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Healthcare Prediction System Using Machine Learning

Tamboli owaiz , Shaikh Junaid , Mulla Zakariya , Anil Sawant

Department of Electronics And Telecommunication, Trinity College of Engineering and Research , Pune

Abstract:

Various technology used in the past some years and this is rise in the field of technology, and one of the technique like machine learning is widely used in various fields. Now it has various applications in the health industry. It works as a helping hand for the field of health industry. By the help of various learning algorithms, we can make various models for predicting the results through the large amount of dataset present in medical field. This comprises of efficient used in predicting disease through symptoms. As, the health industry has a very huge amount of data for various fields so, we want to make a system where we can use various other applications of machine learning on health industry. This all had been done to make the best medical decisions and also for rise in the accuracy. As early accurate analysis predict disease through some symptoms and helps in the patient care and the human services. These all challenges can be easier by the help of various tools, algorithms and framework provided by the prediction system.

Keywords: AI chatbot, healthcare, natural language processing, rural healthcare, appointment booking, IOT enabled

INTRODUCTION:

Look at the current scenario healthcare industry has become big grows. Various pandemic situation affect the healthcare industry produces large amounts of health-care data daily that can be used to extract information for predicting disease that can be happen to a patient in a future while using the treatment history and health data.[1] This hidden information in the healthcare data will be later used for the affective decision making for patient's health. Also, this area needs improvement by using the informative data in health care. The major challenge is how to extract the information from this data, because the quantity is very large and therefore certain data mining and machine learning techniques can be used.[3] In addition, the expected exceedance and scope of this project is that if the disease can be predicted, early treatment can

be given to patients, which can reduce the patient's risk to life and save patients' lives and the cost of treatment. Diseases can be reduced to some extent by early recognition. For this problem, a probabilistic modeling and deep learning approach will train one long-term memory recurrent neural network (LSTM) and two convolution neural networks for disease prediction. The rapid adoption of electronic health records has created a wealth of new patient data, which is a gold mine for improving understanding of human health.[2] The above method is used to predict illnesses using the patient's treatment history and health data. The machine learning algorithm has two stages: preparation and research. User / patient sign and symptom logs are used to predict disease. Machine learning technology provides a strong application forum in the medical industry to address disease prediction issues based on user / patient experience. We use it to keep track of all signs and illnesses. Machine learning technology helps predictive models analyze data quickly and produce meaningful results faster.

[5]With the help of technology, the user / patient can make an informed decision to consult a doctor about their particular symptoms, which improves the health services of patients. The Naive Bays Classifier technique is used to analyze a large amount of data obtained. For each sub domain of disease prediction.

BACKGROUND

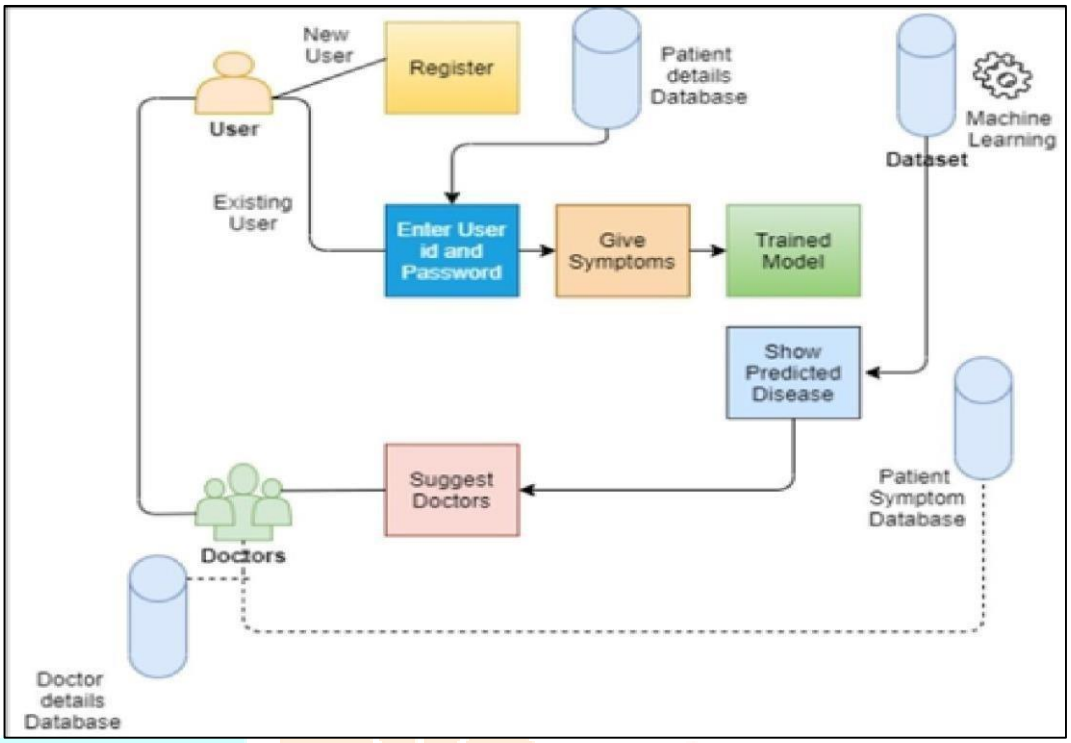
Predicting disease using patient treatment history and health data by applying data mining and machine learning techniques has been an ongoing struggle for decades. Much work has applied data mining techniques to pathological data or medical profiles for the prediction of specific diseases. These approaches have attempted to predict disease recurrence. In addition, some approaches attempt to make predictions about the control and progression of the disease. The recent success of deep learning in disparate areas of machine learning has led to an evolution towards machine learning models that can learn rich, hierarchical representations of raw data with little preprocessing and produce more accurate results. . Numerous papers have been published on several data mining techniques for heart disease diagnosis such as Decision Tree, Naive Bayes, Neural Network, Nucleus Density, Automatically Defined Groups, Algorithm bagging and carrier vector machine showing different levels of accuracy in disease prediction. In this type of research, the tool typically used is the Waikato environment for knowledge analysis.

Proposed Model

We have developed an expert system called the Healthcare Prediction system, which was designed to make it easier for physicians. A system checks a patient at the initial level and suggests possible illnesses. It starts by asking the patient about the symptoms, if the system is able to identify the appropriate disease then it suggests a doctor available to the patient in the closest possible area. If the system is not secure enough, it will ask questions to the patients, but if the system is not secure, it will display tests to the patient. Based on the available cumulative information, the system will display the result.

3.1 Merits

1. It helps predict disease more effectively.
2. In addition, this proposed system also includes various suggestions such as doctor's contact details and prescriptions.
3. The cost of consultation with the doctor can be avoided at an initial stage. Described medications are displayed in detail.
4. Complexity of data due to variable length, irregular sampling and lack of structured reports and missing data. The quality of reports varies considerably between institutions and individuals.



Humans are considered to be the most intelligent species on the mother earth and are inherently more health conscious. Since Centuries mankind has discovered various proven healthcare systems. To automate the process and predict diseases more accurately machine learning methods are gaining popularity in research community. Machine Learning methods facilitate development of the intelligence into a machine, so that it can perform better in the future using the learned experience. Machine learning methods application on electronic health record dataset could provide valuable information and predication of health risks.

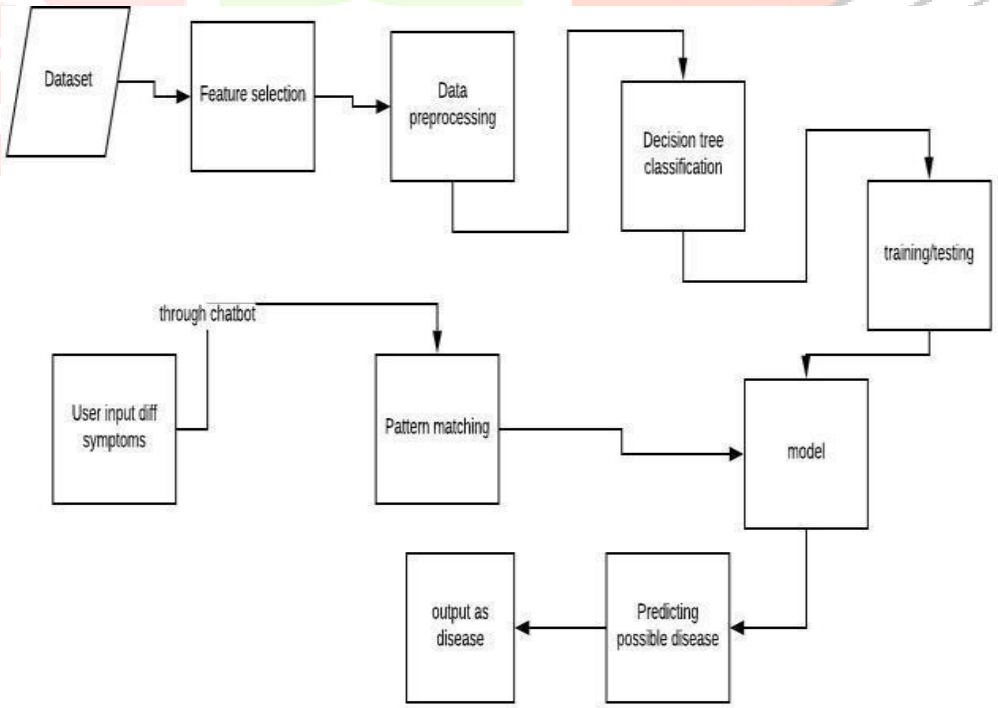
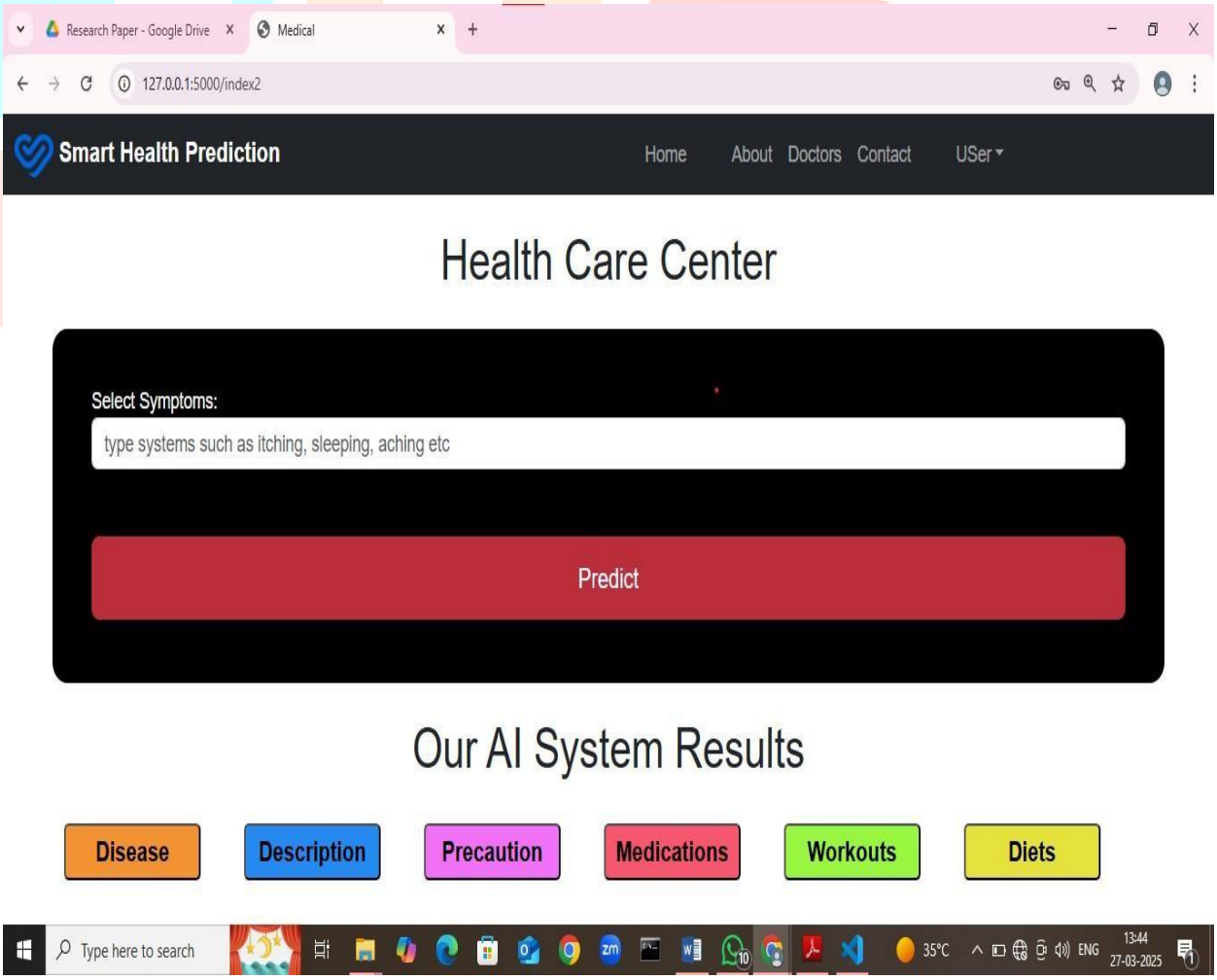


Figure: Flowchart of Healthcare prediction system

If sometimes someone is diagnosed with an illness, they need to see a doctor, which is time consuming and expensive. It may also be difficult for the user to reach doctors and hospitals, so the disease cannot be detected. If the above procedure can be done with an electronic software application which saves time and resources, it might be better for the patient to make the process run smoothly. Health Prediction is a web-based program that predicts a user's illness based on their symptoms that the user / patient may be experiencing. The consumer will be able to assess the likelihood of an illness based on the symptoms presented in the web application. The objective of this project is to create a web platform capable of predicting pathological events based on a range of symptoms. Users can choose from a range of symptoms and find diseases.

RESULTS

The proposed model is developed for the health prediction system using symptoms and the accuracy is also good. The algorithm is used for the better accuracy. On the basis of the dataset of the symptoms we have and the input entered by the user the disease is predicted. The machine learning helps as a interactive system for the user through which the diagnosis of the patient can be done earlier. The objective of this project is to create a web platform capable of predicting pathological events based on a range of symptoms. Users can choose from a range of symptoms and find diseases.



Conclusion

We implement this system for an interactive and user-friendly environment to predict patient disease using patient symptom detection. The required information on clinical symptoms can be obtained from historical knowledge. Smart healthcare can only be achieved if the system responds in this way. Since this new solution will be based on real historical data, it would provide accurate and rapid results that would allow patients to get an urgent diagnosis. As a result, in the truest sense of the word, this web- based system will be predictable and also produce high accuracy with fairness.

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