

Intelligent Personal Assistant for a Web-based ERP System

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ABSTRACT

This paper is based on voice intelligent Assistance. This tool is used for searching purposes, reminders just by using voice commands. If we want to access any document or file we can do it by voice recognition. But there are certain limitations that the user should set some voices as a security options. If the user spells out the word it automatically types in the required field. It recognizes the speech and searches the appropriate content in the database and retrieves it. The user should select the appropriate language for the virtual assistant to understand. If any wrong or invalid communication happens it invokes some messages in dialog box. It is like a software agent which performs tasks and events based on commands. Voice-Command and speech synthesis are enhancing the level of user-interaction in applications. This trend is now approaching business-applications like ERP-Systems. Implementing an intelligent personal assistant (IPA) will empower the application not only by navigating users through the system, but it also enables the option to navigate and explain data to the users through speech synthesis. In this paper, the architecture for a new IPA was worked out and a prototype for a web-based ERP-System resting upon this architecture has been developed. This IPA is able to listen to voice commands, to interact by opening a report and giving a brief summary via speech-to-text to the user and explaining the most important information in the relevant context of the displayed KPIs. This prototype will be used for further researchers in the combination of IPA and data analytics.

Keywords: Voice Commands, ERP, IPA, Virtual Assistance

I. INTRODUCTION

In today's era almost all tasks are digitalized. We have Smartphone in hands and it is nothing less than having world at your fingertips. These days we aren't even using fingers. We just speak of the task and it is done. There exist systems where we can say Text Dad, "I'll be late today." And the text is sent. That is the task of a Virtual Assistant.

It also supports specialized task such as booking a flight, or finding cheapest book online from various e-commerce sites and then providing an interface to book an order are helping automate search, discovery and online order operations.

Virtual Assistants are software programs that help you ease your day to day tasks, such as showing weather report, creating reminders, making shopping lists etc. They can take commands via text (online chat bots) or by voice. Voice based intelligent assistants need an invoking word or wake word to activate the listener, followed by the command. For my project the wake word is JIA. We have so many virtual assistants, such as Apple's Siri, Amazon's Alexa and Microsoft's Cortana. For this project, wake word was chosen JIA. 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.

JIA is effortless to use. Call the wake word 'JIA' followed by the command. And within seconds, it gets executed. Voice searches have dominated over text search. Web searches conducted via mobile devices have only just overtaken those carried out using a computer and the analysts are already predicting that 50% of searches will be via voice by 2020. Virtual assistants are turning out to be smarter than ever.

Allow your intelligent assistant to make email work for you. Detect intent, pick out important information, automate processes, and deliver personalized responses. This project was started on the premise that there is sufficient amount of openly available data and information on the web that can be utilized to build a virtual assistant that has access to making intelligent decisions for routine user activities

II. LITERATURE SURVEY

A virtual voice based personal intelligent assistant for visually disabled persons. This project will recognize and respond to what user will say in an effective and efficient manner via voice, just like having a conversation. In this paper the main focus was on the improvement of conversational agent and speech recognition module which will work offline and understand the Indian accent and their approach is to make IPA includes the use of Java library Sphinx-4, MaryTTS and neural networks to embed the learning capabilities.

Moreover, in 2017 Othman proposed paper on Voice Controlled Personal Assistant Using Raspberry Pi at International Journal of Scientific & Engineering Research Volume 8, The project show the implementation of a Voice Command System as an Intelligent Personal Assistant (IPA) that can perform numerous tasks or services for an individual using Raspberry Pi as a main hardware to implement this model which works on the primary input of a user's voice.

Bibek Behera has proposed a model for a personal assistant to ease out the work done by humans for tasks like booking tickets, Ordering food, etc. Chappie uses natural language

processing (NLP) to analyse chats and extracts intent of the user. Then it uses this information and AIML (Artificial Intelligence Mark-up Language) to make a conversation with the user. According to oustafaElshafei, Virtual Personal Assistant (VPA) is next generation of carrier services for mobile and smart device users.

VPA effectively responds to conversational voice commands and provides a single point of contact that flawlessly engages a wide range of information. It also controls the telephone calls, manages the personal activities through calendar, enables the user to access his task manager via voice interface, and includes all the functions of Unified Messaging. The virtual personal assistant enables the user to optimize the time and cost, enhance his/her overall productivity, and minimize the interruptions to regular workflow.

III. METHODOLOGY

Python

Python is a 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 code 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 JIA, libraries used are speech recognition 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.

DBpedia

Knowledge bases are playing an increasingly important role in enhancing the intelligence of Web and enterprise search and in supporting information integration. The DBpedia leverages this gigantic source of knowledge by extracting structured information from Wikipedia and by making this information accessible on the Web.

The DBpedia knowledge base has several advantages over existing knowledge bases: it covers many domains; it represents real community agreement; it automatically evolves as Wikipedia changes, and it is truly multilingual.

The DBpedia knowledge base allows you to ask quite surprising queries against Wikipedia for instance “Give me all cities in New Jersey with more than 10,000 in habitants” or “Give me all Italian musicians from the 18 The century”.

Quepy

Quepy is a python framework to transform natural language questions to queries in a database query language. It can be easily customized to different kinds of questions in natural language and database queries. So, with little coding you can build your own system for natural language access to your database.

Pyttsx

Pyttsx stands for Python Text to Speech. It is a cross-platform Python wrapper for text-to-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

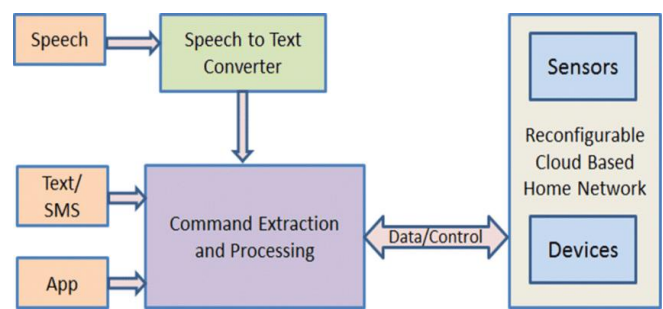
This is a library for performing speech recognition, with support for several engines and APIs, online and offline. It supports APIs like Google Cloud Speech API, IBM Speech to Text, Microsoft Bing Voice Recognition etc.

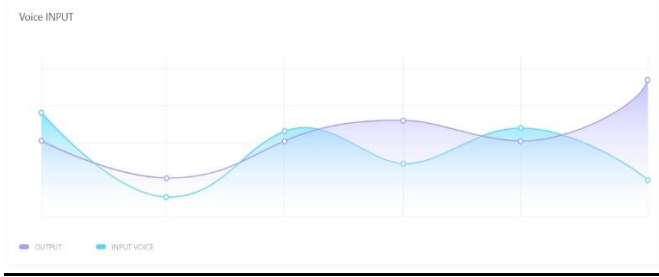
SQLite

SQLite is a capable library, providing an in-process relational database for efficient storage of small-to-medium-sized data sets. It supports most of the common features of SQL with few exceptions. Best of all, most Python users do not need to install anything to get started working with SQLite, as the standard library in most distributions ships with the sqlite3 module.

SQLite runs embedded in memory alongside your application, allowing you to easily extend SQLite with your own Python code. SQLite provides quite a few hooks, a reasonable subset of which are implemented by the standard library database driver.

Modules





Quick Details

- Search For Contacts Last 24 Hours
- Search For Products Awaiting Process
- Search For Shaduler On Hold
- Search for TaskManager Low
- Search For Appliion Out of Search

Voice Search

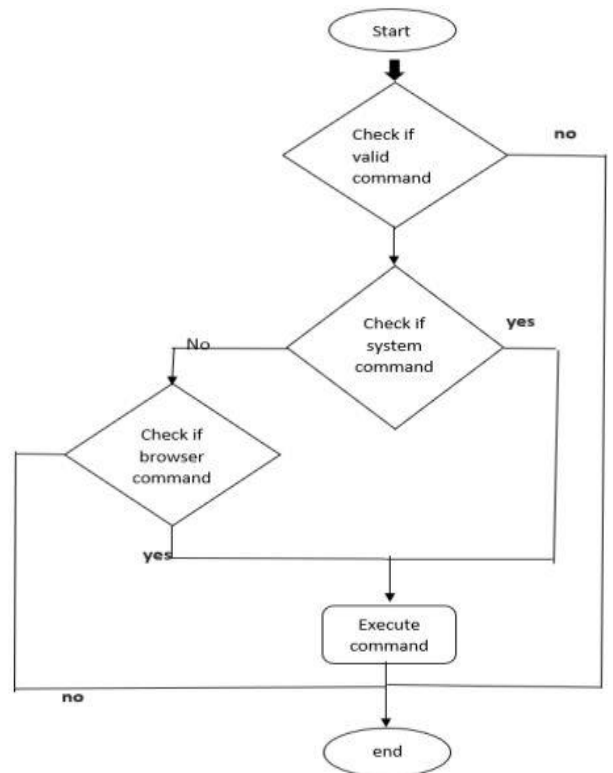
PRODUCT	AVAILABILITY	TOTAL
Women's Vintage Peacoat	320 In Stock	\$29,192
Women's Oatmeal Sweater	Out of Stock	\$29,192
Women's Denim Shirt	3 In Stock	\$29,192
Women's Vintage Peacoat	3 In Stock	\$29,192

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Working Pattern

Voice Search [Show All List](#)

Canada	\$29,193
Brazil	\$18,832
Egypt	\$19,758
Russia	\$23,078
China	\$29,193
Australia	\$37,760



IV. CONCLUSION

Voice Search has now become a definitive mobile experience. An absence of knowledge and learning makes it especially tough for organizations to get a strategy on voice search. There is a ton of chance for a lot further and significantly more conversational experiences with users for AI in mobile app development.

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