Personal Digital Assistant: A Case Study

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***Abstract*— Personal Digital Assistant is inexpensive, lightweight and easy to use. It has desktop class operating system features such as music, web browsing, smart calculation, etc. In Personal Digital Assistant system input can be given either in voice format or in text format. Then the given input can be parsed by the system and tokens are generated using simple tokenized algorithm and built in Google voice API which generates desired output in text format, SAPI5 is used to generate the output in speech format. PDA is useful in computer task management by reducing use of input devices such as keyboard/mouse, and using hardware interface, the support libraries, and its application. It can be used to create a Personal Assistant's who recognizes different dialogues that are provided as input to the machine and produces response accordingly. Similarly it can process the given input and the output which can be in the form of music, videos, text, etc. can be used efficiently.**

Personal Digital Assistant system is designed for normal human being and blind/visually impaired people, which transceives information in the form of audio. Through this system it's possible to send and receive emails, to have access to daily news, weather forecast, set reminders, alarms and make to do list.

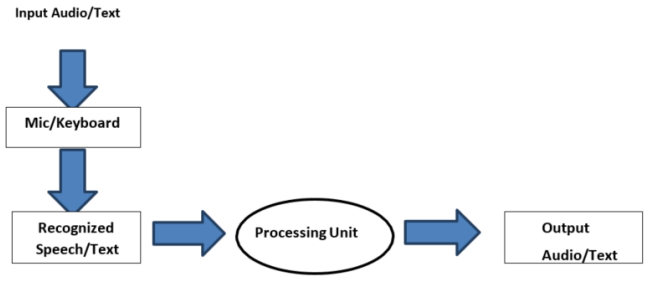
Keywords—Personal Digital Assistant, Speech/Text Recognition, Blind/Visually Impaired

I. INTRODUCTION

Various Virtual Assistants are currently available such as Google Now which is best for voice recognition, Cortana in which the commands are typed it does not depend on voice commands, Siri it runs on IOS. This paper discusses the implementation of the system aimed to help the normal human being and blind/visually impaired people to access online facilities .The system uses speech or text to communicate with the user. Speech recognition uses to convert the speech/voice input into text format. Then given converted input is parsed by the system and tokens are generated using algorithms and built in API's which generates desired output in speech or text format.

II. METHODOLOGY

In this paper we have considered different methodology such as Speech to Text, speech recognition , text to speech, etc. For eg. weather.com is used to get the Weather forecast information by using Python Module ' pywapi'. The following block diagram was used for proposed PDA system to generate different results.

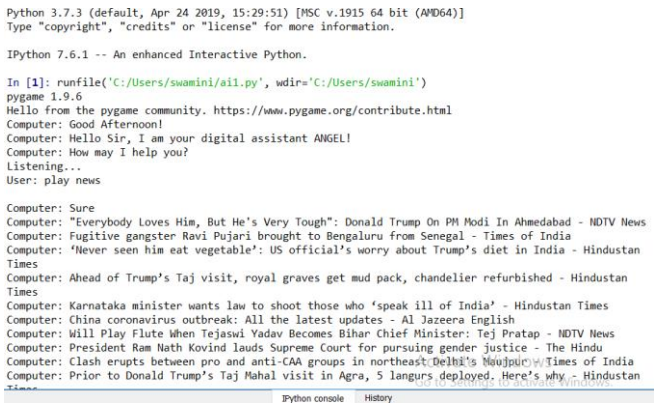


Block Diagram of Proposed PDA system

III. RESULTS

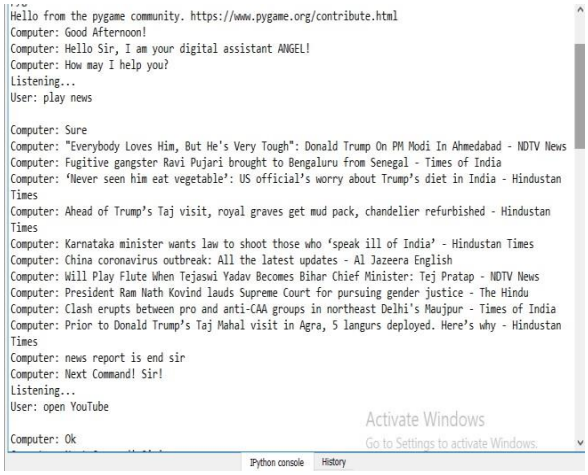
A. *Speech To Text*

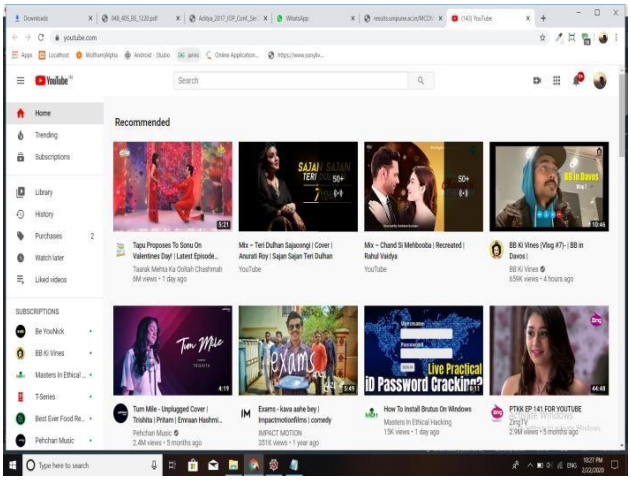
In this module the system was tested to feed the news, news are shown in text as well as it will be read by the system so it would be useful for visual impaired people as well.



B. *Speech Recognition*

In this module input is given as speech which is recognized and in output we can open applications / video.





C. *Text To Speech*

In this module text was given as input and converted to speech either in male/ female voice.

IV. OBJECTIVE

The main object of PDA system survey was to help normal, blind/visually impaired people to get required/desired information by giving input in speech/text format.

V. LITERATURE REVIEW

The object include speech/text content that converted to voice output [6]. They envisioned that someday computers will recognize natural language and count on what we need, give desired output. However, speech recognition and machine getting to know the input format and based on the input it will served desired output through in build packages and API's . We agree with that as computer systems turn out to be smaller and greater ubiquitous [e.g., wearable's and Internet of Things (IoT) [7]. This paper presents a usability of four Virtual assistant voice-based (Google assistant, Coratan, Siri, Alexa) [8].Keep your text and graphic files separate until after the text has been formatted and styled. Do not use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads-the template will do that for you.

VI. CONCLUSION

Personal Digital Assistant helpful for normal people and blind/visually impaired by having the natural dialogue with the system. The modules of this system makes it flexible , easy to use and easy to add additional features without disturbing current system functionality. In the PDA system we have built the Speech Recognition module, Speech To Text, Text To Speech News Feed module, Mathematical module, etc.

VII. FUTURE SCOPE

- Home Automation using microcontrollers can be included in the project.
- Invoice recognition the external or background voice can be eliminated.

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