**Mini Project Report on**

**Desktop Personal Assistant**

Submitted to the Department of Computer Applications

In partial fulfillment of the requirements for the award of the degree

Master of Computer Applications [MCA]

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**BONAFIDE CERTIFICATE**

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**ABSTRACT**

The project aims to develop a personal-assistant for windows system. Sophia drawn its inspiration from virtual assistant like Cortana for Windows and Google Assistant from Android, and Siri for iOS. Users can interact with the assistant either through voice commands.

As a personal assistant, Sophia assists the end-user with day-to-day activities like general human conversation, searching queries on Google, Bing or yahoo, searching for videos, retrieving images from NASA, live weather conditions, word meanings, searching for medicine details, reminding the user about the scheduled events and tasks. The user commands are analysed with the help of machine learning to give an optimal solution.

**Keywords: Personal Assistant, Windows System, Automation, Machine Learning**

**INTRODUCTION**

This project is based on windows system and provide personal assistant using voice recognition. This program includes the functions and services of: calling services, text message transformation, alarm, music player service, checking weather, Google searching engine, Wikipedia searching engine, robot chat, camera, Bing translator, Bluetooth headset support.

This project is originated from a popular application from Windows called “Cortana”. This is very interesting, easy going and convenient, with wide real world usage and large developing potential. For instance, the voice assistance is very useful for personal assistants, direction guides or driving, helps among the disabled community, and so on.

This system is designed to be used efficiently on desktops. Personal assistant software improves user productivity by managing routine tasks of the user and by providing information from online sources to the user.

Cortana is a virtual assistant developed by Microsoft which uses the Bing search engine to perform tasks such as setting reminders and answering questions for the user. Cortana is currently available in English, Portuguese, French, German, Italian, Spanish, Chinese, and Japanese language editions, depending on the software platform and region in which it is used.

**BACKGROUND**

There already exist a number of desktop virtual assistants. A few examples of current virtual assistants available in market are discussed in this section along with the tasks they can provide and their drawbacks.

**SIRI from Apple :**

SIRI is personal assistant software that interfaces with the user thru voice interface, recognizes commands and acts on them. It learns to adapt to user’s speech and thus improves voice recognition over time. It also tries to converse with the user when it does not identify the user request. It integrates with calendar, contacts and music library applications on the device and also integrates with GPS and camera on the device. It uses location, temporal, social and task based contexts, to personalize the agent behavior specifically to the user at a given point of time.

Supported Tasks

* Call someone from my contacts list
* Launch an application on my iPhone.
* Send a text message to someone.
* Set up a meeting on my calendar for 9am tomorrow.
* Set an alarm for 5am tomorrow morning.
* Play a specific song in my iTunes library.
* Enter a new note

**Drawback SIRI** does not maintain a knowledge database of its own and its understanding comes from the information captured in domain models and data models.

**PROBLEM STATEMENT**

We are all well aware about Cortana, Siri, Google Assistant and many other virtual assistants which are designed to aid the tasks of users in Windows, Android and iOS platforms. But to our surprise, there’s no such virtual assistant available for the paradise of Developers.

**PURPOSE**

This Software aims at developing a personal assistant for Windows based systems. The main purpose of the software is to perform the tasks of the user at certain commands, provided the commands as speech. It will ease most of the work of the user as a complete task can be done on a single command. Sophia draws its inspiration from Virtual assistants like Cortana for Windows and Siri for iOS. Users can interact with the assistant through voice commands.

**PRODUCT DESCRIPTION**

As a personal assistant, Sophia assists the end-user with day-to-day activities like general human conversation, searching queries in various search engines like Google, Bing or Yahoo, searching for videos, retrieving images, retrieving data from nasa ,live weather conditions, word meanings, reminding the user about the scheduled events and tasks. The user statements/commands are analysed with the help of machine learning to give an optimal solution.

**PRODUCT GOALS AND OBJECTIVES**

Currently, the project aims to provide the windows Users with a Virtual Assistant that would not only aid in their daily routine tasks like searching the web, extracting weather data, nasa space news, and many others but also help in automation of various activities. In the long run, we aim to develop a complete server assistant, by automating the entire server management process - deployment, backups, auto-scaling.

**PURPOSE, SCOPE**

**PURPOSE**

Purpose of virtual assistant is to being capable of voice interaction, music playback, making to-do lists, setting alarms, playing song on local computer and providing weather, sports, and other real-time information, such as news. Virtual assistants enable users to speak natural language voice commands in order to operate the device.

There is an increased overall awareness and a higher level of comfort demonstrated specifically by millennial consumers. In this ever-evolving digital world where speed, efficiency, and convenience are constantly being optimized, it’s clear that we are moving towards less screen interaction.

**SCOPE**

Presently, Sophia is being developed as an automation tool and virtual assistant. Among the Various roles played by Sophia are: 1. Search Engine with voice interactions 2. Space news from NASA from any date. 3. Reminder and To-Do application. 4. Weather Forecasting Application. There shall be proper Documentation available on its Official Github repository for making further development easy and we aim to release our virtual assistant as an Open Source Software where modifications and contributions by the community are warmly welcomed.

Link to Github Repository:

<https://github.com/yogesh2104/miniProject>

**SURVEY OF TECHNOLOGY**

**Python**

Python is an OOPs (Object Oriented Programming) based, high level, interpreted programming language. It is a robust, highly useful language focused on rapid application development (RAD). Python helps in easy writing and execution of codes. Python can implement the same logic with as much as 1/5th code as compared to other OOPs languages.

Python provides a huge list of benefits to all. The usage of Python is such that it cannot be limited to only one activity. Its growing popularity has allowed it to enter into some of the most popular and complex processes like Artificial Intelligence (AI), Machine Learning (ML), natural language processing, data science etc. Python has a lot of libraries for every need of this project. For Sophia, libraries used are speechrecognition to recognize voice, Pyttsx for text to speech, selenium for web automation etc.

Python is reasonably efficient. Efficiency is usually not a problem for small examples. If your Python code is not efficient enough, a general procedure to improve it is to find out what is taking most the time, and implement just that part more efficiently in some lower-level language. This will result in much less programming and more efficient code (because you will have more time to optimize) than writing everything in a low-level language.

**Pyttsx**

Pyttsx stands for Python Text to Speech. It is a cross-platform Python wrapper for textto-speech synthesis. It is a Python package supporting common text-to-speech engines on Mac OS X, Windows, and Linux. It works for both Python2.x and 3.x versions. Its main advantage is that it works offline.

**Speech Recognition**

This is a library for performing speech recognition, with support for several engines and APIs, online and offline. It supports APIs like Google Cloud Speech API, IBM Speech to Text, Microsoft Bing Voice Recognition etc.

**Feasibility Study**

Feasibility study can help you determine whether or not you should proceed with your project. It is essential to evaluate cost and benefit. It is essential to evaluate cost and benefit of the proposed system. Five types of feasibility study are taken into consideration.

1. Technical feasibility: It includes finding out technologies for the project software. For virtual assistant, user must have microphone to convey their message and a speaker to listen when system speaks. These are very cheap now a days and everyone generally possess them. Besides, system needs internet connection. While using Sophia, make sure you have a steady internet connection. It is also not an issue in this era where almost every home or office has Wi-Fi.

2. Operational feasibility: It is the ease and simplicity of operation of proposed system. System does not require any special skill set for users to operate it. In fact, it is designed to be used by almost everyone. Kids who still don’t know to write can read out problems for system and get answers.

3. Economical feasibility: Here, we find the total cost and benefit of the proposed system over current system. For this project, the main cost is documentation cost. User also would have to pay for microphone and speakers. Again, they are cheap and available. As far as maintenance is concerned, Sophia won’t cost too much.

4. Organizational feasibility: This shows the management and organizational structure of the project. This project is not built by a team. The management tasks are all to be carried out by a single person. That won’t create any management issues and will increase the feasibility of the project.

5. Cultural feasibility: It deals with compatibility of the project with cultural environment. Virtual assistant is built in accordance with the general culture. The project is named Sophia so as to represent Indian culture without undermining local beliefs.

This project is technically feasible with no external hardware requirements. Also it is simple in operation and does not cost training or repairs. Overall feasibility study of the project reveals that the goals of the proposed system are achievable. Decision is taken to proceed with the project.

**HARDWARE AND SOFTWARE REQUIREMENTS**

The software is designed to be light-weighted so that it doesn’t be a burden on the machine running it. This system is being build keeping in mind the generally available hardware and software compatibility. Here are the minimum hardware and software requirement for virtual assistant.

**Hardware:**

* Pentium-pro processor or later.
* RAM 512MB or more.

**Software:**

* Windows 7(32-bit) or above.
* Python 2.7 or later.
* Chrome Driver.
* Selenium Web Automation.