

Speech Recognition (iTALK APP)

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Abstract- This report considers an overview of speech recognition technology, software development, and its applications. In the first section the description of the process is given, then its applications in different sectors are mentioned and finally the future scope is given. Finally the further improvements and conclusion is mentioned. Speech recognition is also known as automatic speech recognition (ASR), speech to text (STT) or voice mate. In simple words, Speech recognition converts user spoken language (mainly English, which is in analog form) into a digital language which the computer can understand (Digital/code form). Then it fulfills the user's command and gives an acknowledgement or reply.

INTRODUCTION

Speech recognition technology is one of the fastest growing engineering technologies. It has a number of applications in different sectors and provides potential benefits too. Nearly 20% people of the world are suffering from various disabilities like blindness or unable to use their hands effectively.

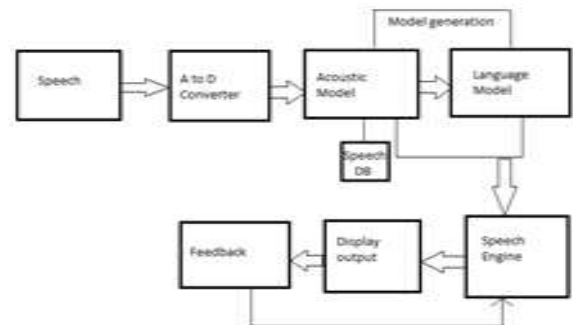
The speech recognition systems in these particular cases provide a significant help to the disabled, so that they can share information with people by operating their phone through voice input. This project is designed and developed by keeping this factor into mind. Some speech recognition systems require "enrollment" where an individual speaker reads text into the system. Then the system analyzes the person's specific voice and uses it to fine-tune the recognition of that person's speech. This results in increased accuracy. Systems who don't use "enrollment" are called as "speaker independent" systems and the systems that use "enrollment" are called "speaker dependent".

Speech recognition applications include voice user interfaces such as dialing a call through voice (eg. "Call Mia"), conferences call (eg. "I would like to make a collect call"), appliance control, searching (eg. find a particular contact number or application in

your phone), simple data entries (eg. entering a credit card number or debit card number) etc.

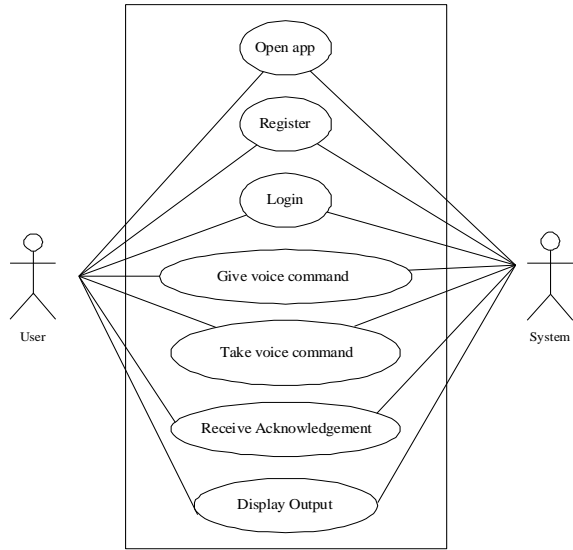
1.1) WORKING

In the figure given below, the user gives the voice input which is in analog form. This input may be in any language like English, UK English, Hindi etc. For our app the input is in English language. Then in the next step, this input voice is captured by the speech recognition app, then it is converted into digital format. This is done with the help of Acoustic and Language Models. Then the digital input command is analyzed and the output is given to the user along with a Acknowledgement. For example a user gives an input command "Open the Gallery". Then the app will analyze this input command and will open the gallery by giving an acknowledgement "Opening Gallery"



1.2) HOW TO USE THIS APP

For using this app, the first step is registration. In registration the user gives his name, email id, and app password. Then the user has to allow the App to access his phone. After this the user is provided with a unique pin-code number. This app provides security by providing the user with the number. Once the user has finished his registration, he need not do it again. Then the next step is Login. Here the user has to give his email id and Pin-code number. Once successfully logged in, the user can use the app. The app also provides a help button which will help to solve user's queries regarding the app.



1.3) Voice recognition apps for android that already exist

- Speech To Text provides several facilities such as send your spoken text as SMS and Email etc. It also enables you to turn your text into a speech.
- Speech to Text Translator (TTS) is a user friendly speech recognition Android app which allows you to take notes easily by speaking. It also enables you to send and share your spoken text with email, SMS and various instant messaging applications such as WhatsApp.
- Voice Text is another free voice recognition Android app which allows you to send and receive text messages through voice.

1.4) ADVANTAGES

- Able to write the text through both keyboard and voice input.
- Voice recognition of different notepad commands such as open save and clear.
- Open different windows soft wares, based on voice input.
- Requires less consumption of time in writing text.
- Provide significant help for the people with disabilities.
- Lower operational costs.

1.5) APPLICATIONS

- Crimes can be solved using voice recognition
- Voice recognition can be used in banks by letting our voice protect our bank account

- We can buy products and services with the sound of our voice
- An AI Assistant that knows who you are (If you have an iPhone with the latest iOS, you also have voice recognition software in the form of its famous AI assistant, Siri)

1.6) FUTURE SCOPE

In the future, digital devices will dominate our day-to-day lives as voice will help us communicate with our home appliances like alarm systems, lights, sound systems and even kitchen appliances. Voice recognition will also have applications in hospitals, laboratories and manufacturing units. It may also be used in computers, radio players, televisions and many other devices.

CONCLUSION

This Project work of speech recognition (iTalk App) started with a brief introduction of the technology and its applications in different sectors. The project part of the Report was based on software development for speech recognition. At the later stage we discussed different tools for bringing that idea into practical. After the development of the software finally it was tested and results were discussed, few deficiencies factors were considered. After this the advantages of the software were described and suggestions for further enhancement and improvement were discussed.

REFERENCES

[1] Now You're Talking By Trevor Cox
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