

# S.A.I.V.A

Smart Artificially Intelligent Virtual Assistant



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**Computer Department**

## **AI based Virtual Assistant**

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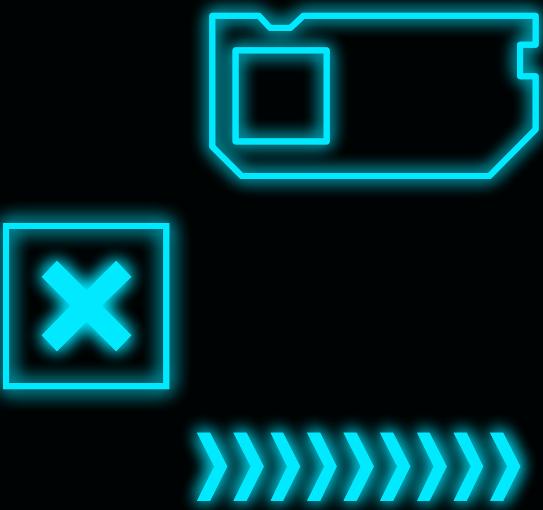
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**BE PROJECT**

# PROJECT BACKGROUND



01

## Primal Idea

A smart AI assistant for laptop users to perform day to day task using voice and gesture commands

02

## Pre-requisites

Software(Python , API's , Open-cv)  
Hardware(Laptop with build in Microphone and Audio Output)

03

## Implementation

To create a software/program using different modules such as speechrecognition,pyaudio, neuralintents,selenium, etc

04

## Final Product

A Personal AI Laptop Assistant which helps in day to day tasks and much more using and voice and gesture commands



# Motivation!

As the advancement of Assistants in phones is way more than for assistants in laptops, and the ones the ones that are present are either not as accurate as the ones on phones or are behind a paywall. So we plan on making an AI assistant which can guide in Basics and daily tasks like saving file, opening folder, Google search etc.



# 01

# Problem Statement

To develop an AI assistant which will help the user to perform day-to-day tasks using voice and gestures. An AI assistant will particularly give a third hand for work area/Laptop clients and it will definitely expand effectiveness, decrease workload and will basically be an additional personal goto partner.

# Literature Review

Paper and Year of Publication	Brief	Conclusion
<b>The Technology Behind Personal Digital Assistants</b> <b>2017</b>	This paper talks about the use of PDAs in mobiles and the architecture, advantages and disadvantages of using such PDAs in mobiles	This paper shows the importance of a good PDA and how a PDA is useful in the current fast bustling life of today's world.
<b>AI-Based Digital Assistants</b> <b>2019</b>	This paper is the overview about the development in the field on AI and the opportunities, threats and research perspectives	Understanding human users' needs of AI-based digital assistants.and how it can be improved.

# Literature Review

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<b>Learning about Work Tasks to inform Intelligent Assistant Design</b> 2019	<p>This paper presents a classification of work-related tasks, and analyze their key characteristics. It investigates the cyber, physical, and social aspects of tasks. It also reflects on how intelligent assistants could influence and help people in a work environment to complete their tasks.</p>	<p>This paper helps us to understand the type of tasks people expect an Intelligent Assistant to do. Also it gives an idea of what features we can add in our project</p>
<b>Artificial Intelligence based Desktop Partner</b> 2020	<p>This paper consists of comparison between different AI assistants with respect to technology used, features, and which is the most used assistant.</p>	<p>The paper consists of a assistant that is designed for computer interacting this consists of looking in Wikipedia, opening Google, YouTube, Facebook, MS-Word,etc.</p>

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<b>An NLP-based Question Answering Framework for Spatio-Temporal Analysis and Visualization</b> <b>2020</b>	<p>This paper presents a Natural Language Processing (NLP)-enabled Question Answering (QA) framework for spatio-temporal analysis and visualization. It allows users to conduct spatio-temporal analysis by speaking or typing questions.</p>	<p>This paper shows how can we answer questions based on the data analysis</p>
<b>Next-Generation of Virtual Personal Assistants (Microsoft Cortana, Apple Siri, Amazon Alexa and Google Home)</b> <b>2018</b>	<p>In this the multi-modal dialogue systems which process two or more combined user input modes, such as speech, image, video, touch, manual gestures,gaze, and head and body movement in order to design the Next Generation of VPAs model. The new model of VPAs will be used to increase the interaction between humans and the machines by using different technologies, such as gesture recognition,image/video recognition, speech recognition, the vast dialogue and conversational knowledge base, and the general knowledge base.</p>	<p>This proposal introduces the structure of Next-Generation of Virtual Personal Assistants that is a new VPAs system designed to converse with a human, with a coherent structure. This VPAs system has used speech, graphics, video, gestures and other modes for communication in both the input and output channel</p>

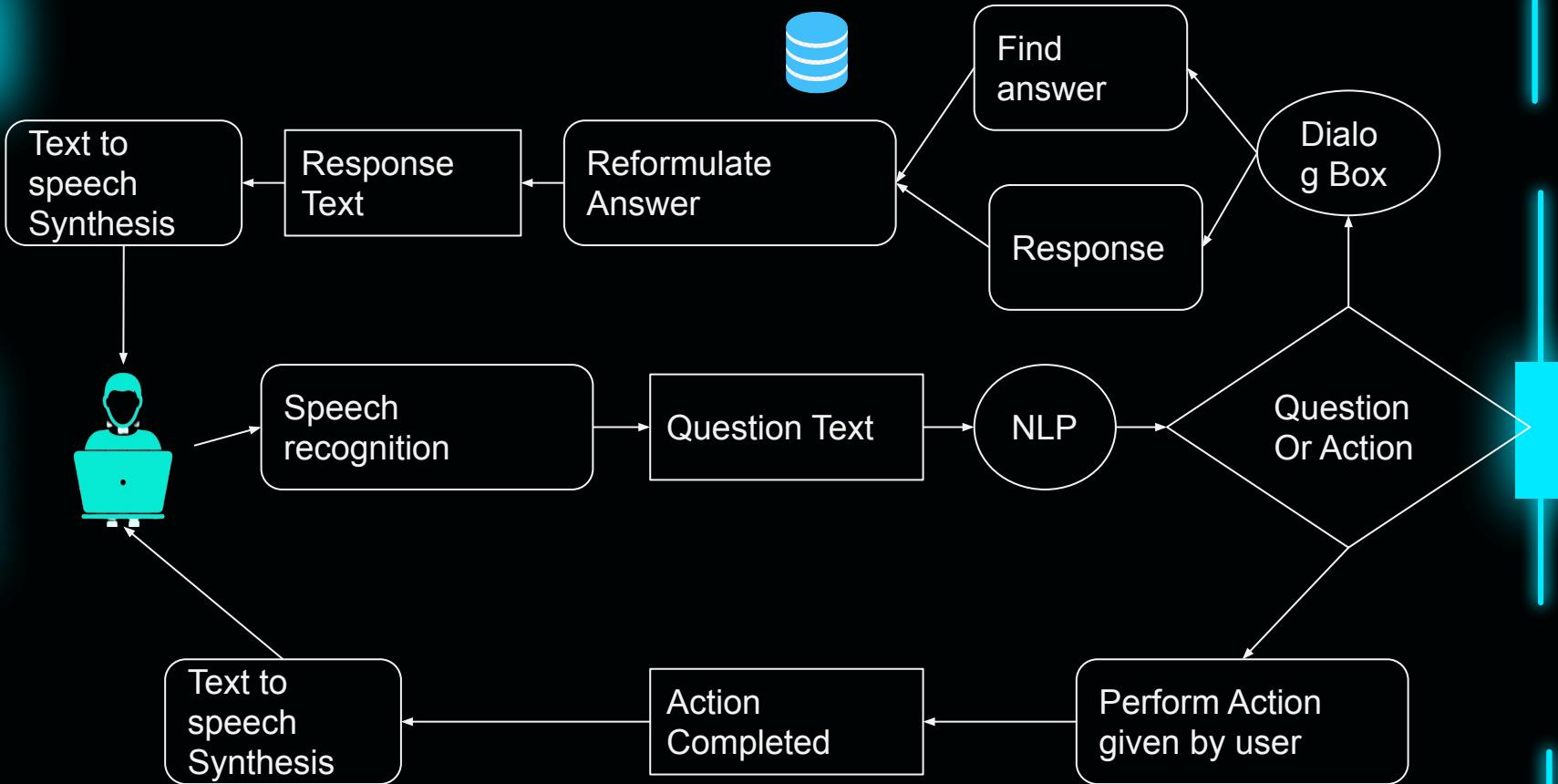
# Literature Review

Paper and Year of Publication	Brief	Conclusion
<b>Artificial Intelligence and Virtual Assistant—Working Model 2020</b>	Designed VA(s) accepts both speech and contextual text for communication in both the input and output case,a comparative analysis of chatbot and virtual assistant as well as analysis is done on the number of virtual assistants available in the market.	In this research paper, we have studied and analyzed the working model and the efficiency of different virtual assistants available in the market. It also had designed an intelligent virtual assistant that could be integrated with Google virtual services and work with the Google virtual assistant interface.
<b>Implementation of Virtual Assistant with Sign Language using Deep Learning and TensorFlow 2020</b>	The paper is all about the system and interface developed, that allows deaf mutes to make use of various voice automated virtual assistants with help of Sign Language. Majority of Virtual Assistants work on basis of audio inputs and produces audio outputs which in turn makes it impossible to be used by people with hearing and speaking disabilities. The designed system will then produce audio input for the Digital Assistant, using one of the Python text to speech module.	The designed system was successfully able to capture Hand Gestures using the integrated Web Camera and process and convert into text format and display it onto the Input frame and then converted into Audio format on receiving a call command. The audio becomes a query for the Virtual Assistant and again the audio output was being successfully converted into Text format and displayed on the screen as shown above in results.

# Literature Review

Paper and Year of Publication	Brief	Conclusion
<b>A vision and speech enabled, customizable, virtual assistant for smart environments</b> 2018	<p>In this paper a software architecture for building lightweight, vision and speech-enabled virtual assistants for smart home and automation applications was presented,d. The assistant was also connected to a smart home assistant platform, thus building a complete “embodied” virtual home assistant that,differently from most common smart speakers</p>	<p>The proposed assistant is effective and resource-efficient, interactive and customizable, and the realized prototype runs on a low-cost, small-sized, Raspberry PI 3 device. For testing purposes, the system was integrated with an open source home automation environment and ran for several days, while people were encouraged to interact with it, and proved to be accurate, reliable and appealing.</p>
<b>Nexllo: Next-gen Intelligent Assistant</b> 2019	<p>The rise of Personal assistant and Natural Language Processing gives a clear idea of what people want. Nexllo is an intelligent personal assistant created for all web browsers. Nexllo can set reminders, recognize natural voice without the requirement for keyboard input, and answer questions using information from the Internet and provides exact search results from the Microsoft database. It has major application in Home Automation. It can perform the tasks based on user's voice commands. It integrates very easily with IOT components and can perform tasks based on it.</p>	<p>This paper focuses on the application and development of Nexllo. Our digital assistant can provide multiple features with proactive responses running on any platform of user's choice. The application uses real-time database to sync among all the user's devices. So, to conclude Nexllo is a platform independent next- generation digital personal assistant that possess proactive behaviour which is cross –platform and perform all kinds of personal day to day activities</p>

# Proposed Design (System Architecture)



# Features Implemented

- Facial Authentication
- Hand-Gesture
- Take Selfie
- Battery and CPU monitoring features
- Email Management
- Time & Date
- Wikipedia
- Jokes
- News & Weather updates
- Query on Google
- Map & Directions
- Translate, Define & Mathematical Functions

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# THANKYOU!