A NOVEL APPROACH USING FLUTTER FOR VOICE CONTROLLED ASSISTANT

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ABSTRACT

Voice assistants are programs on digital devices that listen and respond to verbal commands. These are software agents that can interpret human speech and respond via synthesized voices. Initially voice assistant is used by some of the search engines like google and amazon but due to advancement of technology voice assistant usage increased in these days. The aim of this project is to develop a voice assistant for the college which helps students and parents to know more about the college. Also, faculty can use this application to find out any updates of research related to their field occurred in the college. Instead of manual typing we can use voice feature to search for query. This application provides voice feature that doesn't exist in existing applications of our college.

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

INTRODUCTION

Voice assistants are a boon for everyone in this new era of 21st century. Where we can ask questions to machines and interact with smart assistants. This emerging technology attracts users in the world in many ways like smart phones, laptops, computers, etc. The Voice Assistant with Voice Recognition Intelligence takes the user input in the form of voice or in the form of text and processes it and it will return the output in various forms like search result which is dictated to the end user. Voice Assistant is "an application that uses information, for example, the user's voice and data. The software can be used through voice, keyboard input, and also using the internet as remote access.

The Voice Assistant essentially requires voice command system that has basic components which are speech to text converter, query processor, and a text-to-speech converter. In the source code nothing will be stored about college and everything will be stored in the database as it helps the students and parents to get detailed analysis about the college. Voice has been the main part of communication. Since, it is faster to process sound and voices than to process written to text, hence voice command systems are internal in any of the devices.

1. RELATED WORK

A Voice Assistant system on android Platform[1] was developed as an android application that shows the use of artificial intelligence, speech recognition and natural language processing which helps to listen query and responds to it and even use the in-build mobile application by using voice commands[2]. Each developer of the voice assistant applies his own distinct methods and approaches for development, implementation which in turn affects the final product. Currently voice assistants are developed for the mobile phones like voice assistance[3], apple use Siri and amazon have Alexa, these assistants used language processing to perform its task. Another voice assistant is Cortana which is been developed by Microsoft and used on desktop. All of these voice assistants perform the same intended function which is voice initialized processing, and all of these developments have been a result of the same new age technology called AI. At the core, these assistants is a simple synchronous cycle includes Voice commands[4] and hear responses.

The voice assistant can synthesize speech more qualitatively and accurately[5] without additional explanations and corrections perform tasks, others are able to perform a narrower range of tasks, but most accurately and as the user wants. Since all applications are based on machine learning methods and used for their creation huge amounts of data collected from various sources and then trained on them, an important role is played by the source of this data, be it search systems, various information sources.

This system was proposed to use the branch predictor and event calendar where user able to know whether he/she can get a seat in college and also user can view their event using event calendar. The personal voice assistant[6] is a combination of speech synthesis, machine learning, NLP and AI. They used different mechanisms to convert speech to text and text to speech also reduced space and time complexity by storing the data in application. The designed system not only deals with voice search but also monitors predicting possible seat and events of a college according to the requirements of a user[7].

2. METHODOLOGY

2.1. Requirements

Hardware Requirements

- Laptop
- 2+ GHz CPU
- 8 GB RAM
- Microphone

Software Requirements

- Android Studio
- Flutter
- Android emulator
- Dart
- Python

2.2. Dataset

This project is developed with the dataset present in VNR Vignana Jyothi website. Data for branch prediction is directly taken and converted from tabular form present in VNR Vignana Jyothi Website[8] and converted into CSV format. Searching and event calendar

data is collected from various sources in VNR Vignana Jyothi college[9]

2.3. Work Flow

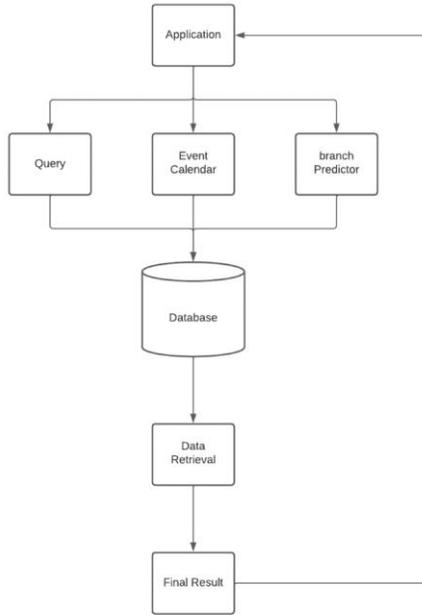Here figure 1 explain the work flow of the project

Fig:1 WorkFlow of the project

Here in this project it is divided into three partitions where all the partitions are connected to database and it the final result is displayed.[10]

2.4. Modules

i. Query Search

Query search is done with the help of firebase and google API's. Initially queries are trained in firebase and with the help of packages in flutter these data is retrieved[11]. Also this query search helps

to navigate from one page to the other in the application.

ii. Branch Predictor

Branch predictor is developed using Linear Regression[12]. Linear regression is one of the best machine learning technique for prediction.

Using python modules numpy and pandas regression is done and with the help of flask it is integrated into dart language for visualization of branch prediction in the developed application[13].

iii. Event Calendar

Event calendar is developed with the help of table_calendar package of flutter.[14] This event calendar contains details of the selected day, if there is/are any event(s) on that day[15]. Here events are stored in firebase containing the timestamp and the description of the event.

Based on the dates in the firebase, calendar allocates events for that day.[16]

3. RESULTS

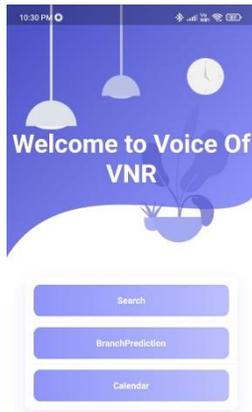Figure 2 represents the homepage of the application

Fig 2: Homepage interface of the application.

Here figure 3 shows how the calendar interface looks and dots represent the events are present on that day
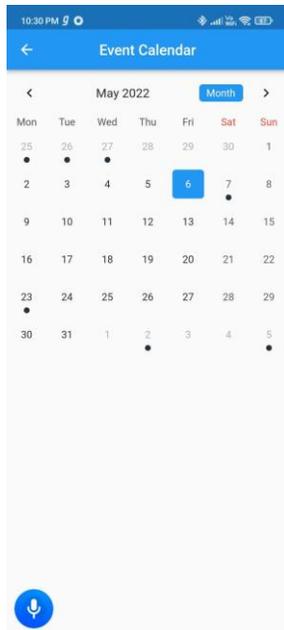

Fig 3: Interface of the calendar

In figure 4 a day is selected and the events on that day are shown at the bottom of the calendar as shown.
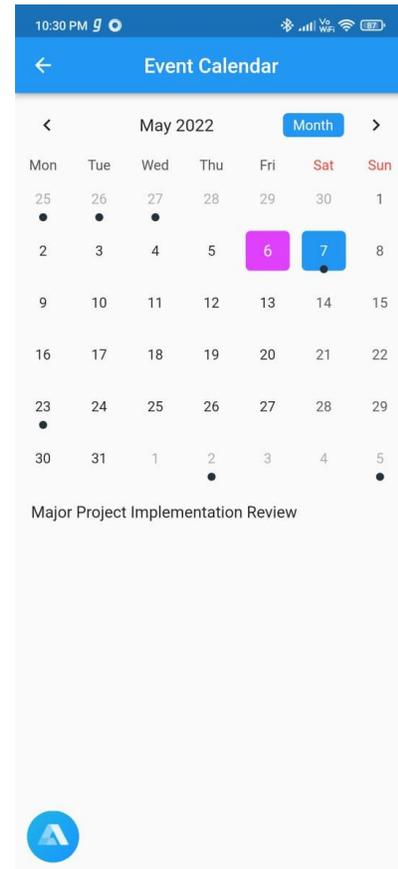

Fig 4: Interface when day of event is selected

Figure 5 shows the interface of the branch predictor.

Fig 5: Interface of the branch predictor

Figure 6 shows the interface of the result

Fig 6: Interface of the result

4. CONCLUSION

The application is user friendly and includes features such as voice search, an event calendar, and a branch predictor.[17] This application also gives users a smooth experience and assists them in using it more effectively.[18]

5. FUTURE SCOPE

We have a few ideas for the future scope of this project, some of which are outlined below.

- Search for faculty details with name and department
- Complete placement details
- Student and faculty portal can be incorporated into this application.

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