Virtual Voice Assistant (Blueberry): Software Requirements Specifications

Emerging from collaborative efforts within our team, we present Blueberry, an intelligent virtual desktop voice assistant designed to enhance user experience and streamline workflows. Blueberry represents a significant advancement in personal AI, offering a comprehensive and versatile interface for interacting with information and managing daily tasks.

Blueberry is based on client-server architecture, which leads to lower latency in processing commands and a more friendly user interface.

Users can leverage Blueberry's intuitive voice commands for a range of practical functions, including sending emails, crafting and dispatching WhatsApp messages, and seamlessly accessing up-to-date information from sources like Wikipedia and the broader internet. Blueberry departs from traditional voice assistants by integrating sophisticated capabilities beyond simple web searches like, Blueberry stands out for its advanced relational intelligence. It allows users to pose queries rooted in personal connections, leveraging a unique understanding of familial bonds, professional networks, and social intricacies to provide insightful and contextually relevant answers.

The development of Blueberry reflects our commitment to fostering user-centric solutions that empower efficient interaction with information and technology. Beyond mere convenience, Blueberry aims to enhance user agency and decision-making capabilities, facilitating a seamless navigation of daily tasks and complex information landscapes. In essence, Blueberry signifies a paradigm shift in the realm of virtual assistants. Its robust functionalities and intelligent features position it as a valuable tool for individuals seeking to optimize their daily routines and harness the power of information in a truly efficient and intuitive manner.

System Overview

Blueberry, an intelligent virtual desktop voice assistant, is powered by the robust capabilities of Python and its diverse libraries. At its core, cutting-edge speech recognition and voice engine libraries enable Blueberry to effortlessly understand your spoken commands and requests. A dedicated wake word(Blueberry) instantly activates Blueberry and makes it ready to listen to your commands.

Behind the scenes, Blueberry leverages the power of Hugging Face. We've carefully chosen and integrated one of their powerful models to process data and generate insightful answers to one’s questions. This integration allows Blueberry to access a vast trove of words and sentences, ensuring its responses are comprehensive, accurate, and relevant to one’s questions.

But Blueberry is more than just a question-answering assistant. On the basis of multiple libraries, it analyzes your questions in context, and performs various tasks like sending emails and whatsapp messages, setting alarms, creating a to-do list, playing music, searching the web, etc.

In essence, Blueberry's system architecture is based on Client-Server architecture. It represents a harmonious blend of cutting-edge Python libraries, the innovative tools provided by Hugging Face, and a seamless connection of the backend with the frontend. This combination ensures that Blueberry has low latency, and have a more user-friendly interface.

Functional Requirements

Blueberry is designed to provide various functionalities to users. The following are the functional requirements of the virtual voice assistant:

Requirement	Description
Voice Recognition	It accurately understands the user's voice command, by using python library speech recognizer.
Natural Language Processing	An Api from HuggingFace to use one of its open sourced models to generate contextually correct answers.
Task Execution	Blueberry can perform various tasks, namely, set alarms, play music, generate jokes, question-answering on relationships, create a todo list, search web and wikipedia, send message and emails, open 3rd party apps like notebook and calculator.
Lingual support	Works on only one language, i.e.English.
Third party apps	Can access third party apps like notebook and calculator.
Personalization	Is personalized to the user’s contact list while sending mails and whatsapp messages.

Non Functional Requirements

In addition to the functional requirements, the virtual voice assistant also meets several non-functional requirements to ensure its usability, reliability, and performance.

Requirement	Description
Usability	Blueberry has a user-friendly interface and is easy to navigate. It provides clear and concise instructions to the user.
Reliability	Blueberry is available and responsive at all times. It handles errors gracefully and recovers from failures without data loss.
Performance	Blueberry responds quickly to user commands and provides accurate and relevant information.
Compatibility	Blueberry is compatible with basically everything that can run a web browser.

Performance Requirements:

To guarantee optimal user experience and consistent functionality, Blueberry adheres to stringent performance parameters. Response times are rigorously optimized, with queries met within 2 seconds, minimizing latency and upholding a natural conversational flow. Moreover, Blueberry boasts a minimum uptime of 99.9%, ensuring near-perpetual availability and unwavering reliability. This commitment to performance prioritizes user needs and fosters an environment of efficient accessibility, empowering seamless interaction and confident reliance.

Maintenance Guidelines

To ensure the smooth operation of Blueberry, following guidelines must be followed:

1. Regularly update the libraries of speech recognition and voice engine to incorporate new features and improvements.
2. Monitor system performance and address any issues promptly.