AI SMART BUDDY "MANAV"

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Abstract – *Voice assistant is a major fresh trendy feature that change the way people can live. This project works on speech input & give output through speech & text on screen. This voice assistant ties with the world wide web to deliver outcome that the user required. Natural language processing algorithm services machines to engage in communication using natural human language in many procedures.*

Key Words: Artificial intelligence-based voice assistant, Speech Recognition, natural language processing.

1. INTRODUCTION

Virtual assistant is software program program that assistances you comfort your day-to-day tasks, such as screening climate prediction, listing notices, generating to do lists etc. They can take orders as voice or text. voice based smart assistant essential an appealing argument or awaken arguments to dynamic the auditor, followed by commands. For my project the wake, up word is "Hey MANAN".

Our voice assistant is planned to be used professionally for all operators. This personal assistant software progresses users' productivity by handling day to day tasks & providing information from online sources to users.

AI-based voice assistants can be useful in many domains such as IT helpdesk, home automation, HR related tasks, voice-based search etc., And the voice-based search is going to be thee future for present generation people where user users are all most dependent on speech-based assistants for every needs. In this proposal we have built the AI-based smart voice assistant "MANAV" which can perform all of the tasks without inconvenience.

1.1 PROBLEM DEFINITION

User needs to manually manage multiple sets of applications to complete one task. There is necessity of a voice assistant that can recognize English in Indian accent & work on it.

Voice assistant should able to perfect multifaceted tasks, it needs to be tasted for discover optimize path when a task has several subtasks & each sub tasks can have its own sub tasks.

1.2 MOTIVATION

A voice assistant styles our lifetime easier, saves out time & money. Voice assistant services operator with functions that are the backbone of our day. somebody who talks with you when your alone or feel lonely somebody who bring about your daily routines, take care of your mental & physical health. Main inspiration for voice assistant is to helps adults & disable people to perform their day-to-day tasks.

2. PROPOSED DESIGN

The proposed system will give a reasonable knowledge about the smart assistant which is capable of understanding the voice commands given by operator. Our smart assistant MANAV can easily understand the commands given by user through voice &respond as required. MANAV listens to the command given by user through the microphones & respond to user command more truthfully.

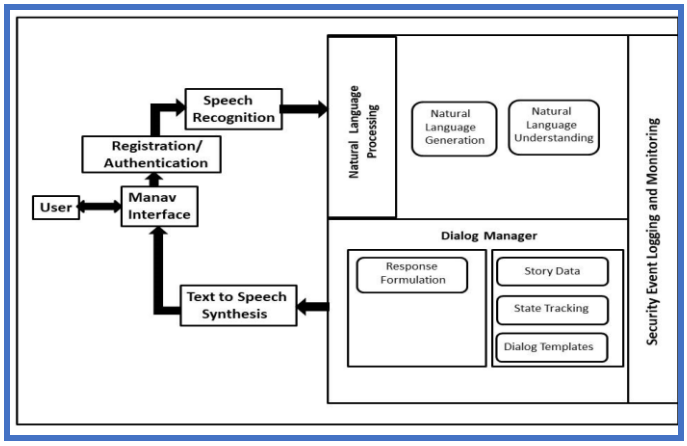


Fig: System Architecture

In the MANAV architecture flow first user need to interact with MANAV interface for regestration ,after the successful registration & authentication MANAV receive the command from user in voice or text to execute the commands with most appropriate result.

To recognize the speech command MANAV use NLP algorithm with its sub modules.After NLP the dialog manager is used to form a final output from the output of NLP.

2.1 FEASIBILITY OF SYSTEM

The MANAV system is technically feasible with no external hardware requirements,Also it is simple in operation & does not cost any special training.

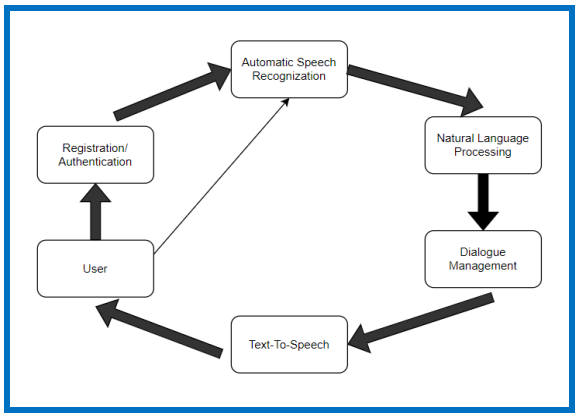


Fig: Iterative Model

2.2 SCOPE OF IMPLEMENTED SYSTEM

- MANAV will continue to offer more individualized experiences as they get better at difference between voices.

- They will also need to focus on maintaining a user experience that is consistent within the coming year as complexity become more of a concern.

3. MATHEMATICAL MODEL

The MANAV takes input via speech or text format & the output is also specified with input & output.

Follow are the working of mathematical model-

- Input(I)
  I-Input
  P-Procedures
  o-Output
  Input (I)
  I= {Input as speech, text, random commands}
  were,
  Step 1-command to execute
- Procedure(P)
  p= {
  step 2-recognization
  step 3-extraction
  step 4-search
  step 5-response
  }

- Output(O)
  O= {Response for corresponding commands}

3.1 SPEECH RECOGNIZATION

The major workings of a large vocabulary continuous speech Recognizer is the input audio waveform from A microphone is converted into a sequence of fixed size acoustic vectors Y 1: T = y1,...,Yt in a process called feature extraction. The decoder Then attempts to find the sequence of words w1: l = w1,...,Wl which Is most likely to have generated Y , i.e. The decoder tries to find

$$W^ = \arg\max_w \{P(w|y)$$

However, since p(w|y) is difficult to model directly,1 bays' rule is Used to transform into the equivalent problem of finding:

$$W^ = \arg\max_w \{P (y |w)p(w)\}.$$

The likelihood p(y |w) is determined by an acoustic model and the Prior p(w) is determined by a language model. the basic unit of sound.

4. WORKING OF NLP IN MANAV

NLP is Natural Language Processing which is the branch of computer science, Human Language & the Artificial Intelligence.

The main components of NLP are:

- NLU- [Natural Language Understanding]
  NLU is used to analyses human language by extracting the metadata from content such as keywords, entities.

- NLG- [Natural Language Generation]

  NLG is act as interpreter that converts the computerized data into natural language representation. It mainly involves text planning & text realization.

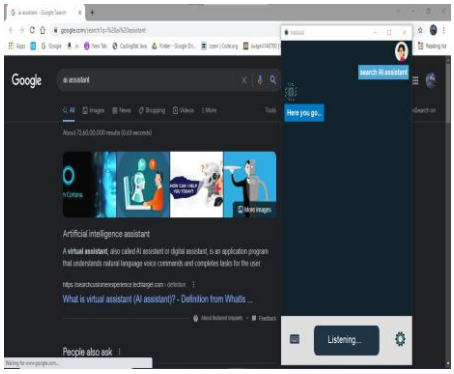
Natural Language Processing Algorithm:

1. Start
2. Input Query
   If query is valid
   Go to step 3
   If query is Invalid
   Go to step 1
3. Request Processing System
4. Temporary Database
   If required data is present in TDB
   Go to step 7
   If required data is not present in TDB
   Go to step 6
5. Default database
6. Resultant Database
7. Responses query
8. End

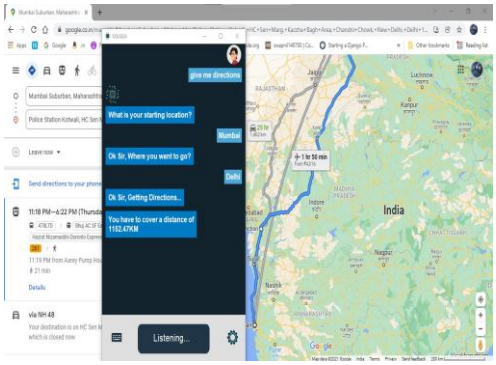
5. RESULT:

The essential packages of Python programming language have been installed and the code was implemented using PyCharm Integrated development environment (IDE) and the python code we have developed runs in both Python 2.7 and Python 3.x, and below are the few outputs which we have received in our AI-based voice assistant.

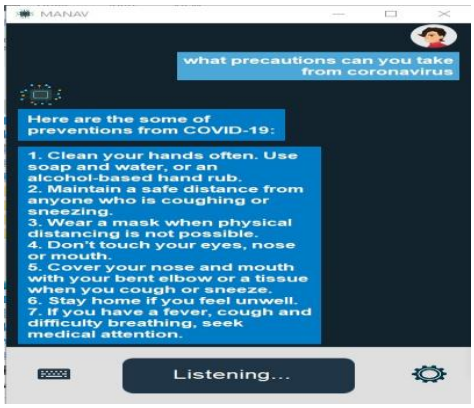
A. Google search output:



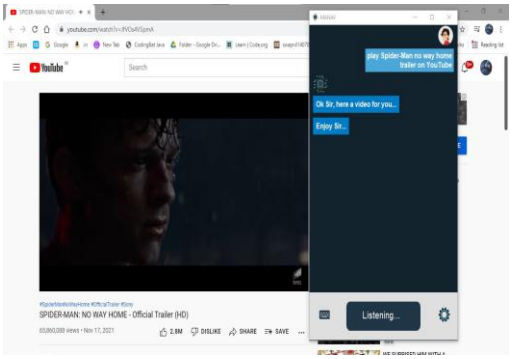
B. Search By Location:



C. News & Covid Update:



D. Playing Audio/Video on YouTube:



5.1 ADVANTAGES

- A voice assistant MANAV styles user life cooler.
- It can be a skilled in any pitch.
- A voice assistant permits user to offer additional attention in all kinds of different technologies.
- You have a smart and brainy friend always with you.

5.2 LIMITATION

- Requires internet connection.
- Mediocre sound quality
- Accent and speech reorganization.
- Contextual sound interface

5.3 APPLICATIONS

- Voice tech in healthcare
- Mobile app integration
- Disabled's helping guide
- Adults helping hand.

7. CONCLUSIONS

Concluded this MANAV voice assistant we have computerized several facilities using a single line command it comfort most of the tasks of the users like searching the web, recovering climate prediction details everyday newscast and medicinal related queries.

MANAV system is totally server assistant & make it keen adequate to act as a standby for a general server administration. This system is designed to minimize the human efforts & time by control the device with just human voice.

6.FUTURE SCOPE

To build a robust speech recognition knowledge, the artificial intelligence overdo it has to become improved at handling challenges such as accents and background noise.

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