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AI-Assisted Telemedicine Kiosk for Rural India

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ABSTRACT: Chatbots support users in conversing via text or voice and machine learning is used to generate answers. In particular, chatbots are more human-oriented and thus are used in e-commerce customer support, call centers, gaming and others' applications. Chatbots have algorithms that allow them to reply to messages, whether by using logical algorithms or programmed ones or by understanding certain words in a given context in the future

Numerous hospitals, nursing homes, and private clinics are beginning to implement chatbots as part of the online services they offer as well. Such bots help visitors through the processes of finding the right doctors, booking appointments, and obtaining necessary care. Still, AI is not only in management, drudgery, or dull tasks, but a deeper understanding comes to everyone's mind that it is also employed in danger zone professions like healthcare and therefore raises the question on whether such important duties can be given to machines instead of real workers.

This system of healthcare chatbots is designed to provide 24/7 online healthcare assistance. It can respond to generic questions, to more pinpointed questions, engage in querying for potential leads, collate lead and sales information, and automatically send it to the sales department. Through a number of filtered questions, the user is guided in a way that helps comprehensively target the right information or services required by a patient or visitors.

KEYWORDS: Health care chatbot.

I. INTRODUCTION

Artificial Intelligence is revolutionizing our lives forever! It mimics human intelligence, changing problem-solving ways. AI & Chatbots lead the transformation. Healthcare is crucial for a good life, but consulting a doctor can be difficult. That's why we need a medical chatbot!. This AI-powered chatbot diagnoses diseases, provides basic info, reduces healthcare costs, and improves accessibility. Some chatbots act as medical reference books, helping patients understand & manage their health. For optimal benefit, the chatbot should diagnose various diseases & offer necessary info. A text-to-text diagnosis chatbot engages patients, provides personalized diagnoses based on symptoms, and empowers them to protect their health. The very concept behind chatbots and avatars speaks for itself on how information can be shared with patients in a short amount of time. Imagine the average house call doctor, but in the form of AI getting all the information that you need in just a couple of ki-clicks! The world of healthcare is in dire need of such AI that would help patients manage their health, find the correct medications, and reassure them at times!

II. RESEARCH METHODOLOGY

This unit functions as the uppermost level for this system which takes in the queries and these are the inputs of the system. Accessible to the user too is the display of the results done by the system. Because of these reasons, here the chat interface forms the focal point of the entire system since all communication occurs through it. It helps facilitate the "When you interact with our system, information flows smoothly between you and our technology. You ask a question in the chat interface.

The chatting backend springs into action, relaying your message between the interface and our Machine Learning (ML) Layer.

We offer flexible interfaces to meet your needs:

- Laptop (for on-the-go convenience)
- Website application (for desktop access).

III. THEORY AND CALCULATION

N-gram: N-gram is an effort to extend N-gram types with different length sequences. A sequence may be, a set of words, a class of words, a syntactical category or any other linear order of something which the designer assumes to contain valuable linguistic structural information. In this system, N-gram serves the purpose of compressing the text or reducing the data space in the document, for the purpose of retrieving the pertinent keywords from the database. N-gram technology takes language analysis to the next level by studying sequences of varying lengths equation 1

$$\text{similarity} = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|} = \frac{\sum_{i=1}^n A_i B_i}{\sqrt{\sum_{i=1}^n A_i^2} \sqrt{\sum_{i=1}^n B_i^2}}$$

Equation-1

IV. RESULTS AND DISCUSSION

The application adopts a question-and-answer format, where its first component is a login page illustrated in Figure 2 a user has to give a detailed account story in the application if you a newcomer, figure 3. The figure 4 shows if the answer to the question is available in the database or shows a similar answer for the question posed in Figure 5. A user posed a question and the experts were directly answering page is what Figure 6 presents. The application incorporates the n-gram approach in which bigram and trigram models for text compression are used to shorten the execution time of the query. Answers to questions are passed on to users with N-gram, TF-IDF, and cosine similarity principles. The project outcome is as follows The user will engage in a text-to-text conversation with the designed chatbot and be able to specify the illness while in particular, the user can retrieve his or her previous conversations as per the records saved in the system database.

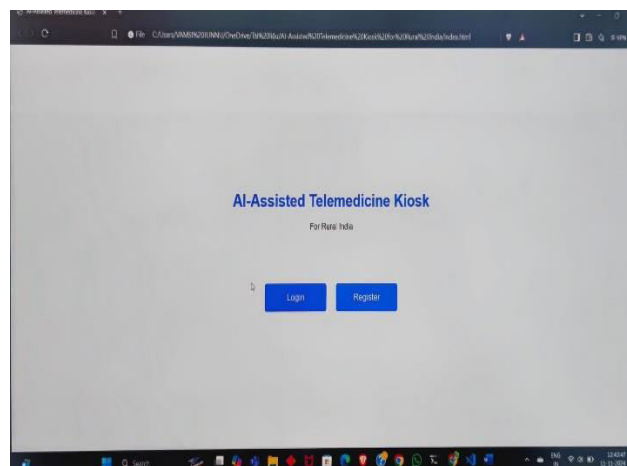


Figure 1

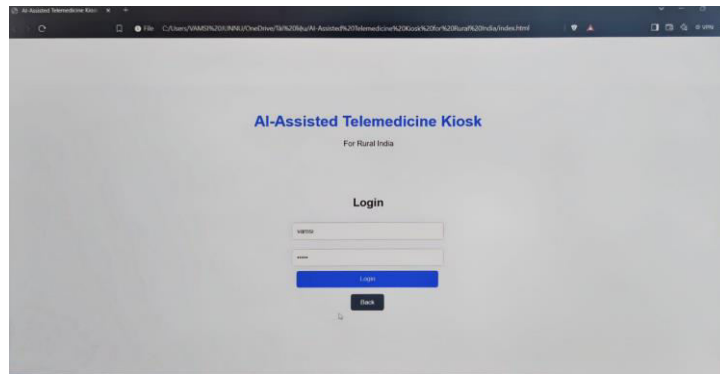


Figure 2

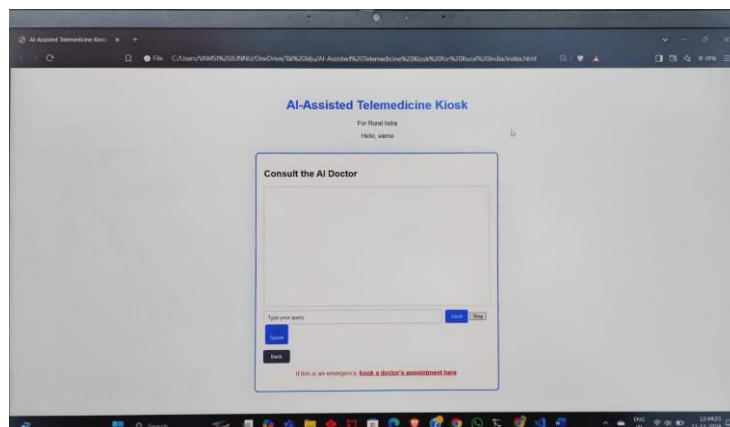


Figure 3

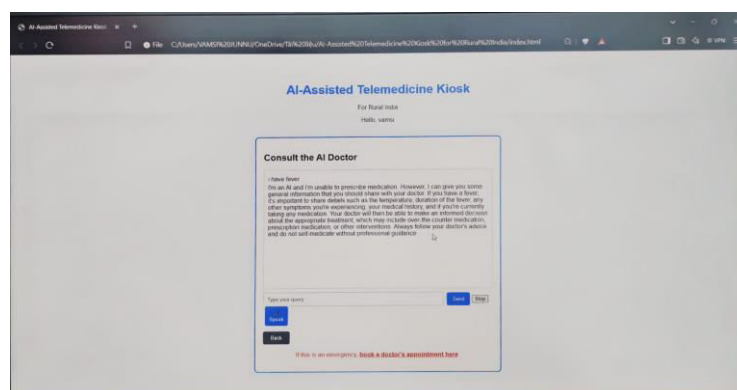


Figure 4

V. CONCLUSIONS

I think it is correct to say that, according to several journals they have read, Chabot's system is quite convenient and any user who can type in their language on either their phone or computer should be able to use it. Sc comes with a medical Chabot that promises to give users a diagnosis based on the symptoms presented. In the future, recognition of symptoms and diagnostic capabilities of the bots can be brought to an ultra-modern level by including more medical specialties such as a geographical position, how long have the symptoms lasted, have them been intense or mild, and even more detailed information about the symptoms. Growing hold of mobile phone applications for various healthcare

delivery systems is through enabling personalized medical assistants which are mostly built on artificial intelligence and a lot of training data.

Eventually, the adaptation of personalized medicine's approach to practice would help rescue many patients' lives and enhance medical education in the population. Many people have made predictions on how the future generation will be with communication and so it has been said that the way people spend their time on different applications will change with most of the time being spent in messaging applications. Thus it can be seen that medical Chatbot has vast and wide future perspective. One does not need to be close to the other in order to have this medical talk.

5.1 Study Limitations

Data Quality and Availability: The chatbot's productivity largely depends on the amount and level of data that the chatbot gathers. Limited access to adequate patient datasets and his records, for instance, can inhibit the ability of the Chatbot to generate appropriate answers.

Generalization Across Medical Specialties: A bot capable of successfully handling global questions may experience difficulties in understanding particular peculiarities of medicine or in answering complicated questions of a narrow medical direction. For it to be successfully deployed across multiple fields of medicine, the system would need additional development.

User Diversity: The cognitive exploration may not offer a reasonable integration regarding the patient population's diversity with regard to age, comfort levels with technology, and the use of language. This means some populations may not have access to the chatbot, as users overlook this feature.

Ethical And Legal Issues: As for health chatbots, guiding the patient in the right direction may raise concerns about privacy, patients' permission issues, and how the collected information may be utilized later on. The area is likely to be under-researched, especially when looking at factors such as compliance with HIPAA and unit policies. **Real-World Implementation:** It is quite possible that the controlled setting of this study might exclude franchise.

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