



Automatized Medical Chatbot (Medibot)

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Abstract

Automatized medical chatbots are conversationally built with technology in mind with the potential to reduce efforts to healthcare costs and improve access to medical services and knowledge. We built a diagnosis bot that engages patients in the conversation for their medical queries and problems to provide an individualized diagnosis based on their diagnosed manifestation and profile. Our chatbot system is qualified to identify symptoms from user inputs with a standard precision of 65%. Using these extracted diagnosed symptoms correct symptoms were identified with a recall of 65% and a precision of 71%. Finally, the chatbot returned the expected diagnosis for further operations. This determines that a medical chatbot can provide a somewhat accurate diagnosis to patients with simple symptom analysis and a conversational approach, this suggests that an effective spoken language medical bot could be viable. Moreover, the relative effectiveness of this bot indicates that more proceeds automated medical products may flourish to serve a bigger role in healthcare.

INTRODUCTION

Chatbot systems automate a lot of customer care services and companies, institutions, and organization's websites. Users get quick responses to the questions that are more common are which are frequently asked. Here we have proposed a chatbot system for patients. Patients may have lots of queries related to diseases, medicines, and other facilities. Instead of asking any random person they can get quick answers via this chatbot system. A chatbot is an AI agent that can participate in a conversation with a user. Most are equipped with a messenger-type interface with an input from a user and an output from the chatbot. The chatbot processes the user's input and outputs a reply based on what the user has just sent. It could be a greeting, a conversation topic, or even an image. Most basic chatbots work by matching a user's input with a predefined set of dialogs. For example, a user saying "Thank you" will result in the chatbot saying "You're Welcome". The predefined set of dialogs can be set up to imitate a normal conversation between two people. Problems can arise when a user says something the chatbot does not recognize, an example could be the user meaning to say "Thank you", but instead saying "Thanks a lot", this can confuse the chatbot as it will be looking to match the "Thank you" input with "Welcome". This leads to a lot of manual work by trying to define every combination of a user saying "Thanks". Modern chatbots are more complex and feature natural language processing that can learn from user inputs. They can access APIs to get information from users such as news, - 10 - weather, time, etc. They can even process orders and make bookings entirely through a chatbot interface.

Chatbots are well suited for mobile devices as messaging is at the heart of a mobile phone. Messaging has come a long way since SMS messages became popularized in the 2000s and is now on the decline. From the years 2011-2015, the usage of SMS in Ireland has dropped by 44%. 3 billion texts in 2011 compared to 1.7 billion texts in 2015. [John Hargan, killbiller.com 2015] Although SMS is experiencing a decline, this does not mean that people are not sending messages anymore, it just means they are using different services. It is fast becoming more used than an application, and businesses are taking advantage of this. With automation looking to take over manual labor and factory-type jobs, chatbots are starting to make their way into the customer service sector. Customer service jobs whereby a human worker will

work off a script and a set of answers to generic customer queries will soon be replaced by chatbots. Chatbots can be trained and equipped to deal with the everyday needs of a customer and they provide very little cost. It is also worth mentioning that chatbots can run 24/7 365, giving customers what they need even during the Christmas and holidays. With the cost of the development of a chatbot ranging anywhere from 3,000 to 10,000, it would be a no-brainer for a company to implement chatbot services in its customer service department. [Oswalt, 2017] Inevitably, there will be situations where a chatbot will not suffice and a customer will have to be redirected to a human representative, but it is still a step forward in cutting down costs and automation. Another aspect of chatbots that should not be overlooked is the data they can collect. Chatbots are just another stream of data that companies can exploit and benefit from. Chatbot conversations can provide everyday user scenarios that can be used for training material for human workers. Chatbots can be used to complete data sets by acquiring information from users. The conversations can be used to learn more about the user and build up an advertising profile that can then be used for targeted advertising and promotions. From large multi-national organizations to restaurants down the - 11 - road, the data a chatbot can collect can help identify who your customers are and what they want. The infrastructure is there for chatbots to thrive as more and more people are using messaging apps every day. There is a wealth of APIs and platforms for chatbots to explore and make use of and bring interesting features and services to users.

Motivation

Chatbots potentially represent a new paradigm in how people will interact with data and services in the future. Currently, there is a lack of empirical investigations into why people use chatbots. This study provides needed insight into the motivational factors related to the use of conversational interfaces. Its results can guide future research on this topic, which may provide new insights and guide future design and development of chatbots.

Objective

- To create an intelligent AIML based chat bot that can allow a human interacting with the bot to have an ongoing, interesting, and enriched conversation featuring looked up information from Google.
- Basic functionality – ability to respond to basic words/phrases
- Advanced logic – be able to talk about different topics
- Pull data from Google. E.g What's the weather like etc, current news events
- The bot should be able to pick topics to talk about rather than waiting on user input.

LITERATURE SURVEY STUDY OF RESEARCH PAPER

A research paper is a document of a scientific article that contains relevant ex- parties, including substantive observations, and also references to a specific subject of philosophy and technique. Use-secondary references are reviewed in literature and no current or initial experimental work is published.

1. PaperName: Model of Multi-turn Dialogue in Emotional Chatbot Author: Chien-Hao Kao, Chih-Chieh Chen.

Abstract: The intent recognition and natural language understanding of multi turn dialogue is key for the commercialization of chatbots. Chatbots are mainly used for the processing of specific tasks, and can introduce products to customers or solve related problems, thus saving human resources. Text sentiment recognition enables a chatbot to know the user's emotional state and select the best response, which is important in medical care. In this study, we combined the multiturn dialogue model and sentiment recognition model to develop a chatbot, that is designed for used in daily conversations rather than for specific tasks. Thus, the chatbot has the ability to provide the robot's emotions as feedback while talking with a user. Moreover, it can exhibit different emotional reactions based on the content of the

user's conversation. data is imbalance, and the dataset is generated by the TV series in which the actors may express strong emotional up sand downs to express the tension of the story. We will improve this issue by adding tags to quantify the emotion. For continuous positive or negative emotions, give a higher value than usual, which can make the emotional transition appear smoother, rather than a sudden change. Most of the training datasets of the generative model for current chatbots are question-answer chats, although the generative model differs from those for specific task, the answers are dull and vague in daily conversation. There are still many factors that affect the content of a conversation. We assumed that there is no standard answer in a chat, but the generative model chatbot uses Seq2Seq from the translation model as a generator. Therefore, in this study, changes have been made to generate multiple types of responses in the presence of many different factors. The emotion feedback by

a chatbot is not specified by a human or rule-base but is automatically changed by learning, thus making the response more natural.

2. PaperName: The Potential of Chatbots: Analysis of Chatbot Conversations Author: Mubasher Akhtar, Julia Neidhardt.

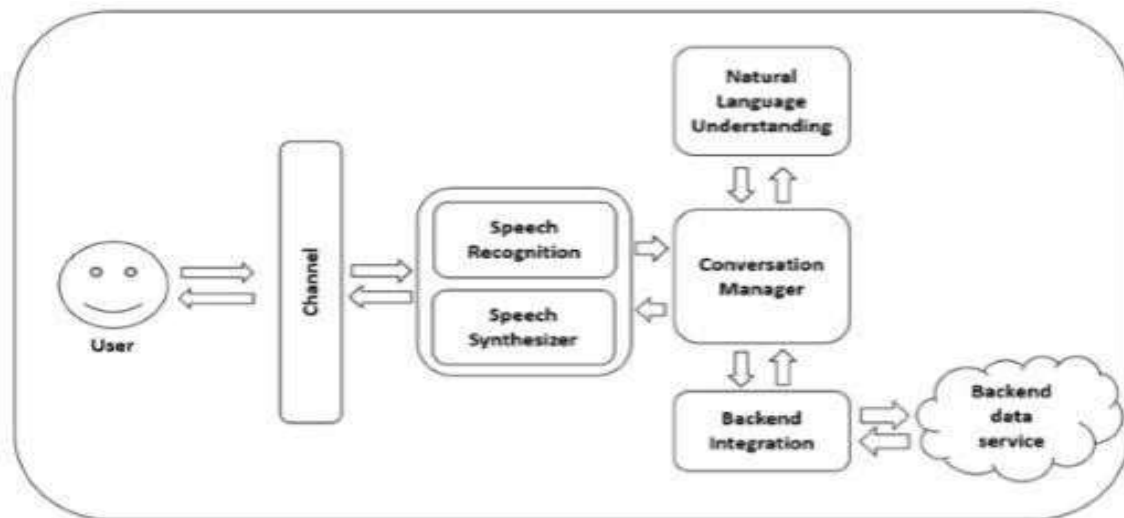
Abstract: The idea of utilizing computers for question answering tasks has been around from the early beginning of these systems. First algorithms with the aim to Accomplish this were already implemented in the early 1960s. In recent years, chatbots have been gaining enormous popularity in various fields. In the context of business applications, they are considered as useful tools for improving customer relationships. In this paper, chat conversations between customers and the chatbot of a telecommunication company are analyzed to find out if these interactions can be used to determine a) users' topics of interests and b) user satisfaction. To reach this goal, chat conversations are interpreted as sequences of events and user inputs are analyzed with the help of text mining techniques. The study shows that based on users' written conversational contributions, valuable insights on users' interests and satisfaction can be gained. The majority of users leave the chat conversation after a short period of time if the chatbot was not able to give the desired answer right away. Moreover, a huge number of conversations deal with similar topics. Our results imply that companies offering chatbots must thoroughly analyses the collected data to gain more insights into their customers' needs. Based on our findings, they can improve customers' satisfaction by offering personalized service and implementing real-time feedback.

3. Paper Name: Yapa Zeka Tabansi Rehber Robotlara Genel Bir Bakı,sve "Ornek Bir Rehber Robot Ugulava's An Overview of Artificial Intelligence Based Chatbots and An Example Chatbot Application

Author: Naz Albayrak, Akdeniz "Ozdemir and Engin Zidan

Description: Chatbot can be described as software that can chat with people using artificial intelligence. This software is used to perform tasks such as quickly responding to users, informing them, helping to purchase products, and providing better service to customers. In this paper, we present the general working principle and the basic concepts of artificial intelligence based chatbots and related concepts as well as their applications in various sectors such as telecommunication, banking, health, customer call centers and e-commerce. Additionally, the results of an example Chabot for donation service developed for telecommunication service provider are presented using the proposed architecture.

System Architecture



Module

- Module1: Press the button for voice input.
- Module2: We need to give our question or query to system.
- Module3: System will recognize the speech.
 - Module 4: Recognize the query using Speech Recognition Module and convert to text using text Conversion.
- Module5: Translate the query using translator.
- Module6: Match the query in database (Use NLP).
- Module7: Response to query by translating in quick way.

CONCLUSION

The framework we create to make client benefits simple. As there we are attempting to make framework simple to connect. There will be no compelling reason to press the catch to pick choice just as no compelling reason to hang tight for answer. Here we use Speech Recognition module, Speech to content change module and language interpreter module. Chatting bot service provider acts as a customer care for many organization / institutions / industries etc. or it may act as a personal assistant to all the people of the world. Bots developed on our site can also help to remember many things. It may also help in attracting customers nationwide for many companies. It can also be used to entertain people by sending them jokes, facts, quotes etc. whenever they are bored. At the top of all performance in the main concern while developing our project so that it can service millions of customers at a single moment of time. After best of testing results and responses from developed system proposed method concluded that methodology is provenly successful.

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