



Comparative Analysis of Kidney Disease Prediction Using Machine Learning and Deep Learning.

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Abstract— Chronic kidney disease (CKD) has become a major issue with a steady growth rate. A person can only survive without kidney for an average time of 18 days, which makes a huge demand for kidney transplant and dialysis. It is estimated that only less than 30 percent of patients suffering from end-stage kidney disease manage to receive dialysis in India. It is important to have effective methods for early prediction of CKD. Earlier detection of the illness followed by treatment could help this dreaded disease at the shore. So earlier prediction is necessary to avoid the disease spread. It is a failure of renal function expanding over a period of months or years. Machine learning methods are effective in CKD prediction. The objective of the project is to detect whether the person is suffering from kidney disease using machine learning technique so that the person can start the treatment as early as possible.

Keywords— Machine Learning, Deep Learning, K nearest neighbor, Support Vector Machine.

I. INTRODUCTION

All over the world chronic disease are a critical issue in the healthcare domain. According to the medical statement due to chronic disease the death rate of human increases. Hence it is highly essential to minimize the patients risk factor that leads to death. The advancement in medical research makes health care data collection easier. Chronic kidney disease is a disease that result a gradual loss of kidney functionality which could lead to death. Chronic kidney disease is a growing problem world wide and therefore it is important to bring some attention to it. It is comprised of different stages and there are ways that progression of kidney failure could step down or stopped and lead to death.

II. BACKGROUND LITERATURE

Chronic kidney disease also known as chronic renal disease or CKD, is a condition characterized by a gradual kidney loss function over time. It is a disease that damages your kidney and decrease the ability to keep healthy by filtering waste from your blood. Kidney disease also increase your of having heart and blood vessel disease. Early detection and treatment can often keep chronic kidney disease from getting worse. Diabetes, High blood pressure, hypertension is responsible for the chronic kidney disease cases.

III. AIM

To implement a machine learning algorithm that can help to predict chronic kidney disease so the person can start the treatment as soon as possible. Early detection of the disease can help save the person life.

IV. OBJECTIVES

- 1) Survey of kidney disease
- 2) Existing early detection method of chronic kidney disease
- 3) Study and implementation of machine learning algorithm for better accuracy
- 4) Use of knn and its study to achieve maximum accuracy.

V. MOTIVATION

With the help of this research we can identify if the person is having chronic kidney disease.

VI. RELATED WORK

The work presents the study of various famous and unique techniques used for chronic kidney disease prediction. Various algorithms of chronic kidney disease research are compared over the performance parameters like recognition accuracy, number of accuracy, Database used for experimentation, classifier used etc [1]. This work proposes a system that will identify the chronic kidney disease from the dataset and classify result for final decision. The system needs a dataset of the patient to identify the disease. The different feature vectors are club together using a subset feature selection technique to improve the performance of prediction process. Finally the combined features are trained and classified using SVM, KNN classifier technique [2]. The proposed technique use steps for detection using K nearest neighbour and Support Vector Machine [3]. In this work implement an efficient technique to detect chronic kidney disease and predict and then this will be used for kidney detection of the person. For detecting disease from missing value we are using detection technique and to predictor to detect the disease KNN classifier technique and Support Vector Machine is used [4]. This paper objective is to display needs and applications of kidney disease prediction. In this proposed system it is attention on the human face for recognizing expression. Many techniques are available to detect the disease. This technique can be adapted to real time detection very easily. [6].

VII. PROPOSED SYSTEM

The proposed method used the humans face to detect the emotion of that human and finally using this result to play the audio file which related to human's emotion also we will fetch the news data based on user preferences using API. Firstly system takes the human face image as input then the further process will going on. Face detection and eye detection is carried out. After that using feature extraction techniques to recognize the human face for emotion detection. These techniques help to detect the human's emotion using feature of face image. Through the feature detection of lip, mouth, and eyes, eyebrow, those feature points are found. If the input face will matches exactly to the emotions based dataset's face then we can detect the humans exact emotion to play the emotion related audio file also we will fetch the online news data based on user preferences using API. Detection under different environmental conditions can be achieved by training on limited number of characteristics faces.

VIII. PROPOSED SYSTEM ARCHITECTURE METHODOLOGY

The working of the system starts with the collection of data and selecting the important attributes. Then the required data is pre-processed into the required format. The data is then divided into two parts training and testing data. The algorithms are applied and the model is trained using the training data. The accuracy of the system is obtained by the system. The system is implemented using the following modules.

- 1) Collection of dataset
- 2) Selection of attributes
- 3) Disease Prediction.

Collection of dataset Initially, we collect a dataset for our kidney disease prediction system. After the collection of the dataset, we split the dataset into training data and testing data. The training dataset is used for prediction model learning and testing data is used for evaluating the prediction model.

Selection of attributes Attribute or Feature selection includes the selection of appropriate attributes for the prediction system. Various attributes of the patient like age, sex, hemoglobin, blood pressure, red blood cells, exercise, etc. are selected for the prediction.

Pre-processing of Data In pre-processing of data, we transform data into our required format. It is used to deal with noises, duplicates, and missing values of the dataset. Data pre-processing has the activities like importing datasets, splitting datasets, attribute scaling, etc. Pre-processing of data is required for improving the accuracy of the model.

Prediction of Disease: Various machine learning algorithms like Support vector machine are used for classification. Comparative analysis is performed among algorithms and the algorithm that gives the highest accuracy is used for kidney disease prediction.

IX. RESULTS

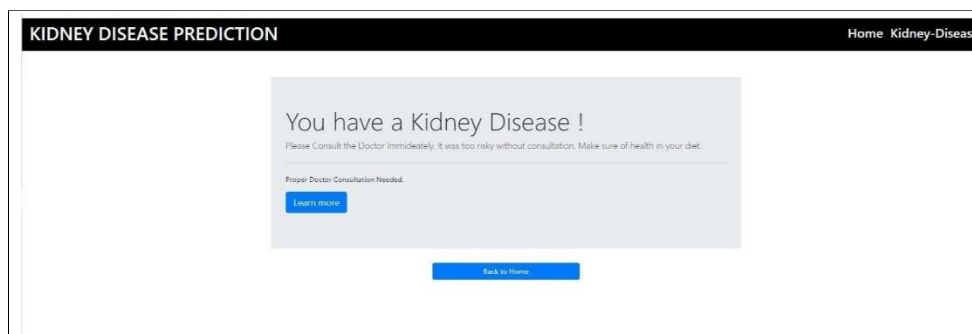


Fig 1: It indicates that the person does not have kidney disease

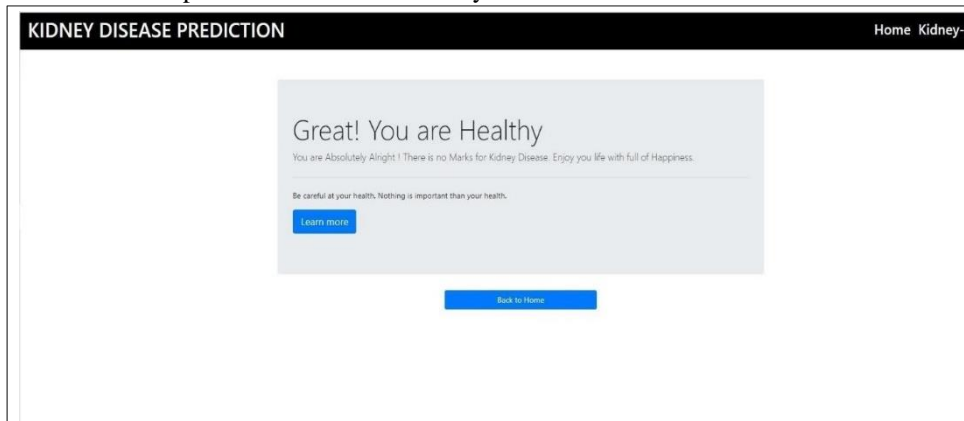


Fig2: It indicates that person have kidney detection

X. CONCLUSION

The objective of the project is to detect whether the person is suffering from chronic kidney disease using machine learning technique so that the person can start the treatment as early as possible. Filling missing value based on distribution of them along with collocation other attributes by K nearest neighbour (KNN) instead of replacing leads to higher accuracy in prediction.

XI. REFERENCES

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