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# Voice Assistant For Visually Impaired

## (AY20SECSM30106)

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A **Mini Project Report** Submitted in partial fulfilment of the requirements  
of the degree of

### **BACHELOR OF ENGINEERING**

### **IN**

### **COMPUTER ENGINEERING**

BY  
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**University of Mumbai**

**(AY 2020-21)**

## **Declaration by the Candidate**

I/We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I/We have adequately cited and referenced the original sources. I/We also declare that I/We have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I/We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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**Kanakia Park, Mira Road(E), Thane-401107, Maharashtra.**

## **CERTIFICATE**

This is to certify that the **Mini Project** entitled “**NAME OF THE PROJECT THAT IS FULL TITLE HERE**” is a bonafide work of

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submitted to the University of Mumbai in partial fulfilment of the requirement of course name “**Mini Project – 1A**” having course code **CSM301** for the award of the degree of “**Bachelor of Engineering**” in “**Computer Engineering**”.

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**Date: \_\_\_\_\_**



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## Mini Project Report Approval

**This mini project report entitled “Voice Assistant For Visually Impaired” by**

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### Examiners

1. \_\_\_\_\_ Name:

\_\_\_\_\_ (Internal)

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Signature: \_\_\_\_\_

**Date:**

**Place:**

## Acknowledgement

A page of acknowledgements is usually included at the beginning of a Final Year Project, immediately after the Table of Contents. Acknowledgements enable you to thank all those who have helped in carrying out the research. Careful thought needs to be given concerning those whose help should be acknowledged and in what order. The general advice is to express your appreciation in a concise manner and to avoid strong emotive language. Note that personal pronouns such as 'I, my, me ...' are nearly always used in the acknowledgements while in the rest of the project such personal pronouns are generally avoided. The following list includes those people who are often acknowledged. Note however that every project is different and you need to tailor your acknowledgements to suit your particular situation. Main supervisor, Second supervisor, Other academic staff in your department, Technical or support staff in your department, Academic staff from other departments, Other institutions, organizations or companies, Past students, Family \*, Friends \*. \* If you wish to acknowledge the help of family members or friends make sure you restrict the wording of your thanks to a relatively formal register. I would like to express my deep gratitude to Professor \*\*\* and Professor \*\*\*, my research supervisors, for their patient guidance, enthusiastic encouragement and useful critiques of this research work. I would also like to thank Dr. \*\*\*, for her advice and assistance in keeping my progress on schedule. My grateful thanks are also extended to Mr. \*\*\* for his help in doing the meteorological data analysis, to Ms \*\*\*, who helped me calculate the wind pressure coefficient and to Ms \*\*\* and Mr. \*\*\* for their support in the site measurement. I would also like to extend my thanks to the technicians of the laboratory of the \*\*\* department for their help in offering me the resources in running the program. Finally, I wish to thank my parents for their support and encouragement throughout my study.

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## **Abstract**

Abstracts must include sufficient information for reviewers to judge the nature and significance of the topic, the adequacy of the investigative strategy, the nature of the results, and the conclusions. The abstract should summarize the substantive results of the work and not merely list topics to be discussed. An abstract is an outline/brief summary of your paper and your whole project. It should have an intro, body and conclusion. It is a well-developed paragraph, should be exact in wording, and must be understandable to a wide audience. Abstracts should be no more than 250 words, formatted in Microsoft Word, and single-spaced, using size 12 Times New Roman font. Abstracts highlight major points of your research and explain why your work is important; what your purpose was, how you went about your project, what you learned, and what you concluded. Although the content will vary according to field and specific project, all abstracts, whether in the sciences or the humanities, convey the following information:

The purpose of the project identifying the area of study to which it belongs.

The research problem that motivates the project.

The methods used to address this research problem, documents or evidence analyzed.

The conclusions reached or, if the research is in progress, what the preliminary results of the investigation suggest, or what the research methods demonstrate.

The significance of the research project. Why are the results useful? What is new to our understanding as the result of your inquiry?

The abstract should be one paragraph and should not exceed the word limit. Edit it closely to be sure it meets the Four C's of abstract writing:

Complete — it covers the major parts of the project.

Concise — it contains no excess wordiness or unnecessary information.

Clear — it is readable, well organized, and not too jargon-laden.

Cohesive — it flows smoothly between the parts.

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## List of Abbreviations

AICTE	All India Council of Technical Education
AINA	Advanced Information Networking and Applications
ANOVA	Analysis of Variance
API	Application programming interfaces
ATD	Advanced Technology and Development
AWS	Amazon Web services
BPM	Business Process Management
CCT	Cloud Computing Technology
CIO	Chief Information Officer
COMPSACW	Computer Software and Applications Conference Workshops
CRM	Customer Relationship Management
CSA	Cloud Security Alliance
CSEE&T	Conference on Software Engineering Education and Training
EaaS	Education as a Service
EC2	Elastic Computing Cloud
ECM	Engineering colleges in Mumbai
EDF	Empirical distribution function
ERP	Enterprise Resource Planning
GER	Gross Enrolment Ratio
Gmail	Google mail
HES	Higher Education Sector
IaaS	Infrastructure as a Service
ICCCA	International Conference on Computing, Communication and Applications
ICUFN	International Conference on Ubiquitous and Future Networks
IIS	Internet-based information systems

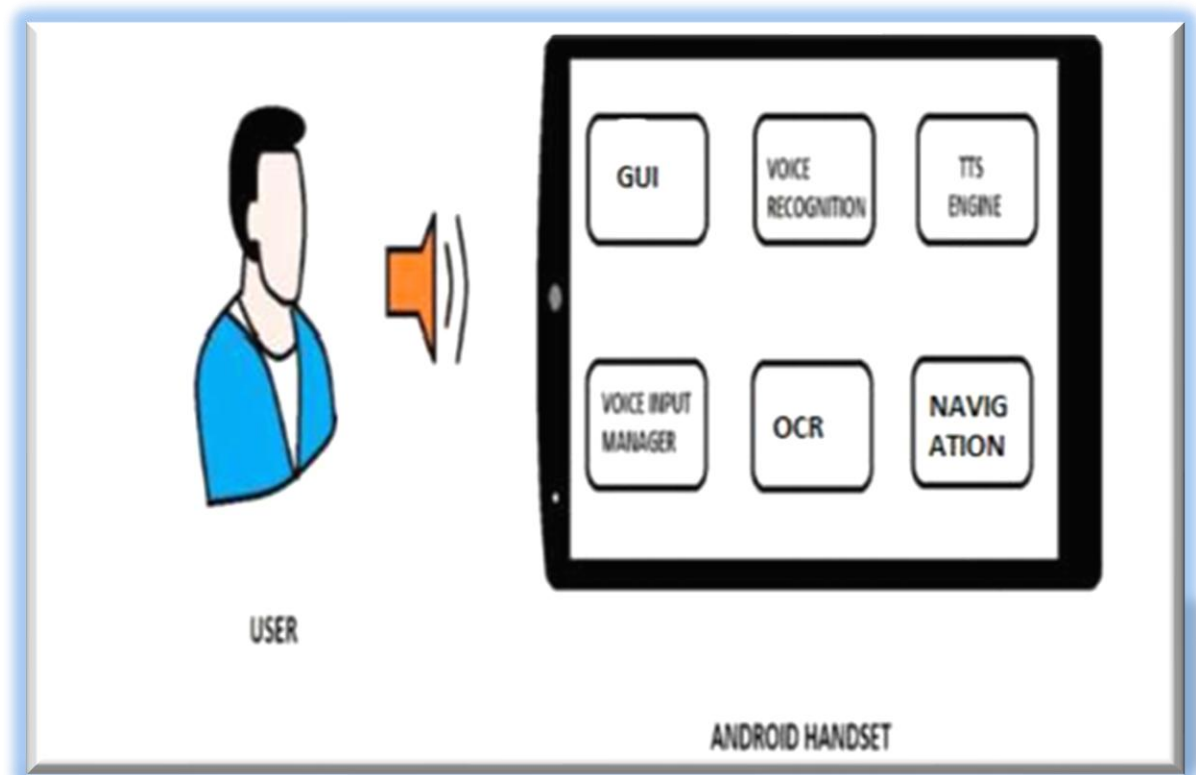
# **1 Introuction**

## **1.1 Introduction**

- The usage of virtual assistants is expanding rapidly after 2017, more and more products are coming into the market. Due to advancement in the technology many different features are being added in the mobile phone and desktops.
- To use them with more convenient and fun way we require a means of input which is faster and reliable at the same time.
- In our project we use voice command to input the data into the system for that the microphone is used which convert acoustic energy into electrical energy.
- After taking the input there is a requirement to understand the audio signal for this google API is used.
- Different companies like google, apple use different API's for this purpose. It is truly a feat that today, one can schedule meetings or send email merely through spoken commands.

## 1.2 Motivation

- Helpful For people having physical disabilities
- Easy for small children who doesn't know spellings
- Reduces time wastage - Talking is faster than typing



## 1.3 Problem statement

In 20<sup>th</sup> Century the Technology has boomed up , as the technology develops the needs of human been increases and they started become more dependent on technology . As we know that today generation is digital generation and everything is dependent on technology. Todays generation study , work , navigation etc. are mostly totally dependent on technology and due to this lot of work human needs and assistant that's why Voice assistance was

developed.

In this project problem statement “ *To develop a voice assistant using python/Java to help Visually Impaired people to easily access the technology and to guide them to their output* ”

. This software will work like Google assistance,siri etc .The user can control his whole device through his voice with an ease

#### **1.4 Project Objectives**

**This are the following objectives**

- To develop your skills in programming.
- To develop the implementation of voice application in mobile.
- To study various features of voice emails.
- To identity the characteristics of system to convert voice to text.
- To develop a software to avoid any physical contact
- To develop an environment to help the needful.
- To study various mobile features
- To develop various software modules for doing various tasks with voice
- To understand how voice to text works

## **1.5 Project Importance**

For most of us, the ultimate luxury would be an assistant who always listens for your call, anticipates your every need, and takes action when necessary. That luxury is now available thanks to artificial intelligence assistants, aka voice assistants.

Voice assistants come in somewhat small packages and can perform a variety of actions after hearing a wake word or command. They can turn on lights, answer questions, play music, place online orders, etc.

Voice assistants are not to be confused with virtual assistants, which are people who work remotely and can therefore handle all kinds of tasks. Rather, voice assistants are technology based. As voice assistants become more robust, their utility in both the personal and business realms will grow as well.

## **1.6 Scope of Project Work**

Artificial intelligence has truly transformed the way voice assistants are used in our daily lives, and we are only beginning to understand how they will be integrated into all of our activities in the years to come.

Report after report is predicting voice assistants will soar and that means the tools and technologies behind these devices are shaping the internet of skills. We are talking about the next generation of tools to spark growth in retail, logistics, healthcare, smart cities, manufacturing, and autonomous vehicles, among many others.

A recent survey from [PWC](#) reveals voice assistants have been used in a host of ways during the past decade and they will continue to mold our very essence. Here's what some of the numbers are showing:

- 90% of people recognize voice assistants
- 72% had used a voice assistant
- 57% top commands come from a smartphone
- 27% issue commands to a speaker
- 20% issue commands for vehicle navigation purposes

## **2 Literature Review**

### **2.1 Survey of Existing System**

A computer primarily based approach for performing a command via a voice consumer interface on a subset of objects. The subset is selected from a fixed of items, each having an object type at least one taggable field is associated with the object type and has a corresponding value. The set of objects is saved in the laptop memory. An utterance is acquired from the person and consists of a command, an object type choice, a tag-gable field selection, and a price for the taggable discipline. Responsive to the utterance, at least one item is retrieved from the set of gadgets, the item of the sort selected through the user and having a price within the taggable area selection that matches the taggable field fee obtained from the user the command is done on the item. The object includes textual content that's converted to voice output [1]. They envisioned that someday computers will recognize natural language and count on what we need, whilst and where we need it, and proactively whole responsibilities on our behalf.

However, speech recognition and machine getting to know have persevered to be refined, and based records served through packages and content providers have emerged. We agree with that as computer systems turn out to be smaller and greater ubiquitous [e.g., wearable's and Internet of Things (IoT) [2]. The recognizer is designed to change a verbal articulation from a individual into an alternate method of data (e.g., text). A hand held individual colleague including a voice-recognizer and a characteristic dialect processor is disclosed. This snippet of data can be a plan for the day, data in the individual's logbook or data from the individual's address book, Such as a telephone number [3].

The Most well known utilization of iPhone is "SIRI" which causes the end client to impart end client versatile with voice and it



additionally reacts to the voice charges of the client. It is named as Personal Assistant with Voice Recognition Intelligence, which takes the client contribution to type of voice or content and process it and returns the yield in different structures like activity to be performed or the item is directed to the end client. Furthermore, this proposed framework can change the method for communications between end client and the cell phones [4]. Open Data is currently gathering consideration for imaginative administration creation, predominantly in the zone of government, bio science, and shrewd venture. Be that as it may, to advance its application more for purchaser administrations, a web crawler for Open Data to realize what sort of information is there would be of assistance

## **2.2 Problems with Present System**

The biggest issue with the virtual assistant ecosystem right now is that it's still early days, and there are a number of players all vying for pole position in the market. I've seen many a comment sarcastically rejoicing at the introduction of yet another smart assistant platform, and I'm sure we'll see a number of other companies introduce their own technologies before long too.

While competition tends to be a boon for us consumers and a great incentive to innovate, we're currently going through the stage where feature support varies widely and consumers don't quite know exactly what to expect from each platform. You only have to look across the range of supported music apps, smart home products, or the different voice commands available on these various smart assistants to see the pickle we as consumers are in.

## **2.3 Limitation existing system or research gap**

In many ways, voice assistants simply replace button pushes with voice commands. It is still up to consumers to consider the context

of an action. When multiple devices are involved in achieving a high-level objective such as cooking a meal, users have to orchestrate the device actions with each other, and with other activities required to reach the goal. The assistant isn't smart, and it's arguable whether telling a speaker to raise the oven temperature is overly helpful. Consider these points,

- Voice assistants use single commands. For now, these consist mostly of fixed phrases. Effectively, they push one button or set one dial.
- As more flexible natural language understanding technology is becoming available, interpretations of speech commands may become ambiguous. With commands resulting into actions, misunderstandings can be risky. Did I really want to set the oven to 600 degrees? Do we need “guard rails”?
- Voice assistants support only one-way “conversations”. The appliances cannot talk back, asking for clarification of intent. Building checks into the skills executed in the cloud does not completely solve this problem.
- The commands are independent of the state of the device. The user has to know whether an oven is on, when the heat should be turned lower, etc.
- The stateless aspect of the voice commands also limits the ability to support action sequences if those actions depend on the state of the device. Have I turned on the exhaust before I turn on a burner on the stove?
- Appliances generally cannot initiate conversations, or give alerts by saying, for instance, that the clothes washer is finished, or that the pot on the stove top is boiling over.
- In many cases, only a subset of the appliance functionality is accessible via voice assistant. This can be due to safety reasons. A stove top burner should be turned on only when somebody is in the kitchen. Or it can be because a function is complex and depends on the state of the appliance, e.g. bring the water to a boil, and cook the pasta until tender.
- Voice assistants cannot integrate context data, such as who is in the kitchen? is there milk in the refrigerator?
- They typically do not remember history — how did we do this the last time?

- They depend on an Internet connection, and the obstacles it has in each home that can make it less than reliable.

## **2.4 Mini project Contribution**

This Project will help blind or visually impaired people to perform their task or needs .

Different companies like google, apple use different API's for this purpose. It is truly a feat that today, one can schedule meetings or send email merely through spoken commands.

Using this project one can easily perform their task only using their voice no need of any physical touch

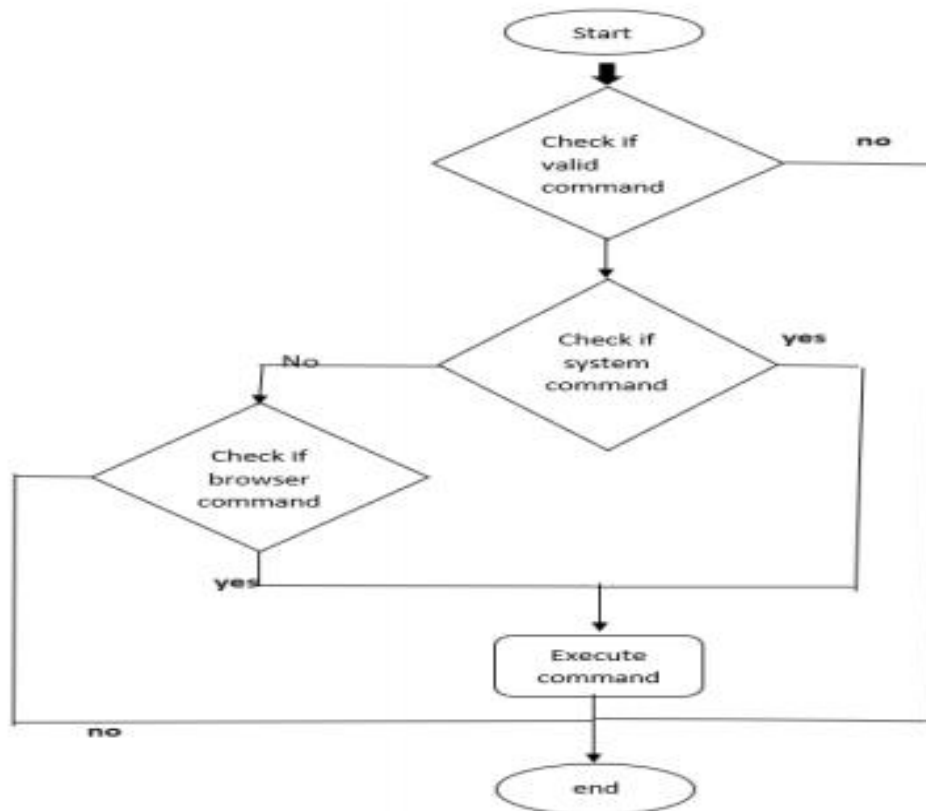
In other word it is energy efficient and perfect use of technology can be seen in this

### 3 Proposed System

#### 3.1 Introduction

The approach of the project is as follows: 1-The student will revise the properties and function of python/Java. 2- It will help student to interact with the new technology and help their brain to develop and enhance new concept. 3-How to use the Technology in the positive Direction

#### 3.2 Architecture/ Framework



- First of all we will turn on the application .
- Then We will give the command To assistant.
- The apk will check if the command is valid or not.

- If it is not valid it will terminate the process and if it is valid, it will check if it is in the system And it will executed if available
- If not available in the System then it will browse the command and check if its availability.
- If available it will execute
- If not available it will terminate the process

### **3.3 Algorithm and Process Design**

This Project Will have 3 stages or Phases by the end of the first stage we will get,

It will be capable of understanding the language

It will be capable of processing the language

. By the end of the second stage we will get,

It will convert the human language to Java or python language

It will be able to Process the command

. By the end of third stage you will get,

It will process the command and display the output to the screen

It will repeat your question and answer through it voice

### **3.4 Details of Hardware & Software**

It is Completely software base project.This are the required Softwares,

**Python/Java**

**Visual Studio 2010 (or latest)**

**Haptek character engine/player**

**AIMLbot2.0 library &AIML files**

**Visual Studio** uses Microsoft **software** development platforms such as Windows API, Windows Forms, Windows

Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

The **Haptek Player** is an ActiveX control and Netscape Navigator Plugin that allows any webpage or application (with ActiveX support) to

include **Haptek's** Autonomous **characters**.

These **characters** can speak natural voice, perform limitless visual actions, and act with a wide range of emotion and realism.

AIMLBot (Program#) is a small, fast, standards-compliant yet easily customizable .NET dll implementation of an AIML (Artificial Intelligence Markup Language) based chatter bot. AIMLBot has been tested on both Microsoft's runtime environment and Mono.

### **3.5 Experiment and Results**

**This Project Will have 3 stages or Phases By the end of the first stage we will get,**

- It will be capable of understanding the language
- It will be capable of processing the language

**By the end of the second stage we will get,**

- It will convert the human language to Java or python language
- It will be able to Process the command

**By the end of third stage you will get,**

- It will process the command and display the output to the screen
- It will repeat your question and answer through it voice

**This are the following results,**

- Check the weather
- Search databases
- General Chatting
- Send Email(Optional)
- Contact People or Using Phone Call

### **3.6 Conclusion and Future work.**

Voice assistants are growing to be prevalent in our day to day lives. Due to good outreach of smart phones many of us own at least one IVA may it be Siri on iPhone or Google Assistant on Android phones. Cortana also has a good reach due to wide users of Windows 10 and Alexa as a home speaker. All of the 100 users were provided with the same set of questions which they were supposed to ask to all the four personal assistants. Therefore the IVAs were rated on how many questions they attempted to Fig. 4. It shows comparison between four assistants all users' select best virtual assistants on voice based recognition, contextual understanding and hand-free interaction. Survey on Voice Assistant:

Google Assistant, Siri, Cortana, Alexa 199 answer and how many they got right. From whole scenario it nearly came to conclusion that recognizing voice required number of large different variations such as environment, voice modulation, frequency etc. Main challenge for voice recognition is that people's voices vary and they speak in different ways and in different number of languages.

### **This are the Conclusion,**

- The proposed system is used to help the visually impaired to have access to the most important features of the phone.
- With advances in it and in technologies related to it Voice assistants can carryout even more complex tasks like booking tickets, etc.
- This can be later improved by making the system to work, or understand the er's voice even in more disturbing environment



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