Design of a Virtual Assistant College Guide

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Abstract **In recent years, negotiations have become more widespread than ever. Businesses are increasingly using artificial intelligence in corporate negotiations to drastically change the way they communicate with customers. Many business respondents believe that conversations allow them to provide a personal service experience to customers. Chatbots are a great asset for businesses that want to create a solid product image and provide the best customer service. As time goes on, negotiations will continue to emerge, become much better, and ultimately play a major role in customer engagement across all types of companies. The program used is a Virtual Assistant direct to the college, entertaining student questions about college-related issues. In this proposal, we tested a new model of VPAs using python Gui's with Tkinter.**

Keywords : Chatbot, Python, Tkinter, Virtual Assistant, VPA

I. INTRODUCTION

The growing popularity of conversations has become a reality. For the past two years companies have been more focused on creating themselves than ever before. But it did not happen overnight. Humans have been interested in building a communication robot since the early 1960's. We now have AI assistants such as Siri, Alexa, Cortana, home assistants such as Amazon Echo or Google Home.

From large technology companies to small and medium-sized businesses, negotiations have grown into a 'future of engagement' as they can capture customer attention, initiate conversations with them and create a personalized feeling with minimal personal interference.

We have developed a chatbot for assistance in colleges. It is not only low cost; it is also expected to be very reliable. These types of chatbots should be used in educational institutions such as colleges and universities, as it would help students to get familiar with college. Since our university has a huge campus and there are several queries in minds of fresher's, VAI will help fresher's clear their doubts.

This chatbot will also serve the purpose of assisting visitors around the campus with ease.

In addition to using it in the field of education, it can also be used in the tourism industry for improvement. It can be located at various points of interest and used to guide visitors to the vicinity. Such robots are widely used in museums abroad. When used in the right place for a specific purpose, the robot will work to provide visitors with improved and sound information about the tour guide.

A successful tour guide robot is judged based on how well it localizes itself around a certain place and how well it can interact with the humans. Several types of tour guide robots have been developed in the past, each with a unique navigation technique. Most localization and mapping techniques involve running complex algorithms. These kinds of operations require powerful processors to analyze all the collected data. Consequently, those approaches might not be fully efficient because they often require considerable amount of time to accomplish the mapping. We have focused mainly on how the user can reach to different places of university or college within less time. We tried to provide user the shortcuts to reach their destination. As we are not using any sensors in this we will provide the input through text and then the Chatbot will process it and give us the required output in form of an image. The route which the user has to follow will be highlighted. We have also provided some FAQ's in case user have some queries.

II. LITERATURE SURVEY

In [1], a personal assistant robot has been developed in 'Smart Home' paradigm especially for assisting elderly/disabled people. Robotic base, the main controller and TABLET.   In [2], a system interface has been developed that makes use of sign languages. The author has built a speech engine which when successfully recognizes a hand gesture, triggers the speech engine. This has been implemented by using concept of Deep learning. In [3], a college oriented virtual assistant has been developed. It also has authentication mechanism for identification of students. SQLite was used for password security. In [4], an artificially intelligent system has been developed and customized for Georgia State University. It could integrate

data from the university's student information and customer relation managements, and then send students text messages that were personalized to their needs. In [5], the author has made a comparative study between human conversations and human to chatbot conversations and listed the notable differences in duration and profanity of such conversations. In [6], several measurement metrices have been proposed to evaluate overall quality, performance and usability of conversational agents. Commercial applications of chatbots have been studied. The authors have also analyzed existing Polish-speaking commercial chatbots used in the B2C sector, which have the widest range of users. In [7], a scalable, user friendly and highly interactive system has been developed that gives a reply to each and every query of an end user. It uses both local database and web database for this purpose. Techniques such as machine learning, pattern matching, NLP, data processing algorithms have been implemented enhance the performance of the system. In [8], the author has devised an Emotional Chatting Machine, which generates responses that are appropriate not only in content but also in emotions(expressions).

III. PROPOSED ALGORITHM

First, we created a virtual environment and imported all the necessary Tkinter Python libraries, and initialized root directories for the GUI application. Then we initialized the send function and the Text-to-Speech engine for the virtual assistant to interact with the user. We have created this function. This will convert any text to speech. The entire program we will call this function to produce speech from text. We want to continuously listen to input from the user, so this input() will try to fetch audio from the computer's microphone continuously. It will process the audio and return text in voice variable. We can use this voice variable to perform some action according to user input. Now we created an entry widget for the message purpose. Widgets are something like elements in the HTML. There are different types of widgets to the different types of elements in the Tkinter. Since the outlook of the GUI application is created, we now configured the python functions, conditions, loops, lists inside our send function. Hence, we call the main loop() and the Virtual Assistant is ready to go.

A. Steps Involved

Step 1: Start
Step 2: Create a virtual environment
Step 3: Import python libraries.
Step 4: Initialize Root directories
Step 5: Set root=TK()
Step 6: Set txt=text()
Step 7: Call txt.grid()
Step 8: Set e = entry()
Step 9: Set send=button()
Step 10: Call e.grid()
Step 11: Define send Function def send():
Step 12: Initialize text to speech engine. Set engine = pyttsx3.init()
Step 13: Initialize voice variable. Set engine = pyttsx3.init()

Step 14: Initialize rate variable. Set rate = engine.getProperty("rate")
Step 15: Print rate.
Step 16: Initialize send variable and concatenate get function.
Step 17: Initialize insert function and concatenate send variable within the function.
Step 18: If e.get() == "User Input" then: txt.insert(END,"\n"+"bot reply") engine.say("bot reply" engine.runAndWait()
else: txt.insert(END,"\n"+"data not found") engine.say("data not found") engine.runAndWait()
Step 19: Call delete(0,END)
Step 20: Call root.title()
Step 21: Call root.mainloop()
Step 22: exit
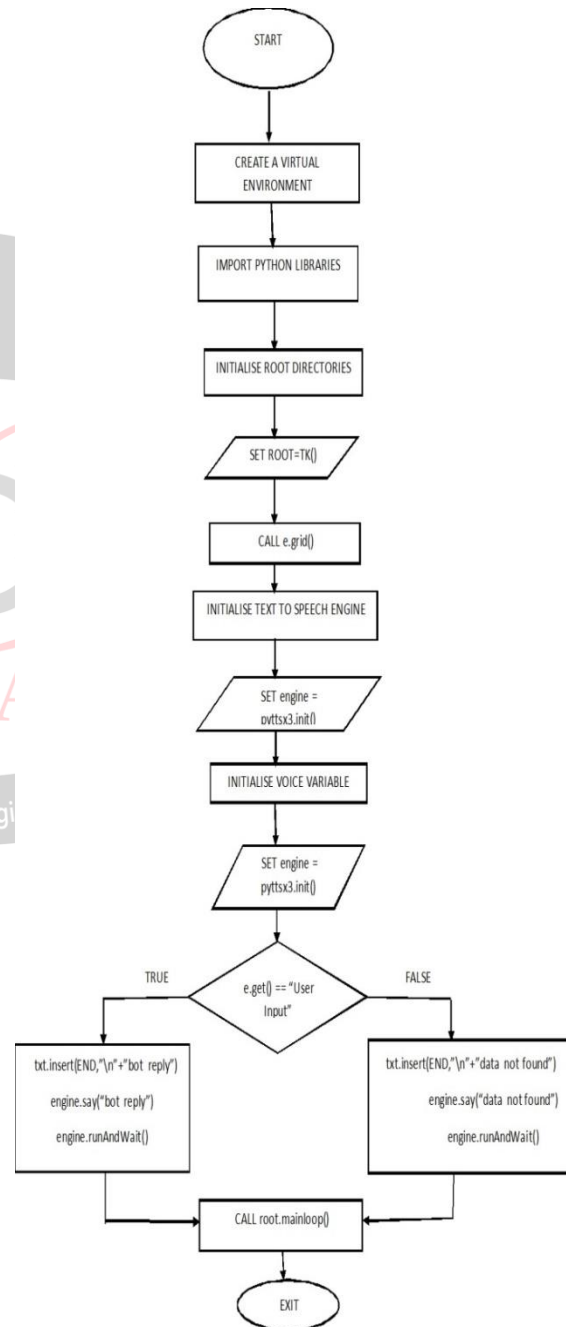
B. Flowchart

Fig 1: Sequence of steps depicting the flow of the algorithm used.

IV. EXPERIMENTATION & RESULTS

With the help of python programming, we built our own user-friendly virtual assistant college guide bot which helps the new users/students to know about the college interactively. It also helps the users to keep him/them updated with the college happenings by providing the necessary information related to it. But to make our virtual assistant more user interactive, we introduced Tkinter libraries/frameworks to build a GUI application for it.
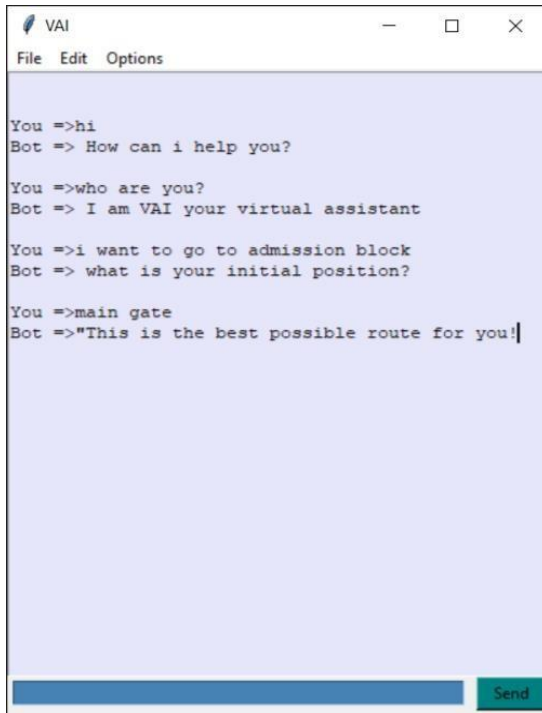

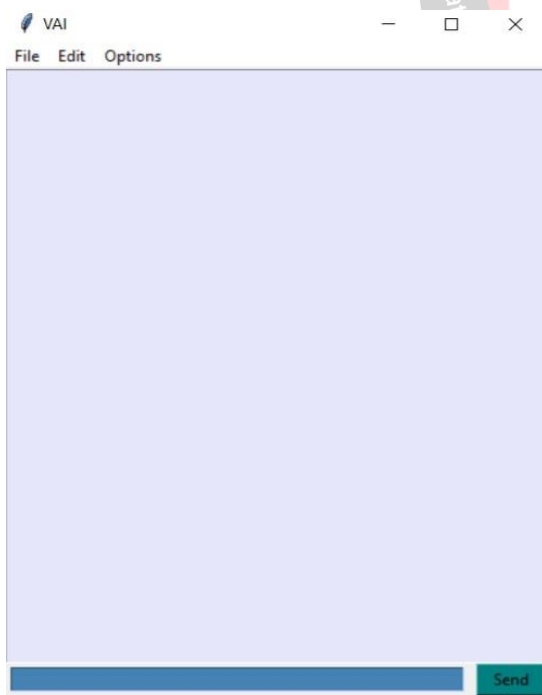**Fig 2: GUI, this is how the application looks like**

Fig 3: Interaction between User and Chatbot

The above GUI is created using the Tkinter framework. This module is used to build a GUI and comes with Python. This module comes built-in with Python. As we create the

Voice Assistant Application, one of the most important things in this case is that your assistant recognizes your voice (says what you want to instruct). To install this module we need to type the command in the panel specified for speech recognition. In this project we have converted long audio files into text using the API.

For, routes, we have used digital images of the maps of places in our college campus. We created these images using freely available illustration applications. Our application will load these images depending on the inputs given by the user.

Also, we have implemented login/sign up feature in the first screen where the students can login to the app with their registration number or create an account if using the app for the first time.

V . FUTURE SCOPE

Human resources are cited as the next fast victory for many businesses with chatbots holding first-round negotiations to find candidates. Video avatars can make the process more user-friendly, while AIs are able to recreate high-quality selections and spottable errors, helping to speed up traditional hiring processes and cost management. efficiency, submit new ideas and take the following steps in transforming the digital business. AI and interactive discussions help create democracy in business, empower startups and help build new relationships, something every organization needs to prepare for.

Virtual agents can be deployed throughout the business to manage internal applications and processes, from risk management to planning and budgeting. All of these can be found or upgraded indoors to meet a particular need.

The future of AI and Chatbots in health care: From GPs to dentists, hospital admissions to the hospital ward, automation in many ways takes over. In some hospitals, robots patrol the wards delivering medicine, food, and washing.

The tested AI system achieved cancer detection accuracy compared to the central chest radiologist in this retrospective preparation.

Chatbots and automatic diagnoses can also play a role in mental health care. Most people are afraid to talk to their doctor, counselor or therapist about the problems, but they are happy to discuss it via chatbot. This opens up the possibility for them to seek further assistance, the bot being able to provide them with contacts that will immediately be able to understand the case because of the chat text.

VI . CONCLUSION

The designed chatbot was successfully able to capture user input, process it, convert it to text and audio and display the desired output on the screen. The routes were successfully loaded as per the source and destination. The implemented chatbot would assist students with their queries thus

reducing confusion. On extending it can provide extra useful information also about the events, food kiosks, hostels etc.

It can be later extended to operate at various places to perform desired functions like tourist destinations where it can guide visitors about the history, nearby attractions of the place. The assistant can also be used to access the Internet when connected to a server and we can collect as much as we want from Wikipedia by simply instructing our voice assistant, we can take pictures on our device through device camera as we have already installed Ecapture, a module in Python. It can also be used to determine the date and time using specific pre-installed modules to keep it running. We have also installed a module named, Twillio which is used to make calls and send messages without human intervention by giving instructions to our assistant. Finally we can add and remove any module according to our requirement.

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REFERENCES

[1] A.I Alexan, A.R.Osan, and S.Oniga, "Personal assistant robot," Design and Technology in Electronic Packaging (SIITME), 2012.

[2] Dipanshu Someshwar, Dharmik Bhanushali, Vismay Chaudhari, Swati Nadkarni "Implementation of Virtual Assistant with Sign Language using Deep Learning and TensorFlow" 2020 Second International Conference on Inventive Research in Computing Applications (ICIRCA).

[3] Vishmita Yashwant Shetty, Nikhil Uday Polekar, Sandipan Utpal Das, Prof, Suvarna Pansambal. "Artificially intelligent college oriented virtual assistant" Vol 4 April 2016.

[4] Lindsay C. Page, Hunter Gahlbach, "How an Artificially Intelligent Virtual Assistant Helps Students Navigate the Road to College", December 12, 2017

[5] Hill, W. Randolph Ford, and I. G. Farreras, "Real conversations with artificial intelligence: a comparison between human-human online conversations and humanchatbot conversations," Computers in Human Behaviour 49:245-250

[6] Karolina Kuligowska, "Commercial Chatbot: Performance Evaluation, Usability Metrics, And Quality Standards Of ECA."

[7] A. Hajare, P. Bhosale, R. Nanaware and G. Hiremath, "Chatbot for Education System", vol. 3, no. 2, April 2018.

[8] Hao Zhou, Minlie Huang, Tianyang Zhang, Xiaoyan Zhu, and Bing Liu. Emotional Chatting Machine: Emotional Conversation Generation with Internal and External Memory. Association for the Advancement of Artificial Intelligence, 2018