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AN APPROACH TO AI BASED HEALTHCARE CHATBOT SYSTEM BY USING NLP

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Abstract: Medical services is vital to have a decent existence. Nonetheless, it is hard to get the discussion with the specialist for each medical issue. The thought is to make a clinical chatbot utilizing Artificial Intelligence that can analyze the infection and give essential insights concerning the illness prior to counseling a specialist. This will assist with lessening medical care costs and improve availability to clinical information through clinical chatbot. The chatbots are PC programs that utilization normal language to connect with clients. The chatbot stores the information in the data set to distinguish the sentence watchwords and to settle on an inquiry choice and answer the inquiry. Positioning and sentence likeness computation is performed utilizing n-gram, TFIDF and cosine closeness. The score will be acquired for each sentence from the given info sentence and more comparable sentences will be gotten for the question given. The outsider, the master program, handles the inquiry introduced to the bot that isn't perceived or is absent in the data set.

Index Terms – Artificial Intelligence, Chatbots, Health Care Systems, Machine Learning, Natural Language Programming

I. INTRODUCTION

The rise of web and mobile applications have paved way for many interventions in the field of medicine and healthcare. Chatbots, also known as conversational agents, interactive agents, virtual agents, virtual humans, or virtual assistants, are artificial intelligence programs designed to simulate human conversation via text or speech. Businesses constantly need to evolve and adopt newer trends to succeed. These days companies are implementing chatbots that help in solving customer queries, improving communication, and remote troubleshooting to enhance customer experience. Soon as user heard this reply from Siri, user found a perfect partner to savors its hours of solitude. From stupid questions to some pretty serious advice, Siri has been always there for them. How amazing it is to tell someone everything and anything and not being judged at all. A top class feeling it is and that's what the beauty of a chatbot is. A chatbot is an intelligent piece of software that is capable of communicating and performing actions similar to a human. Chatbots are used a lot in customer interaction, marketing on social network sites and instantly messaging the client. There are two basic types of chatbot models based on how they are built; Retrieval based and Generative based models. How do the Chatbots function? The main technology that lies behind chatbots is NLP and Machine Learning. When a question is presented to a chatbot, a series or complex algorithms process the received input, understand what the user is asking, and based on that, determines the answer suitable to the question. Chatbots have to rely on the ability of the algorithms to detect the complexity of both text and spoken words. Some chatbots perform very well to the point it becomes difficult to differentiate whether the user is a machine or a human. However, handling complex conversations is a huge challenge; where there is a usage of various figures of speech, it may be difficult for machines to understand.

A chatbot is a computer program that simulates human conversation through voice commands or text chats or both. Chatbot, short for chatterbot, is an artificial intelligence (AI) feature that can be embedded and used through any major messaging applications. There are a number of synonyms for chatbot, including "talkbot," "bot," "IM bot," "interactive agent" or "artificial conversation entity."

II. LITERATURE REVIEW

Types of Chatbots

Chatbots are categorized into two different types. Let us look at both and see how they function.

1. Retrieval based Chatbots: A retrieval-based chatbot uses predefined input patterns and responses. It then uses some type of heuristic approach to select the appropriate response. It is widely used in the industry to make goal-oriented chatbots where we can customize the tone and flow of the chatbot to drive our customers with the best experience.

2. Generative based Chatbots: Generative models are not based on some predefined responses. They are based on sequence 2 sequence neural networks. It is the same idea as machine translation. In machine translation, we translate the source code from one language to another language but here, we are going to transform input into an output. It needs a large amount of data and it is based on Deep Neural networks.

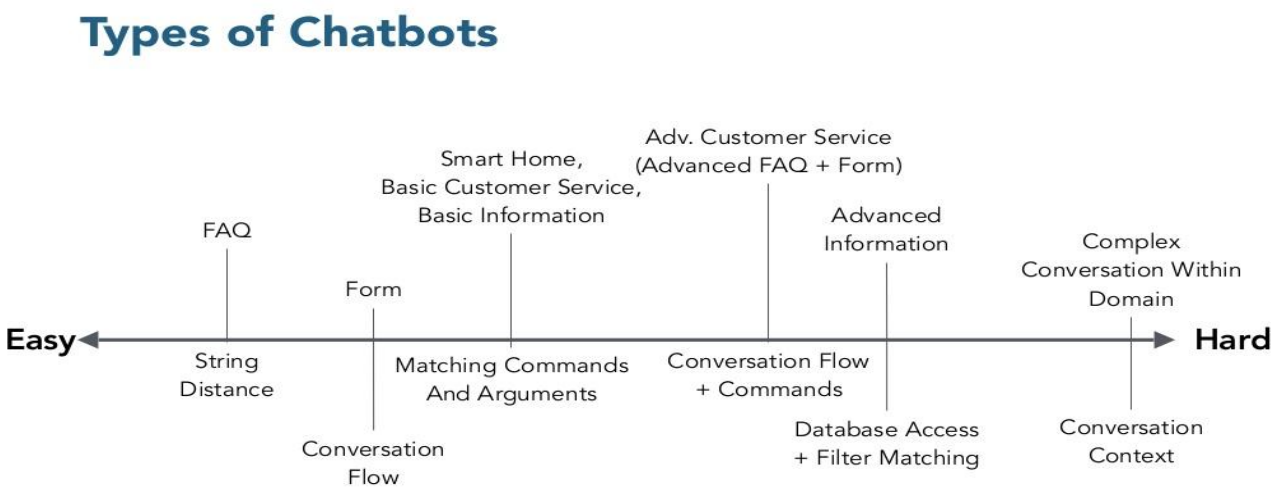

Fig. 1: Types of Chatbots

There are various interesting chatbots, which can make your life easy. For companies, chatbot development focuses on improving their business processes and providing better user experience to their customers. It is also being utilized to serve customers on social media platforms like Face book and others. However, most of the Face book bots are easy to develop and use, as many of them do not need coding, and anyone can create it.

III. Motivation

We initially investigate various structures of ANNs for NLP and dissect the current models used to assemble a chatbot. We at that point endeavor to pick up knowledge into the inquiries: What are Deep Neural Networks and for what reason would they say they are significant? How is a chatbot worked starting today, what are their constraints and where would we be able to endeavor to improve? We assess some novel executions and report on their adequacy. We have investigated articles, which are principal to this issue just as the ongoing improvements in this space.

With the several chatbots available in the market it provides only personal information to user and make the customer suffer in a panic situation because of poor responsive GUI. In this dissertation work this states to cover all the flexibility in chat boards and sufficient data sets to provide a suitable answer of all questions possibility conducted in panic situation by user.

IV. Aim & Objective

- Chatbot is a smart enough to response a particular suggestion from database stored in it.
- To make user friendly GUI based system which is easy to use by user and whenever user enter a text or ask a question.
- To recognize the requirement of user using NLP technology of text.
- CNN algorithm digitization work fast processes the finding answers from data sets on keyboards written in the text.

V. Proposed Methodology

This approach starts with taking the text input from the user in the android app. We promote user to enter the question for the chatbot and then we read the entered value in the edit text. Then send the value to the interface of our hosted Program – O. Get the reply from the Server, Server gives reply in the JSON format. We need to parse it to get the bots response. If bots response is null then set the response to the error string and show it to the user. Repeat the same task for the continuous chatting with the chatbot.

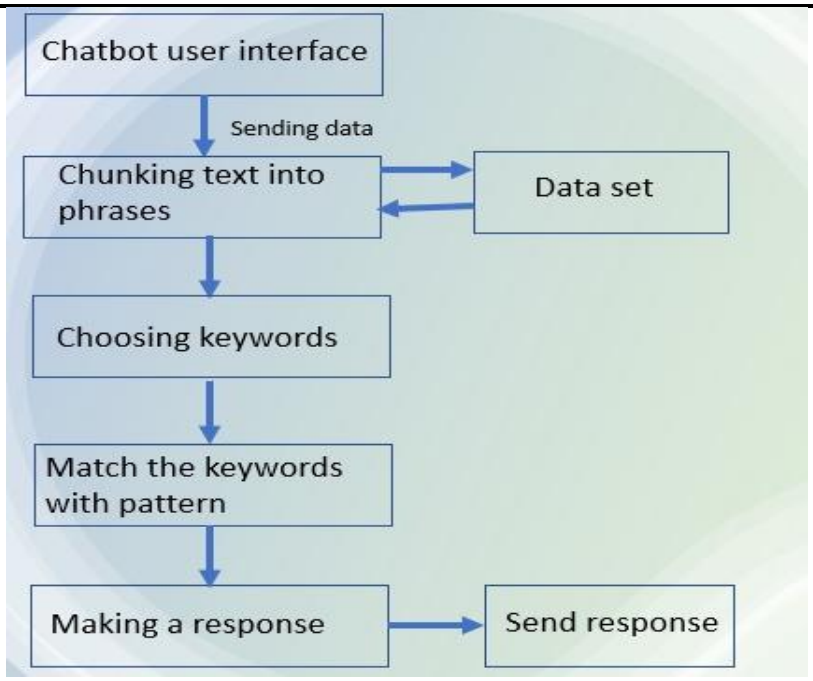

Fig. 2: Flowchart of work

The following steps explain the implementation details to accomplish the above-mentioned tasks:

1. Read the user input on the Click event of the send button.
2. Send the user input to the program – o hosted server using the HttpUrlConnection. Here we are dealing with the internet stuff so we need to call this method in the AsyncTask of the android system. AsyncTask runs in the background of the app.
3. Wait till getting the reply from the server. OnPostExcute method of the AsyncTask will get the JSON formatted reply. Then send it to JSON parser to extract the bot"s response.
4. After extracting the bot"s response, we need to display it to the user. So, append the response to text view.
5. Then repeat the process for the next user input.

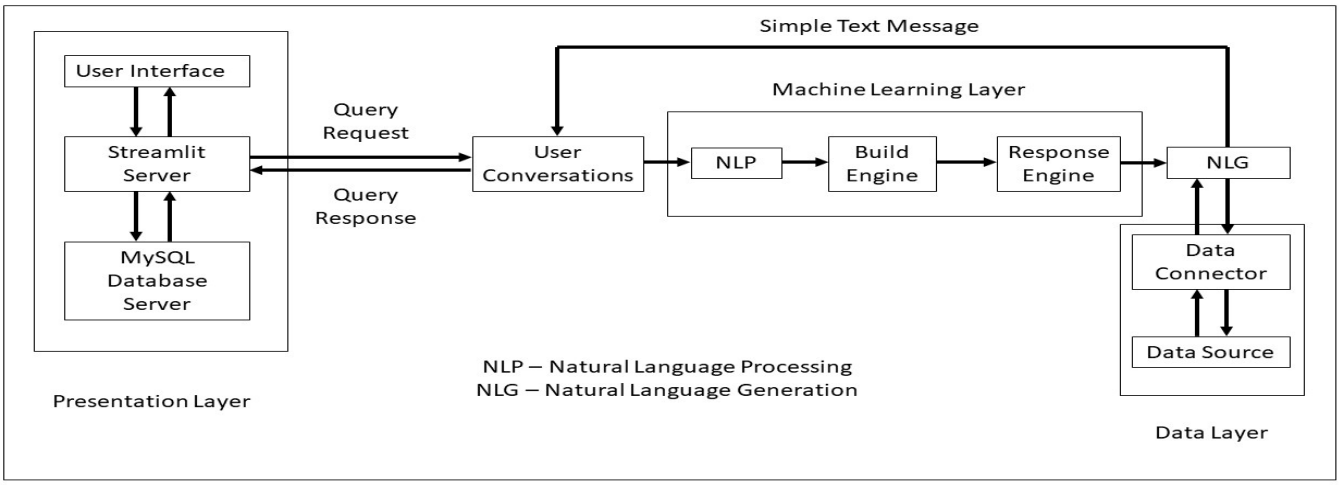

Fig. 3: Flowchart of Proposed Approach

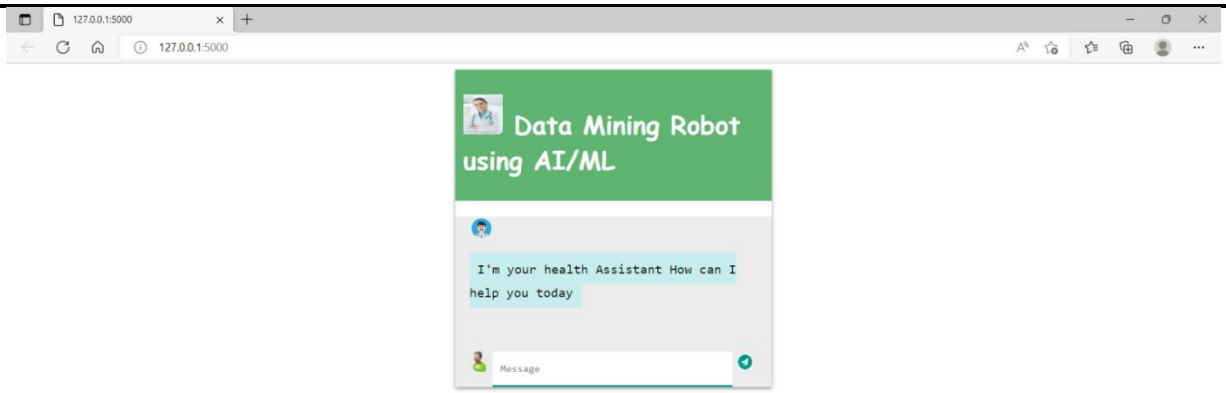

Fig. 4: User Interface

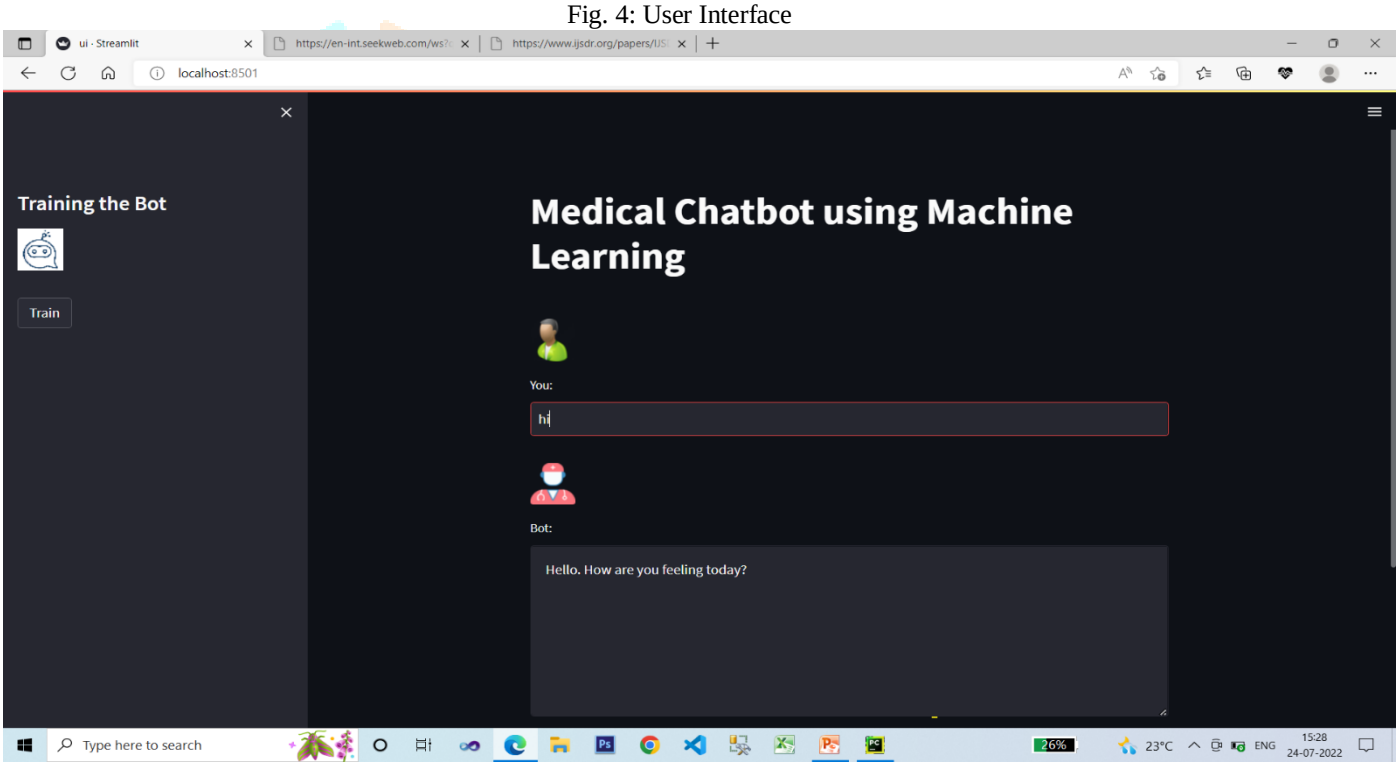

Fig. 5: Medical Chatbot

VI. COMPARISON WITH EXISTING METHOD

Table1: Comparison with Existing Methods

EXISTING METHODS	PROPOSED APPROACH
UI [Framework] is modarant	Advance feature i.e. easy to handle
In this we have to train the data	If there is problem in database management system data against UI
Database is deleted and new database is created	Old database is replaced by new database
Text to speech was not there	Text to speech
In this conversation was not save	Conversation are save
Book an appointment	Call system

VII. ADVANTAGES

- 24 Hours Availability
- Instant Answers
- Endless Patience
- Programmability
- Personalization

VIII. CONCLUSION

Smart solutions are important for the success of any business. From providing 24/7 customer service, improving current marketing activities, saving time spent on engaging with users to improving internal processes, chatbots can yield the much-needed competitive advantage. If you are looking to develop a chatbot, the best thing to do is to approach a company that will understand your business needs to develop a chatbot that helps you achieve your business goals.

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