AI based Kiosk – Information Retrieval System

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Introduction

Speech recognition converts a speech signal to a text by using various algorithms. It takes a speech input, processes it and provides an output. This technology can be effectively used to design a Kiosk that can be plugged in and used for various applications. An AI-based kiosk is an interactive self-service machine that uses artificial intelligence (AI) technology to provide personalized assistance and information to users. Information retrieval is one of the most common thing done in almost every application. This paper proposes an information retrieval system that uses speech recognition and speech to text conversion to manage applications with huge amounts of data and to make it easier for the user.

Objective

- Enable users to conduct searches or retrieve information without having to type or use a keyboard, making the process more efficient and accessible.
- To extract the necessary words from the text obtained and interpret its meaning.
- To generate a query from the obtained text that is most appropriate.
- To make the management of large quantity of information easier and computer-based.

Novelty

Information retrieval is one of the most common things done in almost every application.
However, managing, organizing and retrieving information becomes a tiring, lengthy and cumbersome process when it is all done by humans. Hence, an AI based Kiosk for information retrieval system is the need of the hour. Our system has been tested with library. So, if a reader or a user wants to inquire about a book, then his speech input can be passed, processed with the database and the textual output can be returned.

System Design

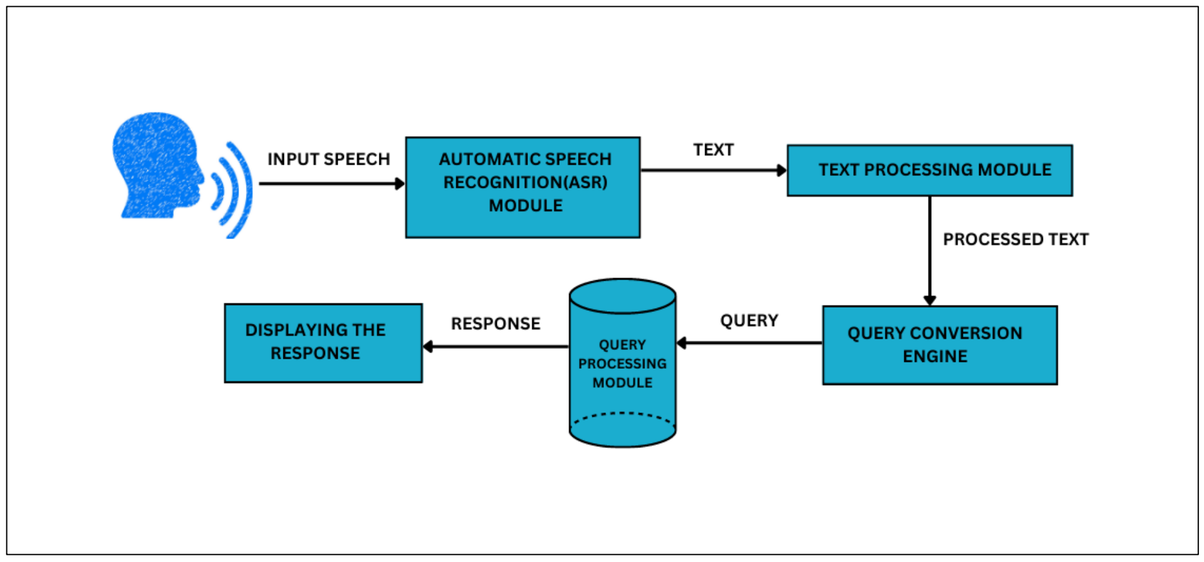

Figure 01

Process – described for a library system

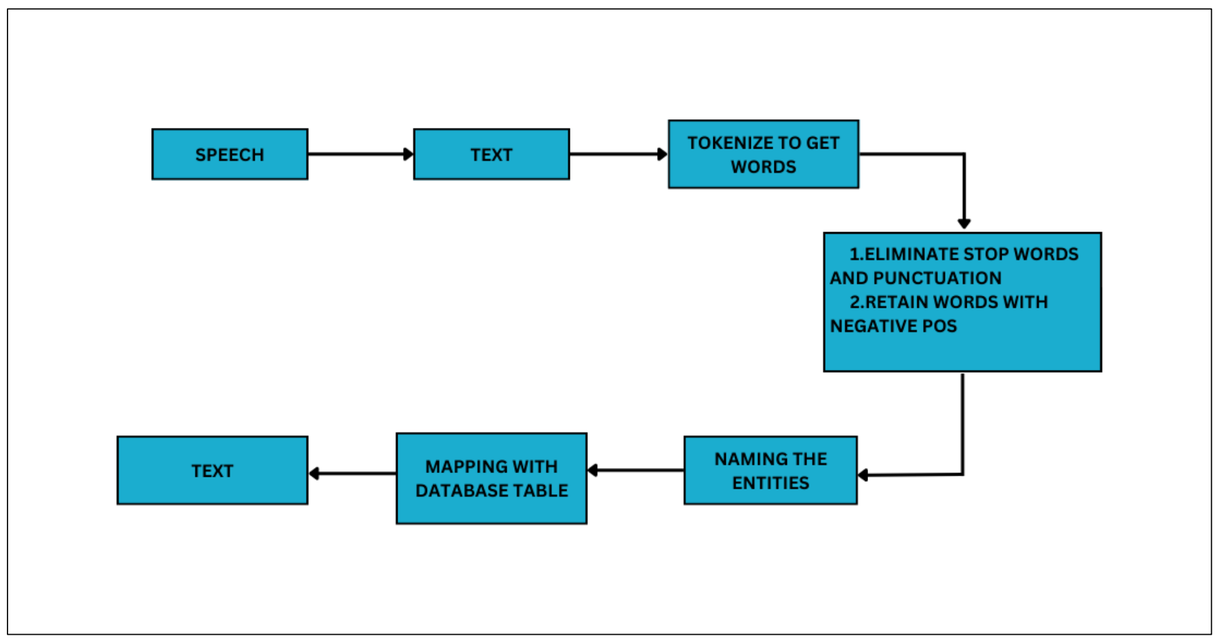

Figure 02

Output of the system

```
Results for your query:  can i get a book on systems and services
['book', 'systems', 'services']
('B005', 'DATABASE SYSTEMS:THE COMPLETE BOOK', 'JENNIFER WIDOM')


('B003', 'DATABASE MANAGEMENT SYSTEMS', 'G.K.GUPTA')


('B005', 'DATABASE SYSTEMS:THE COMPLETE BOOK', 'JENNIFER WIDOM')


('B006', 'ADVANCED CONCEPTS IN OPERATING SYSTEMS', 'NIRANJAN G SHIVARATRI')


('B001', 'RESTFUL WEBSERVICES', 'SAM RUBY')
```

Figure 03

Outcomes

- Helps to retrieve information without any keyboard intervention.
- Helps in saving time in organizing and searching huge amounts of data.
- Handles data in a more efficient way.

Limitations

- The speech input may not be recognized properly due to external factors.
- The system works efficiently only for specific accent and language(English).

Challenges

- To identify and name the entities with their respective tags in order to permit only valid searches
- To obtain filtered output only with relevant data

Conclusion

An AI-based kiosk for information retrieval system has the potential to greatly improve the efficiency and accuracy of managing, organizing, and retrieving information. Through the use of speech input and database processing, non-technical users can easily access the information they need with minimal effort. This system, a kiosk designed using speech recognition reduces the time consumed in retrieving information. It makes a tiring process simple. This system provides an easy way of retrieving information.

CERTIFICATE OF APPRECIATION

This is to certify that

Mythreya Kesavan, Olirva M, Arunasree RJ

of SSN College of Engineering, presented a poster titled

AI BASED KIOSK - INFORMATION RETRIEVAL SYSTEM

and was awarded **"BEST POSTER PRESENTATION AWARD"** in the Research Scholar's Colloquium 2023 held in association with ACM Chennai, CSI Chennai, and IEEE CS Madras on March 14, 2023, at Department of Information Technology, SSN College of Engineering, Kalavakkam.

DR. S. KARTHIKA

RSC'23 Organizer