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Emotion Recognizing Virtual Assistant

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Abstract: Virtual Assistants are the most effective product of AI which makes people's life easier. They are used in many machines. With AI many other technologies are also born like emotion recognition. This paper presents the AI with the feature of emotion recognition. This AI will complete the task by considering the emotion of user. As so as it takes the command it will analyze the task but before it perform it will recognize the emotion of user and then according to it, it will proceed for task completion. We have used Python language with machine learning algorithm. It is very effective to detect the emotions and avoid any problems. It will provide closer interaction with user like friend.

Keywords: Virtual Assistant, AI, Speech Recognition, Emotion Recognition, Python

I. INTRODUCTION

Virtual assistant is a creation of AI with speech recognition technique and is widely used in many gadgets like PC, mobile or independently like Siri, Alexa. Virtual Assistant is the assistant created virtually which perform the task according to the command and make things easier for users.

It is seen that communication makes things easier than written things. Virtual Assistant communicates with user like a friend. Now with advancement it can be in different languages according to the people. Different database are preparing to fit in virtual assistant and make it easier for people to ask the things. With Advance Voice technology and AI, current virtual assistants have archived new level.

Emotion Recognition is a technology which was developed to recognize the emotions of humans. Humans have many different emotions which show how the person is feeling sad, happy, angry, etc. By taking the input like speech or facial expression it can determine the emotion. Understanding emotion by speech is tricky since sometimes it may mislead to us even human beings also get confused about emotion. With the study of human emotion we can see it may vary with different personality not all are same. But we can consider the majority people concept for this. Study shows that frequency and other factors of sound are different and vary according to emotions in speech. So sound technology and human emotion plays vital role in this technology.

II. LITERATURE STUDY

Virtual Assistant's study has been going on. For a long time and is still going on. In the beginning there was no idea of virtual assistant. The first thing which was released and lead to VA is voice activated toy from 1911. After this different invention started to beings firstly speech recognition technology and then ELIZA chat bot. Then slowly it converted into smart virtual assistant, first to produce is Siri with natural language and vocabulary. Database which stores the data used to recognize the speech was prepared and kept to update. With the variation of languages different datasets are prepared. In this development many technologies like AI, machine learning, voice technology, sound technology was used.

Emotion Recognition is also one of the technologies which also advanced under AI. This technic is used to identify the emotion of human being automatically. Human emotions are very complicated and sometime we human also don't able to understand. By understanding facial expression or speech we can recognize the emotion. Till the current time many different techniques and methodologies are introduced like Bayesian networks, Gaussian Mixture models and Hidden Markov Models as well as deep neural networks. Basically recognition is classified in three categories:-

A. Knowledge based technique which use utilizes domain knowledge and sematic and syntactic characteristics of language.
B. Statistical methods use different supervised machine learning algorithms in which data is given for predicting appropriate emotion.
C. Hybrid approaches here above both techniques are merged together, which exploit complementary characteristics from both techniques.

Different dataset are available for proper classification of emotion like HUMAINE, SEMAINE, DEAP, etc.

III. PROBLEM FORMULATION

With the advancing technology virtual assistant keeps modifying and provides more features to make user more confortable. Many different technologies merge to create new version. Here also we merge emotion recognition technique with virtual assistant.

Normal assistants provides you only features like Open any website in the browser, Send an email to your contacts, Launch any system application, Tells you the current weather and temperature of almost any city, Tells you the current time, Greetings, Play you a song and many more. But what they lack is to predict your emotional state and prompt you accordingly. Here with this project we are going to make this VA to understand there emotional state and guide or attend them accordingly. This VPA is focusing towards less human guidance and hence more flawless assistance towards user.The ability to understand natural language and learn your dialect. We are going to add friend/family option where user can add there close person where our VPA will send a ping or suggestion if the user is any kind of agony or dispiritedness. With this VPA we can predict the emotional state of a user and act accordingly in favour of his emotional wellness. Our VPA will act as a mediator, based on your emotions whether to act upon your command or not and guide you through some other suggestion. It will keep track of your emotions during every command given. Suppose one has to listen a song in normal VA they have to specify implicitly which song they want to listen. Normal VA cannot play the song on behalf of them on their own, they need more manual interaction with the user, but with our VPA we can predict the emotional state of a user and play song in favour of his emotional wellness.
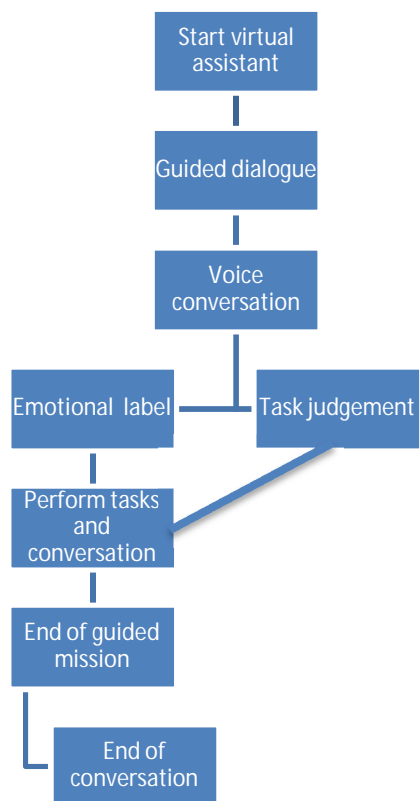
Here Firstly Virtual Assistant will start and greet. Then it will ask for users request as all assistant do. After Conversation it will start to perform two tasks one is to analyse the given task via speech recognition and at the same time emotion recognition model will identify emotion. After that the result of both will send to next phase where it will give the result considering emotion and do the conversation with user and complete the task.

IV. CONCLUSION

Virtual assistant with emotion recognition by speech can response to emotions correctly as well as show the emotions before performing task. Some time we don't able to express our emotion in words at such time it is very useful. The time will come that assistant will understand our emotion better than other people and be a friend of humans.

This assistant provides more interfaces for human interaction and improves the efficiency by reducing the time for accomplishing the task since typing takes more time compared to speaking.

Since we are applying AI its cost is very high and its development is slow. Additionally its accuracy is only 70 to 80%.

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