

Medical Chatbot using Machine Learning Through Text and Voice Instruction.

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Abstract: *Advances in modern technologies have caused a shift towards digital health in healthcare, where clinical and administrative activities can be assisted by computer-generated analytics, and with the use of electronic medical records. However, although health professionals have trained for years to practice, retrieving information from a large-scale database often requires specialist IT skills and a specialized infrastructure. Therefore, an information retrieval system in the form of a question answering (QA) model can be of great value for health professionals, in helping find similar patients, patterns of disease, or successful treatments. The proposed system is build using Natural Language Processing algorithm. It strives to build machines that understand and respond to text or voice data.*

Keywords: Machine Learning, Natural Language Processing

I. INTRODUCTION

Chat bot system is automating lot of customer care service and also company , institutions , organization's websites. User get quick response to the questions which are more common are which are frequently asked. Here we have proposed chat bot system for patients. Patients definitely may have lots if queries related to diseases, medicines and other facilities. Instead of asking any random person they can get quick answer via this chat bot system. The chatbot processes the users input and outputs a reply based on what the user has just sent. It could be a greeting, conversation topic, or even an image. Chatbots are well suited for mobile devices as messaging is at the heart of a mobile phone. It is also worth mentioning that chatbots can run 24/7 365, giving customers what they need even during the Christmas and public holidays and they can do so with being cost-effective.

II. PROBLEM STATEMENT

It is difficult to have access to hospital and doctors personally on regular basis. It is time-consuming and costly to approach hospitals for normal consultancy. There is need for localized people to connect to the medical practitioners at ease, which is possible by using machine learning approach. For a person's health to recover, these problems can be detected and controlled effortlessly.

III. LITERATURE SURVEY

Model of Multi-turn Dialogue in Emotional Chatbot: In this paper 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

The Potential of Chatbots for Analysis of Chatbot Conversations: To reach this goal, chat conversations are interpreted as sequences of events and user inputs are analysed 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.

Intelligent Chatbot for Easy Web-Analytics Insights: In this fast-moving data-driven world, it is vital that we draw the



accurate insights to make the right decisions at the right time. In terms of online websites, there are many web analytics tools that will give us performance reports. However, it is tedious and time consuming to master the tools leave alone to derive insights to understand the business impacts. In this paper, I am comparing 2 widely used analytics tools based on their ease of use. In the light of the same, I am proposing an Artificial Intelligence Machine Learning (AIML) driven chatbot, that is fueled with analytics' raw data, that will enable bot-users to get business insights by just typing in the query. In this paper, I propose a chatbot that would enable botusers to just type in the query related to web analytics and will get response immediately. This is to avoid the time consuming task of mastering a web analytics tool.

IV. SYSTEM ARCHITECHTURE

Tkinter: Tkinter is Python's de-facto standard GUI (Graphical User Interface) package. Tools in Tkin- ter: Window: It refers to a rectangular area somewhere on the user's display screen. Top level window: A window that exists independently on the screen. It will be decorated with the standard frame and controls for the desktop manager. It can be moved around the desktop, and can usually be resized. Core widgets: The containers:frame, toplevel, paned window. The buttons: button, radiobutton, check- button (checkbox), menubutton (combobox). The text wid- gets: label, labelframe, message, text. The entry widgets: scale, scroll, listbox, slider, spinbox, entry (singleline), text (mul- tiline), and canvas (vector and pixel graphics). There are the extension widgets: tkoptionMenu, tkdialog, tkmessageBox, tkgetOpenFile, tkgetSave- File, tkchooseColor, tkchooseDir T hettkwidgets : Therearettk :: button, ttk :: checkbutton, ttk ::combobox, ttk :: entry, ttk :: frame, ttk :: label, ttk :: labelframe, ttk :: menubutton, ttk :: notebook, ttk :: panedwindow, ttk :: progressbar, ttk :: radiobutton, ttk :: scale, ttk :: scrollbar, ttk :: separator, ttk :: sizegrip, ttk :: spinbox, ttk :: treeview. Frame:The Frame widget is the basic unit of organization for complex layouts. A frame is a rectan- gular area that can contain other widgets.System will feature aesthetically pleasing and easy-to-use, complete with Decision integrity controls to ensure accurate information. The layout of the system must be clear and clean, and utilize fast-loading additional tool like fragment based recommendation system. The functional areas of system will be quick loading and agile in response time, to produce result. To ensure system protection, user will provide trusted and secure dataset. Additionally, system must provide clear navigation and transparency.

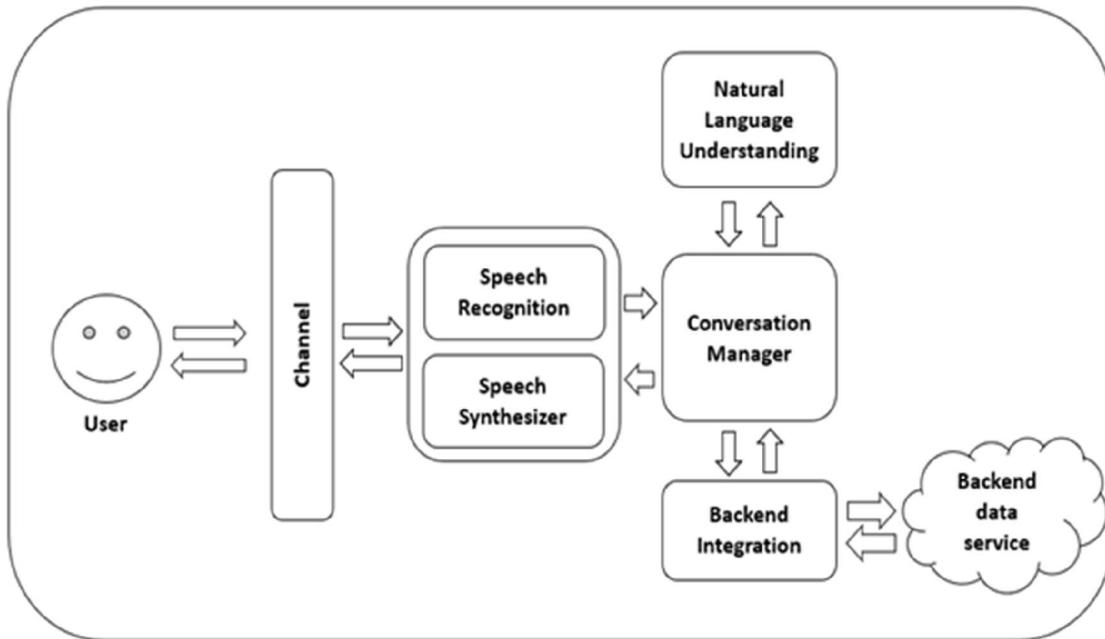


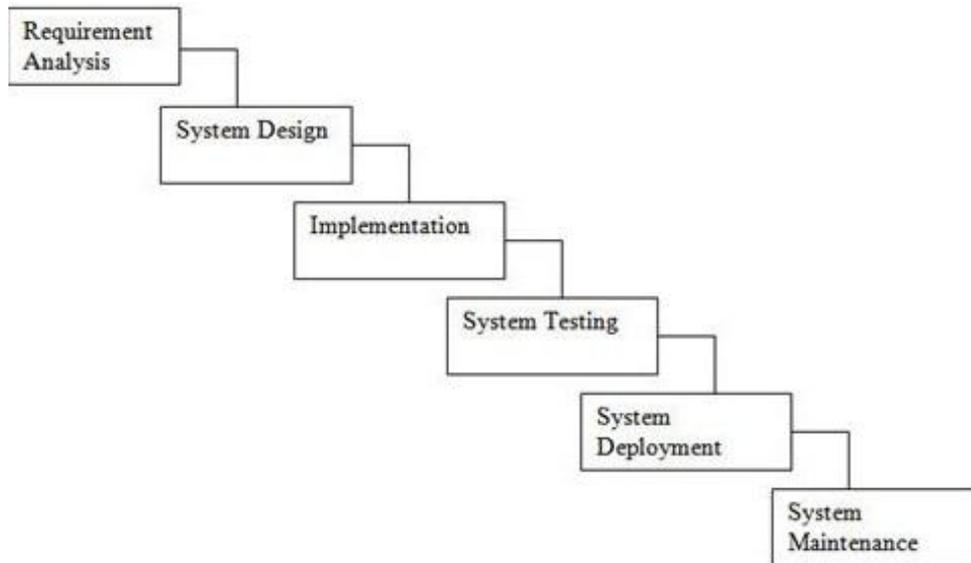
Fig 1. System Architecture



Analysis Models: SDLC Model to be applied

Waterfall Model is a sequential model that divides software development into different phases. Each phase is designed for performing specific activity during SDLC phase. It was introduced in 1970 by Winston Royce. This is used for our project. This model is simple and easy to understand and use. It is easy to manage due to the rigidity of the model each phase has specific deliverables and a review process. Waterfall model works well for smaller projects where requirements are clearly defined and very well understood.

SDLC Model Diagram



SDLC Model Diagram

4.1 SOFTWARE QUALITY ATTRIBUTES

Software has many quality attribute that are given below: 1. Adaptability: This software is adaptable by all users. 2. Availability: This software is freely available to all users. The availability of the software is easy for everyone. 3. Maintainability: After the deployment of the project if any error occurs then it can be easily maintained by the software developer. 4. Reliability: The performance of the software is better which will increase the reliability of the Software. 5. User Friendliness: Since, the software is a GUI application; the output generated is much user friendly in its behavior. 6. Integrity: Integrity refers to the extent to which access to software or data by unauthorized persons can be controlled. 7. Security: Users are authenticated using many security phases so reliable security is provided. 8. Testability: The software will be tested considering all the aspects.

4.2 PERFORMANCE REQUIREMENTS

- The performance of the functions and every module must be well.
- The overall performance of the software will enable the users to work efficiently.
- Performance to detect diseases and provide appropriate solution should be efficient.

4.3 SAFETY REQUIREMENTS :

The application is designed in modules where errors can be detected and fixed easily. This makes it easier to install and update new functionality if required.

4.4 FUTURE SCOPE

In the time of viruses infected world, people are frightened to leave house for regular medical checkups. In these critical time medical chatbot can be very helpful as it provides suitable solutions for regular medical checkups from their safe



place. Since not everyone is literate this chatbot can provide solution in user friendly languages. Moreover it can be developed as a web application.

V. CONCLUSION

A medical chatbot provides personalized diagnoses based on symptoms. In the future, the bot's symptom recognition and diagnosis performance could be greatly improved by adding support for more medical features, such as location, duration, and intensity of symptoms, and more detailed symptom description. The implementation of Personalized Medical assistant heavily relies on AI And ML algorithms as well as the training data. At last, the implementation of personalized medicine would successfully save many lives and create a medical awareness among the people. As said before, the future era is the era of messaging app because people going to spend more time in messaging app than any other apps.

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