Android Chatbot Using Artificial Intelligencemarkup Language (AIML) And Natural Language Processing (NLP)

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Abstract- *An Android chatbot is a communicating application where a computer application is designed to perform an intelligent communication. It can take user input in many formats like text, voice. For this purpose, many open-source platforms are available. To create android chatbot we use Android Studio software and use Java for backend and HTML/JavaScript for frontend. Artificial Intelligence package is used to build up a communicating application (chatbot) artificially. Chatbots, or communicational interfaces, present a new way to interact with computer systems. This chatbot will allow a user to simply ask some Trust related questions in the same way as they would address a human. The core technology of proposed chatbot is Natural Language Processing (NLP), client server architecture with the help of Android GUI, AIML Script.*

Keywords- Chatbot, communicating, NLP, AIML Script, Machine Learning.

I. INTRODUCTION

An Android Chatbot is nothing but the Android Application. The Trust chatbot application is built using AIML, machine learning algorithm that examines user's questions and understand user's message. This System is an android application that provides answer to the questions of the users. Users just have to type or speak their question to the bot and start chatting. The System uses built in algorithm to answer the question. The system provides appropriate answers as per user questions. The User can ask about any Trust related activities through the application and so the user doesn't have to personally go to the trust for enquiry. The application replies using an effective Graphical User Interface (GUI). The user only has to register himself to the application and has to login to the application. After log-in the user can query trust / college related activities such as date and timing of annual day, sports day, other cultural activities and trust related information. This system helps the user to be updated about the college activities.

The chatbot uses text, voice as the input. Text I/O is relatively effective as user can review for the input so that it can be rechecked if there are any mistakes. However, giving text input is time consuming. So, the solution is to introducing voice interface with the speech recognition technology.

II. LITREATURE SURVEY

Md.Shahriare Satu and Shamim-AI-Mamun [1] showed the review of applications of the Chatbot which are developed using the AIML scripts. They said that AIML based chatbots are easy to implement, they are lightweight and efficient to work. Their paper gives the detailed information about the different applications of the chatbots.

Thomas N. T. and Amrita Vishwa [2] designed a AIML and LSA based chatbot to provide the customer care service over the E- commerce websites. Their approach shows we can improve the chatbot ability by adding other models to it. In android operating system, we can implement

The concept of Natural Language Processing using AI has proposed by Unnati Dhavare and Umesh Kulkarni [3]. In this concept input and output of the system can be in speech/text/images. The input is handled by NLP (Natural language Processing) techniques. Imran Ahmed and Shikha Singh [4] have designed a web based Chatbot which is implemented in python with AIML language.

III. METHODOLOGY

There are many techniques to interact with the user inside the android application. The technique includes Machine Learning Voice Recognizer, ML Search, etc. The communication includes question asking related to college and trust with the help of text and voice. The use of voice for input improves the reachability and handling of the android application.

We use Machine Learning technology to handle data. The Machine Learning technology catches the keywords that are given by the user and produce the related output from the database and displays the result on screen. If the question out of scope have been asked the application displays the warning and error message. The system uses text as well as voice as input.

IV. ARCHITECTURE

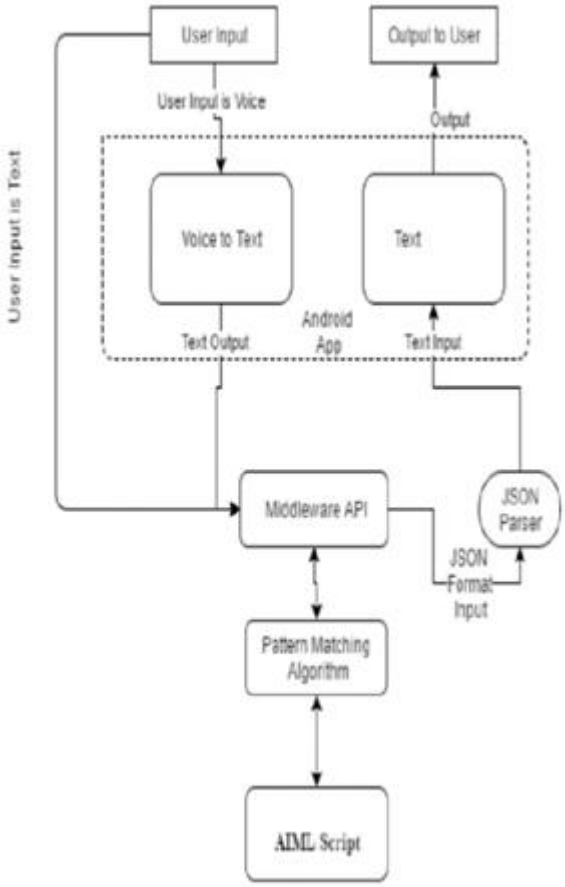

Fig1.Block Diagram of Android Chatbot

The system works in two modes, text and voice. When user gives the input in text format the first mode is activated. The user input is passed to the middleware API for the response. On other hand when user gives the voice input then second mode is activated, in this voice mode we first convert the voice into text before sending it to middleware API. Middleware is the model which connects the AIML scripts with our android app. When user input is received at the middleware, it is passed to the pattern matching algorithm which runs over the AIML scripts. In this process, firstly the pattern matching algorithm is executed for matching of the valid response from the available AIML scripts. When pattern is matched, the corresponding template is return to the middleware. Then Middleware encodes the template into the JSON format and sends the reply tothe android app. After receiving the response app decode the JSON and gives the response to the user.

V. IMPLEMENTATION

We have successfully created the Android Chatbot Application by using the Android Studio software which is from Google. We have used the Java Language for backend application development and XML language for frontend application development. The implementation part is divided into two parts:

a. For Text Input

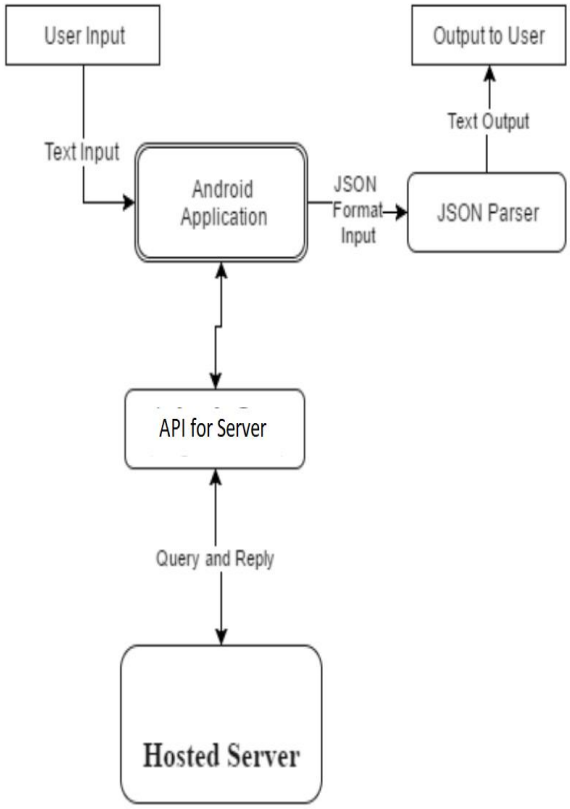

Fig2.Chatbot of Text Input

In above task the user input is in text format. So, it directly goes into the application. Then by using the APIs it makes contact with the server and produce the related output. The output produced is in the JSON format so we have to parse it. Then it displays the output to the user.

b. For Voice Input

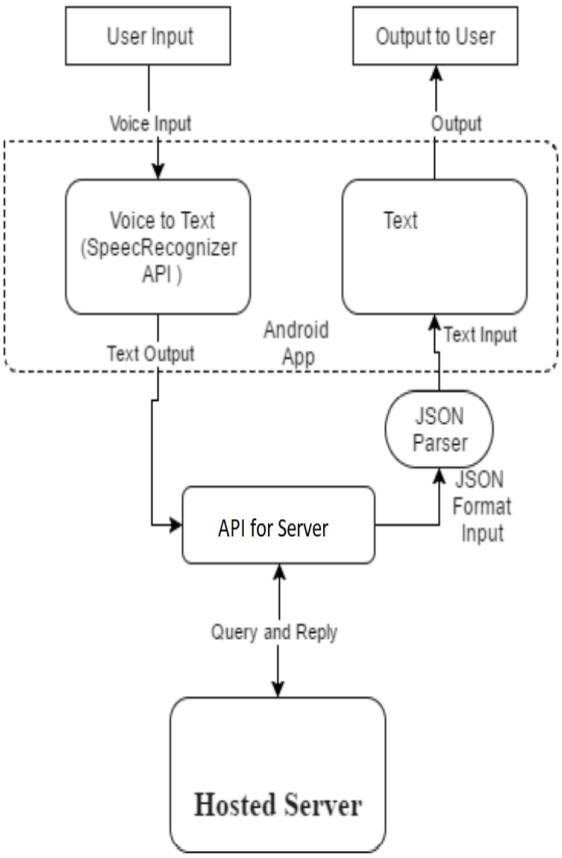

Fig3.Chatbot of Text Input

In above task the user input is in voice format. So, we have to convert it to the text. For voice to text converting we have used in build library named android. speech. Speech Recognizer. Then the converted text directly goes into the application. Then by using the APIs it makes contact with the server and produce the related output. The output produced is in the JSON format so we have to parse it. Then it displays the output to the user.

VI. RESULTS

Here we have attached the result of our project that is output of our project.

Fig4.Home Page

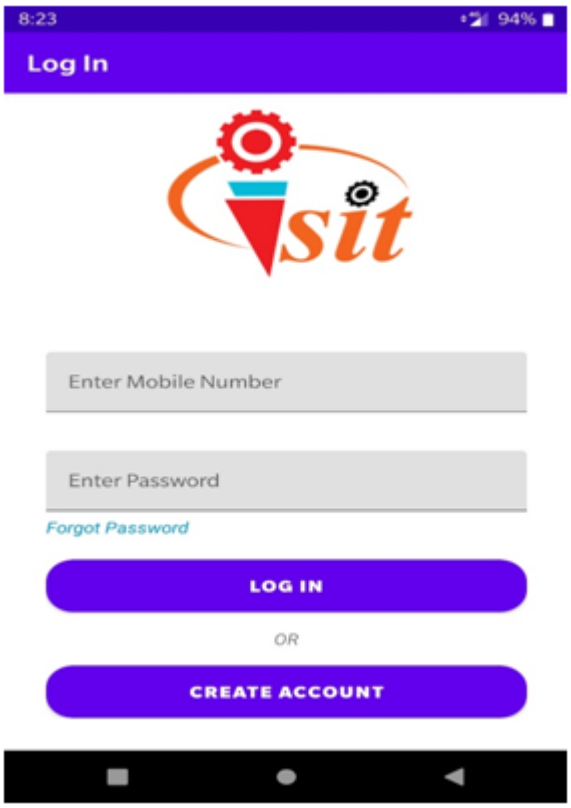

Fig5.Login Page

VII. CONCLUSION

The Main Objective of the project is to develop and algorithm that will be used to identify answers related to users submitted questions. The need is to develop a database where all the related data will be stored and to develop a web interface. The Application developed will have two parts one for simple user and one for the administrator. A background research took place, which included an overview of the conversation procedure and any relevant chat bot available. A database will be developed, which will store information about queries, keywords, logs, and feedback messages. Results have found that the application developed is able to correctly fulfill its purpose within a short time period. Our result show that the total time required to perform all the task, including visit to the college, standing in queue, and enquiry are reduced with the help of our system

VIII. FUTURE SCOPE

In future more use of natural language processing can be added. In future we can add more languages like Marathi, Kannad, etc. The chatbot can answer only those questions which he has the answer in its dataset. So, to increase the knowledge of the chatbot, we can add the APIs of Wikipedia, Weather Forecasting Department, Sports, News, Government Services and a lot more.

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