

# Advanced Desktop Assistant With Voice Recognition Security And Voice Email Capability Using Artificial Intelligence

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**Abstract:** This paper aims to create a new desktop assistant with improved capabilities like voice recognition security and sending e-mail through voice. The interface of this assistant is designed with PYQT GUI tool in python with best user-friendly interface as its agenda. This assistant provides an eminent control over all applications and software installed on the computer and automates all the required task through voice on a single go. It takes the client contribution to type of voice or content and procedure it and returns the yield in different structures like activity to be performed or the query item is directed to the end client. What's more, this proposed framework can change the method for associations between end client and the work area. The framework is being planned so that every one of the administrations given by the desktop are open by the end client on the client's voice directions.

**Index words:** Desktop, Cortana, Interface, Speech Recognition, Python, voice directions.

## 1 INTRODUCTION

Although most of the applications of the present apps replicate the desktop class level applications, most of the applications of the present mobile generation are been coded in desktops. And at workplace desktops and mobiles play an important role. There are enormous number of applications which provide efficient support for mobile phones, but for desktop the level of applications and also the count of applications are very less. Microsoft's desktop assistant is not up to the mark yet to compete with google assistant. There is a necessity of new desktop assistant to provide next level of services so that we can also make desktops as user friendly as mobile devices. The Contacts Applications is utilized to store the contact subtleties of the client's contact and furthermore encourages client to associate a call or send a SMS to other individual utilizing the substance put away in this application. We can get comparable kinds of utilization all around the globe by means of Apple Store, Play Store, and so on. This highlights brings forth different sorts of sensors or functionalities to be executed in the cell phones. "Google Voice Search" which is used for in Android Phones. But this Application mostly works with Internet Connections. It's named as advanced desktop assistant because it has many advanced features which is not present in Microsoft Cortana. With advanced features this assistant is also focused on the interface, the reason is that that the Cortana is not well equipped with user friendly interface.

## 1. LITERATURE SURVEY

**Discourse Recognition has a long history with a couple** floods of genuine headways. Talk affirmation for translation, search, and voice bearings has transformed into a standard component on phones and wearable devices. Plan of a traditionalist colossal language talk affirmation structure that can run viably on mobile phones, definitely and with low idleness. This is accomplished by utilizing a CTC-based LSTM acoustic model which predicts setting autonomous telephones and is compacted to a tenth of its unique size utilizing a mix of SVD-based pressure and quantization. Quantized profound neural systems (DNNs) and on-the-fly language model rescoring to accomplish ongoing execution on present day work areas. The ASR and Search segments perform discourse acknowledgment and search errands. Notwithstanding ASR and Search, we likewise incorporate a question parsing module among ASR and Search for various reasons. Set of methods for improving the presentation of computerized voice quest administrations planned for versatile clients getting to these administrations over a scope of convenient gadgets. Voice search is executed as a two phase pursuit method where string competitors produced by a programmed discourse acknowledgment (ASR) framework are re-scored so as to recognize the best coordinating section from a conceivably extremely enormous application explicit database. Study gives a genuine case of how extra area explicit learning sources can be utilized with a space autonomous ASR framework to encourage voice access to online hunt files. As more information winds up accessible for a given discourse acknowledgment task, the common method to improve acknowledgment exactness is to prepare bigger acoustic models. There is a non-parametric observational model that adventures plenteous preparing information to legitimately learn elocution variety. Inserting the exact model with a parametric model yields the best execution, with an overall improvement of 5.2% in WER over the standard.

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**TABLE 1**  
Word Error Rates of Different Algorithms<sup>[1]</sup>

Algorithm used	Commands WER	Dictation WER
Bayesian Interpolation	8.9	12.3
Bayesian + Rescoring	9.0	13.5
Linear Interpolation	10.0	12.9

## 2. RELATED WORK

On the platform of Android, An Voice Assistant System with Intelligence was developed as an application which can be used to send messages, use the in-built applications and even perform unique tasks by using voice commands with natural language processing. The application was reviewed to be able to use the calendar and mailing options in the platform with voice commands. The Home Automation Network which consists of simple household appliances were able to work smoothly and satisfactorily with voice commands through internet.

## 3. METHODOLOGY AND DEVELOPMENT OF MODEL

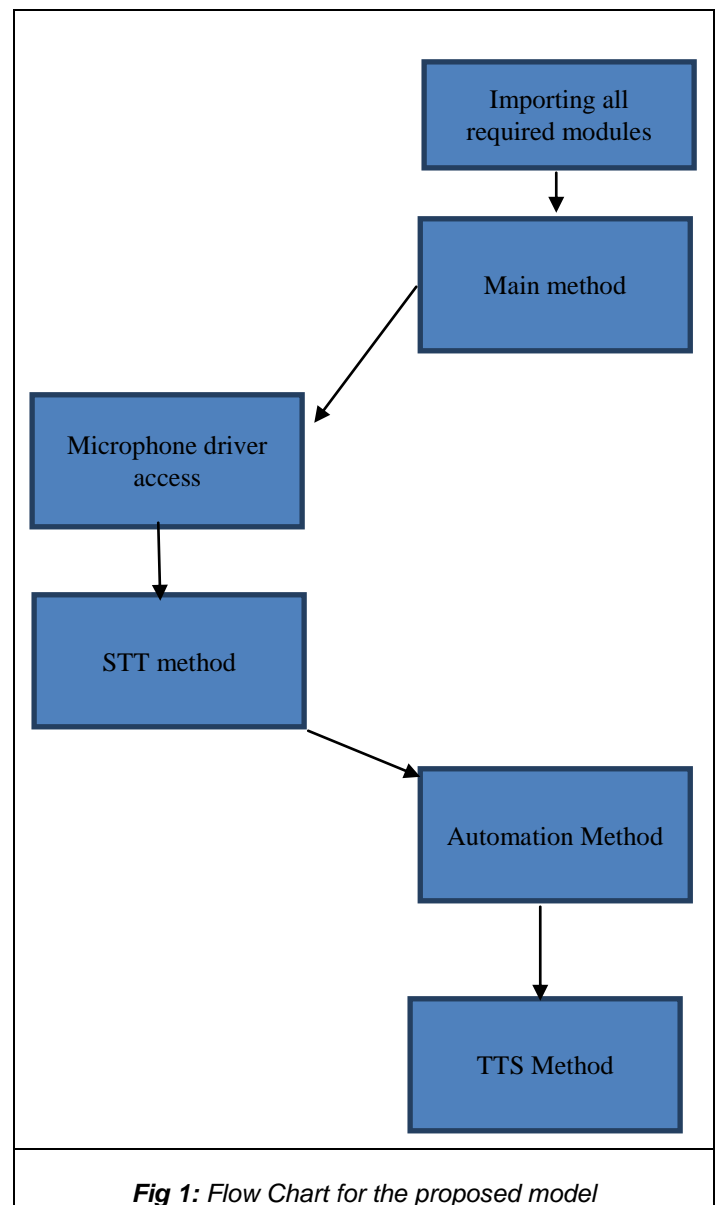
An Application of Intelligent Voice Assistant System based on natural language processing which can be used to send messages and even use the other application on the device was designed and developed using python on the platform of android.

### 4.1 System Architecture

The System consists of the following stages:

- Collection of data as voice or speech.
- Analysis and conversion of the data into text.
- Storing and processing of the data.
- Generation of speech from the processed data.
- Task Automation on the voice demand.

In first stage, the speech and voice samples are collected as data and saved as input to the next stage. In the second stage, the data is processed and then converted to text. In the next stage, the text after conversion is analyzed and then python script is used to process and identify the response for the command. In the next stage, from the identified response the output is generated in the form of speech from simple text. In the final step, the above process is automated using voice command. From fundamental substance to talk change utilizing TTS.



The following contains the list of features the proposed system will provide:

- It continuously listens for its name and will activates as a response after calling.
- It continues learning the arrangement of inquiries posed to it identified with its setting which it recollects for what's to come. So when a similar setting is referenced, it begins a discussion with you posing similar enquiries.
- It can perform arithmetic calculations upon specific voice commands and can give back the response through voice .
- It can search the internet based on the user's commands and reply with either interactive questions or definitive answers through voice.
- It can automatically connect to cloud sever through auto synchronization and can keep itself updated.
- The cloud server to update is a firebase cloud server.
- The architecture based on Internet of Things can help the user to connect smart device.

- 8) Other highlights, for example, playing music, setting a caution, checking climate states of gadget's area. Setting updates, spell-right, and so forth can be performed by a contribution from client's voice.

#### 4.2 Methodology for voice email capability

The voice mail capability is enabled and is the key feature to the assistant. Initially if mail command is enabled to assistant by the user the assistant process the requisites of the mail like receiver mail-id, subject and message body of the mail all these requisites are taken as input through voice and it is taken accurately. Firstly step is initialized with auto credentials which are feeded with assistant automatically so its auto composed. The modules involved in this design are predefined and open source modules and they are https-requests module, smtplib module which is accompanied with email MIME Handlers which is very useful to holding attachments and also it makes us to take the files from working directory of PC to email through python operating program workspace. The smtplib module characterizes a SMTP customer session object that can be utilized to send mail to any Internet machine with a SMTP or ESMTP audience daemon. SMTP represents Simple Mail Transfer Protocol. The smtplib modules is valuable for speaking with mail servers to send letters. Sending letters is finished with Python's smtplib utilizing a SMTP server. Genuine use differs relying upon unpredictability of the email and settings of the email server, the directions here depend on sending email through Gmail.

The other two noteworthy fragments of the pack are the "parser" and the "generator". The parser takes the serialized adjustment of an email message (a surge of bytes) and changes over it into a tree of Email Message objects. The generator takes an Email Message and changes it over into a serialized byte stream. (The parser and generator also handle surges of substance characters, anyway this utilization is incapacitated as it is too easy to even consider evening consider winding up with messages that are not authentic in some way or another.) The email pack advances a valiant exertion to cover the nuances of the distinctive administering RFCs from the application. Sensibly the application should have the alternative to treat the email message as a composed tree of unicode substance and twofold associations, without obsessing about how these are addressed when serialized. Before long, nevertheless, it is much of the time essential to think about likely a segment of the standards overseeing MIME messages and their structure, expressly the names and nature of the MIME "content sorts" and how they recognize multipart reports. For the most part this data should simply be required for progressively complex applications, and still, by the day's end it should simply be the huge level structure being alluded to, and not the nuances of how those structures are addressed. Since MIME substance types are used comprehensively in present day web programming (not just email), this will be a characteristic plan to various programming engineers.

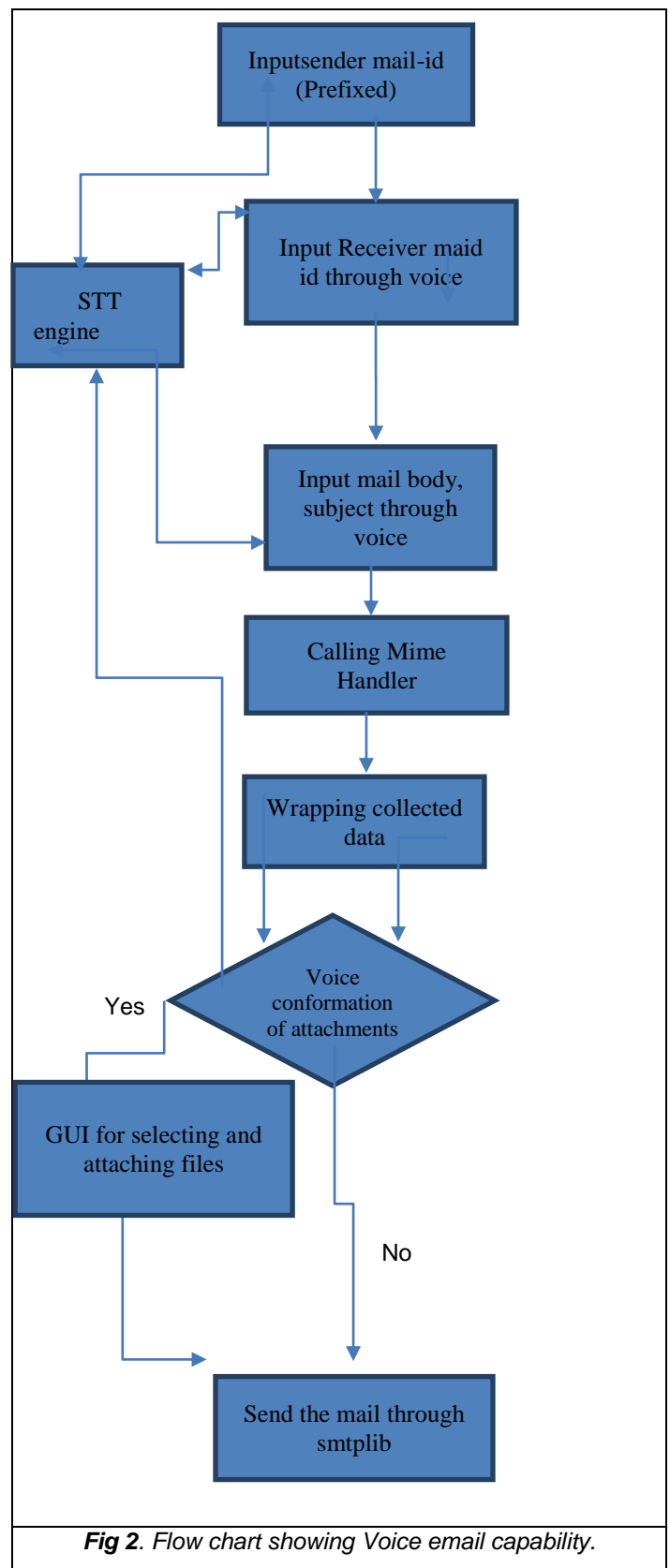
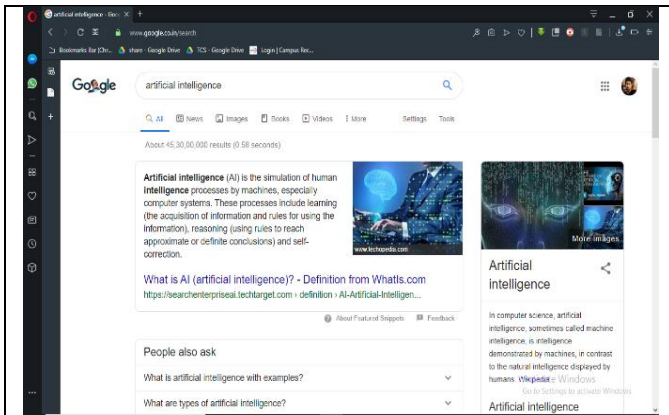


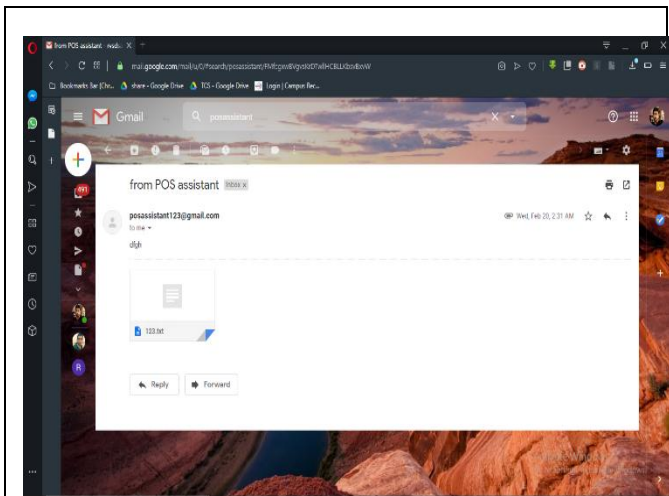
Fig 2. Flow chart showing Voice email capability.

## 4. RESULTS AND DISCUSSION

The proposed system consists of the following steps: Collection of voice sample's to be fed as data; Analysis of the data and conversion of the vocal sample's to text; storing the data and processing the stored data; the processed output is used for generation of speech. Patterns can be found at each step from the generated data. The patterns are the core for machines with artificial intelligence that understands the user's needs and learns. From analyzing the performance of the existing system and literature survey, we came to a conclusion that the proposed system along with ease of interaction with other systems, it also keeps it organized. There is much to be covered in field of automation but we believe that the applications of the device can be useful in building of a new era of voice controlled devices.



**Fig 4:** Voice search results on topic AI.



**Fig 3:** Voice e-mail capability of desktop assistant

Voice mail capability for sender address and that is fixed at design time of the assistant. The GUI automation is done while choosing the required file through mail.

## 5. CONCLUSION

The efficiency of the desktop assistant is dramatically improved with respect of the features and also it monitors the user security using voice recognition features. It's named as advanced desktop assistant because it has many advanced features which is not present in Microsoft Cortana. With

advanced features this assistant is also focused on the interface, the reason is that that the Cortana is not well equipped with user friendly interface. There is a necessity of new desktop assistant to provide next level of services so that we can also make desktops as user friendly as mobile devices. The Contacts Applications is utilized to store the contact subtleties of the client's contact and furthermore encourages client to associate a call or send a SMS to other individual utilizing the substance put away in this application.

## 6. FUTURE SCOPE

The same study can be extended by considering higher end IOT level class applications like home automation, Smart security management for kids, parental control of mobile devices for kids can be done as an extension for the same desktop assistant would evolve in the later stages of this development would be encouraged. Automation and self-synchronization of mobile phone of the user to this desktop assistant would be developed in later stages.

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