Virtual Health Diagnosis Using Computer Vision Technology

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Abstract:

One of the most common problems faced by people suffering from common ailments or may be even majorones is the lack of immediate first aid consultation or a centralized service to a clinical database. Due to this lack of the knowledge of the standard operating procedure in such cases, these ailments might aggravate. This results in either physical or mental tension for the person suffering from such ailments. In some cases, the patient suffers from intense mental stress as they try to figure out the reason for their condition.The proposed system tries to eliminate their need to figure out their disease by giving them access to a centralized clinical repository in a much interactive way, just like in a virtual assistant, hence Virtual Health Assistant(VHA).The user gets asked several questions, each one contextually aware of the previous one. The user selects the ailments or their condition and thus a conclusion is reached.This project aims to develop a web service that can present information regarding the health issues and ailments & their history. At the end a precise prescription is generated. What this project can't ensure is the accuracy of the health condition that the service arrived at, and thus in such cases a physician must be contacted. These features thus eliminate the need to search for symptoms online.

Keywords: Virtual Health Assistant,Centralized Service,Health Issues,Mental Stress.

1. INTRODUCTION

Virtual health diagnosis using computer vision technology is an emerging field that combines the power of artificial intelligence (AI) and computer vision techniques to enable remote diagnostic capabilities in healthcare. The integration of computer vision algorithms and image analysis in virtual health diagnosis holds significant potentialto enhance access to healthcare services, improve diagnostic accuracy, and enable timely interventions without the need for in-person consultations.Traditionally, healthcare diagnosis has heavily relied on physical examinations, medical imaging, and laboratory tests conducted in healthcare

facilities. However, these methods often require patients to visit clinics or hospitals, which can be inconvenient, time-consuming, and costly. Additionally, access to healthcare specialists may be limited in certain regions, leading to delayed diagnoses and treatments.

Virtual health diagnosis using computer vision technology aims to address these challenges by leveraging visual data, such as medical images, videos, or real-time patient interactions captured through cameras or other imaging devices. By employing computer vision algorithms and AI techniques, this technology enables the automated analysis and interpretation of visual data for diagnostic purposes.

2. LITERATURE SURVEY

1) "Design and evaluation of a virtual health assistant for chronic pain management" by Alpay et al. (2018): This study presents the design and evaluation of a virtual health assistant that assists individuals with chronic pain management. The virtual assistant incorporates natural language processing, sentiment analysis, and personalized recommendations to provide support and guidance to patients.

2) "Virtual health assistants for self-care: Benefits and challenges" by Laranjo et al. (2018): This paper explores the potential benefits and challenges associated with virtual health assistants for self-care. It discusses the role of virtual health assistants in promoting healthy behaviors, supporting chronic disease management, and facilitating patient engagement.

3) "Virtual health assistant for medication management in older adults" by Finkelstein et al. (2017): The study presents a virtual health assistant designed to support medication management in older adults. The virtual assistant helps users with medication reminders, adherence tracking, and provides personalized recommendations based on the user's medication history.

4) "Evaluation of a virtual health assistant in primary care: A mixed methods study" by Holtz et al. (2017): This research paper evaluates the effectiveness of a virtual health assistant in a primary care setting. The study examines patient satisfaction, usability, and the impact of the virtual assistant on patient-provider communication and self-management of chronic conditions.

3. EXISTING SYSTEM

In the existing system, the interface is not very user-friendly. Also, it lacks many basic features such as a direct communication. Features like online medicine delivery is also absent in the existing system. Also, personal allergies are not taken into account when recommending prescription to the user or patient.

Chatbot-Based Systems: These systems use AI-powered chatbots to interact with users via text or voice interfaces. They can answer health-related questions, provide information on symptoms and conditions, offer self-care tips, and even assist with appointment scheduling.

Voice-Activated Virtual Assistants: Virtual assistants like Amazon's Alexa, Apple's Siri, and Google Assistant have integrated healthcare capabilities. They can provide information on medical conditions, medication reminders, and connect users with nearbyhealthcare providers.

Remote Monitoring and Telehealth Platforms: Some virtual health assistant systems are integrated with remote monitoring devices and telehealth platforms. These systems allow healthcare professionals to remotely monitor patients' vital signs, provide real-time feedback, and conduct virtual consultations.

4. PROPOSED SYSTEM

The primary goal of the proposed system is to simplify the interaction between users and web services, particularly in the context of healthcare. To enhance accuracy, physicians and doctors are recommended as contacts for users, acknowledging that the system's prescriptions and conclusions may not always be precise. The system aims to achieve improved access to healthcare by offering instant information and assistance through virtual health assistants. This accessibility is especially beneficial for individuals in remote areas or with limited mobility, addressing challenges associated with traditional healthcare service access.
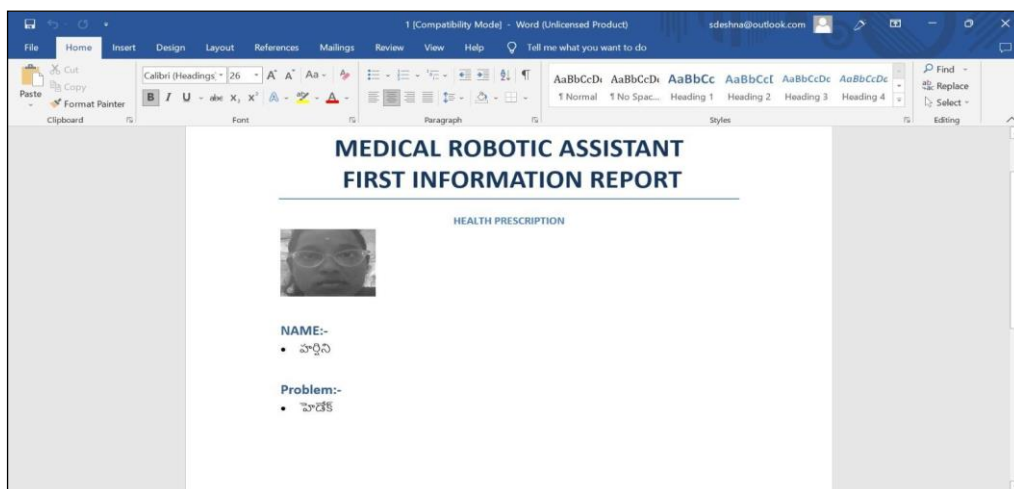
5. EXPERIMENTAL RESULTS

From the below figures it can be seen that proposed model is more accurate in order to prove our proposed system.

Main Window:

6. CONCLUSION

A virtual health assistant is an intelligent software application leveraging artificial intelligence and natural language processing to offer healthcare-related support. It interacts with users, comprehends their queries, and delivers relevant information, guidance, and recommendations. The key benefits include enhanced accessibility, enabling users to access healthcare support anywhere, and increased convenience through immediate responses, eliminating the need for physical visits or waiting for appointments. Additionally, the virtual health assistant can provide personalized information based on user profiles and medical history.

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