Intelligent Health Assistant

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ABSTRACT: As per the growth in the Indian population health and well-being is a crucial topic that we need to be aware of. Healthcare is a huge and important sector where we need to focus on improving the world's growth and avoiding the viruses like Covid19. With the help of deep learning models, we solve this problem from the ground level, we map the health quality of the people with the help of the internet. We use the specific CNN technique to identify the person's symptoms and as per the severity, the model prescribes the medicines, doctors, and diet plan. This model is helpful in health and effective in business aspects as well. With the help of advertisement, we make a good amount of money and initiate a good community business for doctors, and health trainers and the pharma industry also involves the Cosmo industry for skincare. If health-related data can be timely and correctly acquired, properly stored, and effectively analyzed, it is of great significance for maintaining health and well-being, easy and fast access, tracking healthcare details to avoid accidental treatments, getting a complete healthcare system on a single platform.

KEYWORDS: Health Assistant, Disease Prediction, Diet and Exercise Suggestion, CNN.

I. INTRODUCTION

The rapid spread of Internet technologies and mobile devices has created new opportunities for online health care. Sometimes, consumers can absorb Internet medical help or healthcare advice more easily than in-person assistance. People prefer to look for a solution or therapy online for mild ailments rather than going to the hospital or seeing a doctor. And people in rural areas sometimes ignore or try to ignore mild symptoms until the sickness has progressed to the point where it is no longer treatable. People ask health-related questions on a variety of healthcare forums and another group of people responds to those messages by predicting diseases that may or may not occur. These forecasts, however, may not always be accurate, and there is no guarantee that users will always receive a response to their posts.

Our proposed application will probably be able to predict the diseases more accurately based on the query or symptoms provided by the patient and also be able to predict the future threats to the health based on the patient's history.

The paper is organized as follows. Section II describes related work done in Online HealthCare System. After the explanation of related work done in our area methodologies used and algorithm used is given in Section III. Section IV presents experimental results showing the results of the model tested. Finally, Section V presents the conclusion.

II. RELATED WORK

According to Wenxing et al. [1], a novel deep-learning-based hybrid recommendation algorithm was proposed in their paper. The algorithm predicts possible diseases based on a patient's medical history, providing references to both patients and doctors. It takes into account high-order relations and low-order combinations of disease features, resulting in improved comprehensiveness compared to previous systems.

Dahiwade, Patle G., E. Meshram [2] introduced a general disease prediction approach that considers a person's living habits and checkup information for accurate prediction. The system also calculates the associated risk with general diseases, ensuring low time consumption and minimal cost. The accuracy of disease prediction achieved was 84.5%. In their study, Dahiwade D., Patle G., and Meshram E. [2] compared CNN and KNN for disease prediction. They utilized a disease dataset extracted from the UCI machine learning website, consisting of disease lists and their symptoms. The dataset underwent pre-processing, feature extraction, and selection. Classification and prediction using KNN and CNN were then performed. It was observed that CNN required less time than KNN to classify large datasets and provided more accurate disease predictions.

Repaka, A. N., Ravikanti, S. D., and Franklin, R. G. [3] focused on heart disease diagnosis by leveraging previous data and information. They developed SHDP (Smart Heart Disease Prediction) using Navies Bayesian to predict risk factors associated with heart disease.

VijiyaKumar, K., Lavanya, B., Nirmala, I., and Caroline, S. S. [4] proposed a system for early prediction of diabetes in patients with higher accuracy using the Random Forest algorithm. Their system demonstrated superior accuracy compared to other algorithms and offered an effective and instant prediction of diabetes.

Maurya, A., Wable, R., Shinde, R., John, S., Jadhav, R., Dakshayani, R. [7] proposed a system using a machine learning algorithm and suggest a suitable diet plan for CKD patients using a classification algorithm on medical test records. This extracts the features which are responsible for CKD, then the machine learning process can automate the classification of chronic kidney disease in different stages according to its severity. Detects and suggest diet which will be useful to the doctors as well as patients.

III. METHODOLOGY

This research paper presents a detailed methodology for developing an intelligent health assistance system that utilizes a Convolutional Neural Network (CNN) algorithm to predict diseases based on symptoms, recommend primary medications, provide healthy diet suggestions, and locate the nearest doctor. The system aims to improve healthcare accessibility and provide personalized recommendations for individuals seeking medical assistance. The CNN algorithm is employed to extract relevant features from symptom data and make accurate disease predictions. Additionally, a rule-based approach is used to associate primary medications and healthy diet recommendations with predicted diseases. The system incorporates geolocation features to make it easier to find doctors and healthcare facilities in the area. The suggested methodology entails data gathering, pre-processing, CNN model building, training, and evaluation, as well as rules for food and drug prescription.

IV. EXPERIMENTAL RESULTS

Figures show the results of disease prediction from an input of users' symptoms by using a classification-based CNN algorithm. Fig. (a) shows the input of symptoms given by user (b) is the image obtained by applying the CNN algorithm. The most suitable and accurate disease is predicted with the help of the CNN algorithm. Also, Accuracy is shown in the results.
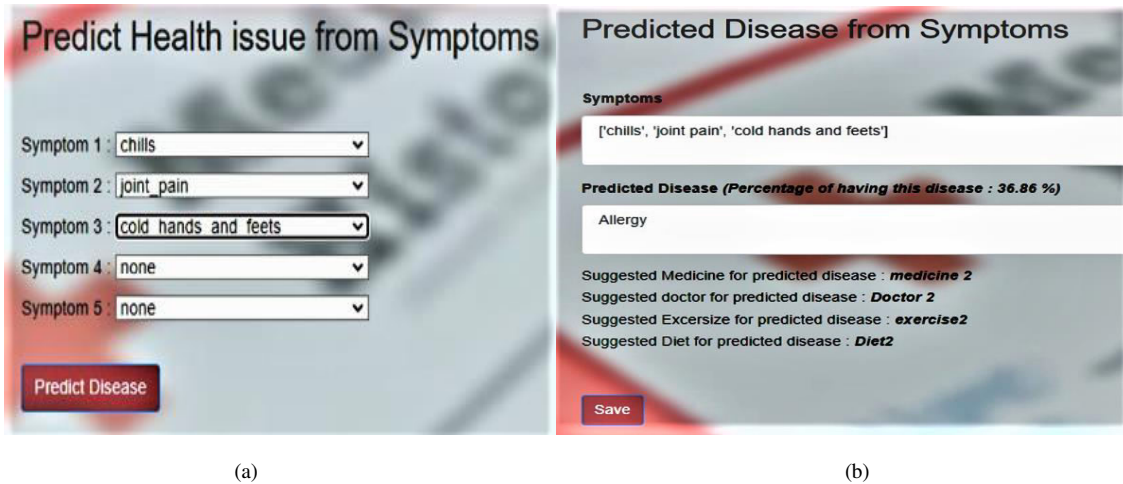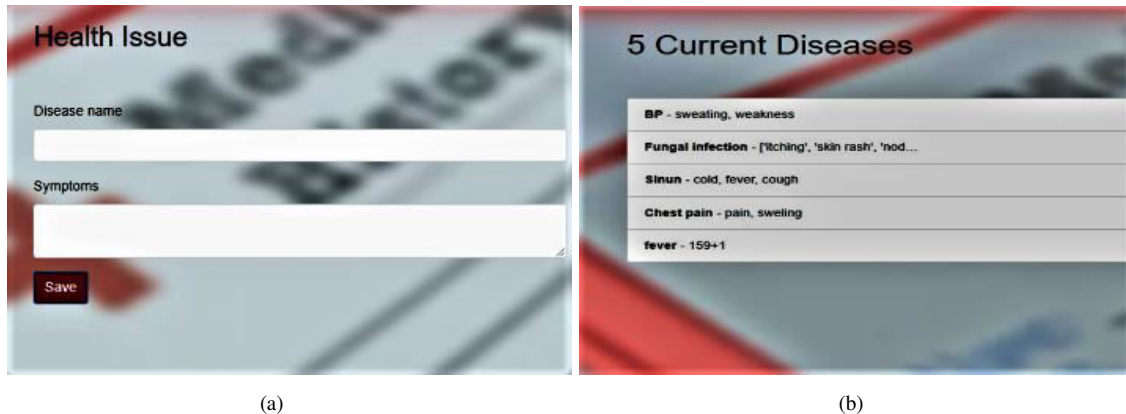
(a)   (b)

Fig. 2. Saving Users History (a) Input from user about his/her Medical history (b) Saved Users History

(a)   (b)

V. CONCLUSION

We have created a Convolutional Neural Network (CNN)-based intelligent health support system that uses a user's symptoms as input to predict diseases, provide primary care, recommend healthy foods and Exercises and find the closest doctor. The system seeks to enhance the accessibility of healthcare, individualised care, and general wellbeing for people needing medical assistance.

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