

A REVIEW ON HASHING APPROACH USING DART FOR VIRTUAL ASSISTANT DEVELOPMENT

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ABSTRACT

Voice assistants are computer programs that listen to and respond to spoken commands. These are software agents that can understand and respond to human speech using synthetic voices. Initially, certain search engines, such as Google and Amazon, employed voice assistants, but as technology has advanced, the use of voice assistants has risen. The goal of this project is to create a voice assistant for the institution that will aid students and parents in learning more about it. Faculty can also utilise this programme to learn about any recent research in their discipline that has taken place at the college. We can utilise the speech function to search for queries instead of manually entering. This app has a voice capability that isn't available in other apps.

Keywords : Voice assistant, Verbal commands, Synthesized voices , Digital devices.

INTRODUCTION

In this new period of the twenty-first century, voice assistants are a godsend for everyone. Where we may ask machines questions and communicate with intelligent agents. This new technology appeals to consumers all around the world in a variety of ways, including smart phones, laptops, and PCs. The Voice Assistant with Voice Recognition Intelligence receives user input in the form of voice or text and returns the output in various ways, such as a search result that is dictated to the end user. "An application that leverages information, such as the user's voice and data," according to Voice Assistant. The programme may be used by speech, keyboard input, and remote access over the internet.

The Voice Assistant requires a voice command system with the following fundamental components: speech to text converter, query processor, and text-to-speech converter. Nothing about the college will be saved in the source code; instead, everything will be recorded in the database, which will allow students and parents to acquire a complete study of the institution

LITERATURE SURVEY

AI technologies have begun actively in human life, facilitates the appearance and wide dissemination of IOT. One of the relevant trends in AI is the technology of recognizing the natural language of a human. The method of creating a local voice assistant without using cloud services is described, that allows significantly to expand the applicability of such devices in future.[1]

A Personal Assistant device has brilliant powers of deduction and ability to interact with the surroundings just by one of the materialistic form of human interaction i.e. human voice. The Hardware device captures audio request through microphone and processes the request so that the device can respond to individual using in-built speaker module.[2]

It is examined about how the perceived acceptability of using the Voice-Activated Personal Assistant (VAPA) in smartphones influences its reported use. Results shown participants preferred using VAPA in a private location, they were hesitant about using it to input private or personally identifying information in comparison to more general, non-private information.[3]

Speech recognition is an interdisciplinary subfield of computational linguistics that develops methodologies and technologies that enables the recognition and translation of spoken language into text by computers. Automatic Speech Recognition engines take acoustic signal as input and tries to determine which words were actually spoken. The output typically consists of a word graph – a lattice that consists of word hypotheses.[4]

A voice assistant is a digital assistant which is a combination of machine learning, NLP, speech synthesis, artificial intelligence, and various mechanisms. These different mechanisms are used to convert speech into text and text into speech, it also adds different functionalities .NLP techniques are used instead of pattern recognition which recognizes the context based text . We reduce space and time complexity by storing the data in the application.[5]

Voice assistant helps users with cognitive, motor, linguistic impairments effectively interact with them . Users can easily control applications of a smart home by saying simple words and can complete their basic needs without the help of their caretaker.[6]

Voice-controlled intelligent personal assistants (VIPAs) involve artificial intelligence-powered algorithms designed to simulate humans. The conflicting factors, such as patient safety and privacy concerns, make it difficult to foresee the further development of VIPAs in health care. VIPAs show notable technological development and gain more user trust in the near future, resulting in widespread application in health care.[7]

Voice accessed writing machine is a new concept designed for two purpose , first to listen the voice or speech of the user , later after getting the instructions the plotter or the writing machine attached with it start writing accordingly on the paper. The converted speech which is letters or symbols are send into the Arduino. Based on the input given to Arduino the plotter will plot the letters and characters.[8]

EXISTING SYSTEM

Currently in many schools and other educational institutes voice assistant applications are being used only on PC's or desktops. Similarly, many programmers at the same time they work only on pcs or laptops.[9] The lack of voice assistants on mobile phones makes it difficult for people to use as they are

not built on mobiles. We can overcome these challenges by using voice assistants on mobiles, where people can use the application efficiently.[10]

Most of the voice assistant applications work with the help of google API's and entire data is located at google databases. So newly developed applications also should rely on google services.[11] There are many voice assistants which support in PC's or laptops for various features but in mobiles all voice commands depend more on Google assistant in android or Siri in Iphones. All the developers are concentrating voice assistants on PC or a virtual device like google home but not concentrating on mobiles.[12]

PROPOSED SYSTEM

The voice feature in this application makes users comfortable and attract users to use this application.[13]

The query we searched will be present in the storage at low memory so that searching for same query for multiple times will be time saving.[14]

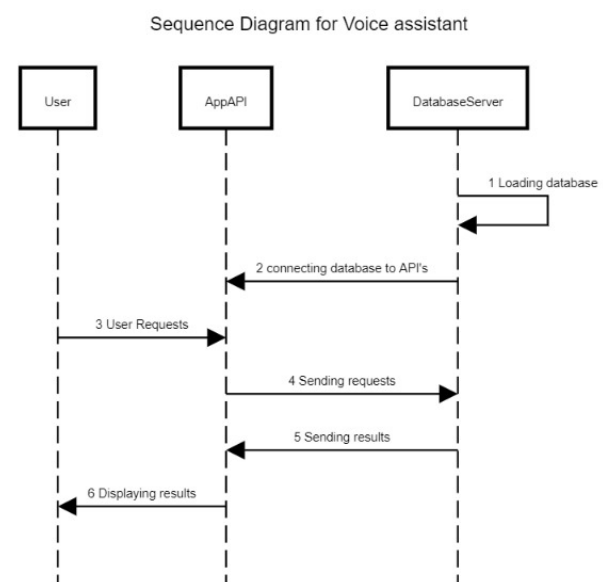
Even we can get the result of previously searched query in offline mode.

This application has branch prediction feature which helps users to know the best branch he/she may get in the university.[15]

This application also has features of our college magazine Vignana vahini like student activities and calendar.[16]

UML DIAGRAMS

Sequence Diagram:

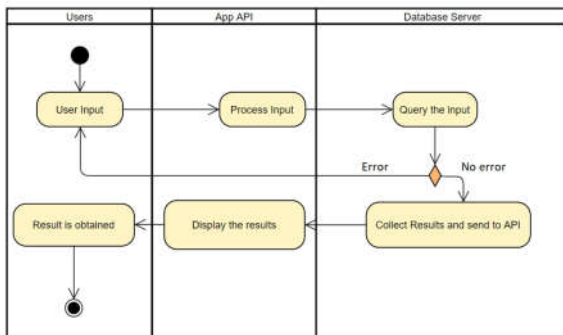


The sequence starts from database as data need to loaded first. Then that data is connected to app API using API's.[17]

Now user will make requests to app API to get data about the query. Then app API send the inputs to database server to get the results from it. Then database server sends the results to the app APIs. Finally,

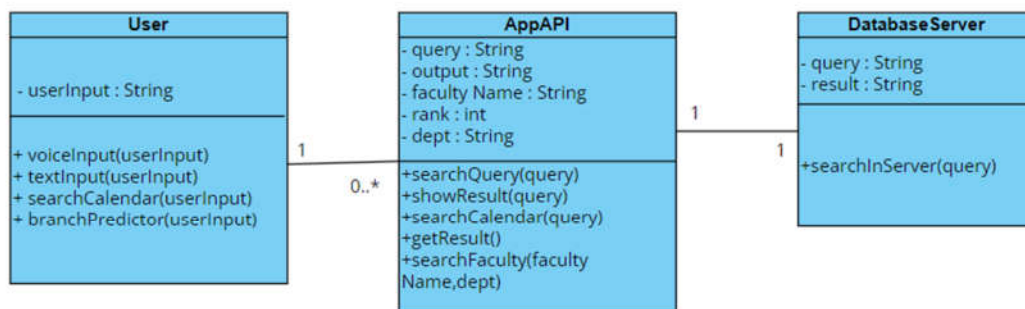
the result is displayed to user.

Activity Diagram:



This activity diagram represents the activity of displaying the results based on the query input. The activity starts with the user input option, then app API will collect the user input and process the input.[18] In the next step database server will get the input and querying process will occur at database server. If there is an error it will send to user input first and if there is no error then it will pass through collect results and send to API. App API will collect results from database server and display results. At last user will be able to obtain result.

Class Diagram:

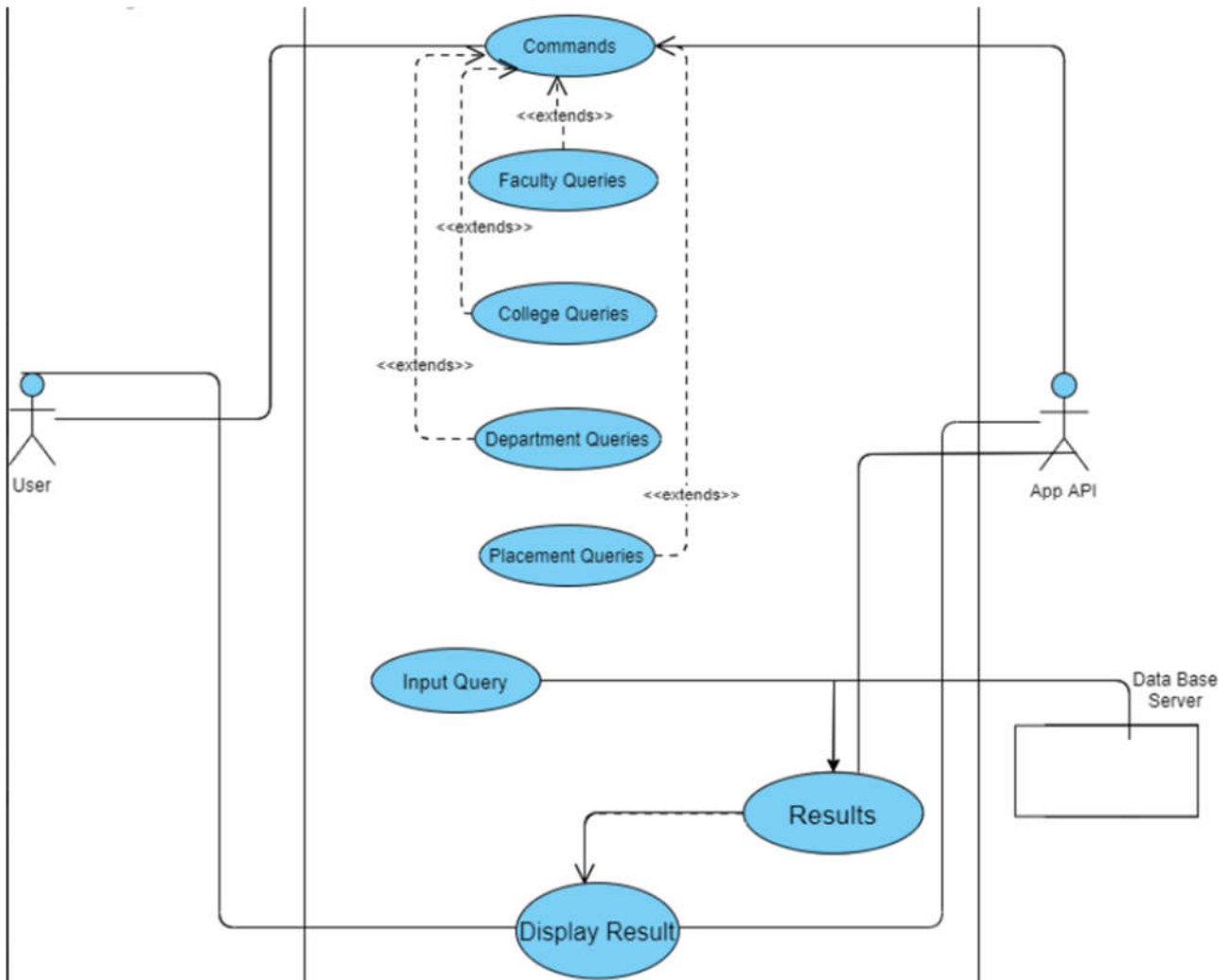


In class diagram main class is the application which is connected to the user class, video assistant UI and voice assistant server directly. Basically, voice assistant UI class is connected to every class directly or indirectly. Voice assistant UI class is the main connecting class to every other class. The attributes of this class are query, and output.[19] Functions of this class are searchQuery(), showResult().

User class has functions voiceInput() and textInput().

VoiceAssistantServer class has functions searchInServer().

Use case Diagram:



In this application Use Case diagram

Actors:

- User
- App API

Use Cases:

- Commands
- Input Query
- Results
- Display Result

Connections:

- User communicates with the commands to select the query.
- ‘Commands use case is connected to ‘Faculty Queries’, ‘College Queries’, ‘Placement Queries’, ‘Department Queries’ use cases. The connection is ‘extends’ as that option can be used only when the user intent to use it.[20]
- ‘Input Query’ is connected to ‘database Server’ which helps to get data from database.
- ‘Results’ use case is connected to ‘App API’ actor because the display of result depends on the app API. This app API plays key role in representing the result. ‘Display Result’ use case is connected to ‘User’ actor because user need to identify the result at the end.

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