortality rate.
- We can try to add more diseases for the prediction that can be benefited to the user.

Architecture Design



Advantages

- Easy Accessibility
- User Friendly
- Cost Effective
- Generates results With High Accuracy

Conclusion

The Multiple Disease Prediction System uses machine learning to accurately predict multiple diseases based on patient symptoms and medical history. It has the potential to improve healthcare by aiding in early diagnosis and treatment. Further development and testing is necessary to fully realize its benefits.

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Biographies

MANOJ KATKAR
Student
Dept. Of Computer Engineering.
VPPCOE, Sion, Maharashtra,INDIA.

PRATHAMESH KOKKULA
Student
Dept. Of Computer Engineering.
VPPCOE, Sion, Maharashtra, INDIA.

ANUSHA VASALA
Student
Dept. Of Computer Engineering.
VPPCOE, Sion, Maharashtra, INDIA.

SANDEEP SHANBHAG
Student
Dept. Of Computer Engineering.
VPPCOE, Sion, Maharashtra, INDIA.

DR. RAIS MULLA
Faculty
Dept. Of Computer Engineering.
VPPCOE, Sion, Maharashtra, INDIA.