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My Virtual Assistant for Educational Purpose and System Chatbot

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ABSTRACT

This paper presents the development of a multifunctional virtual assistant tailored for educational environments. Designed to enhance learning and system accessibility, the assistant combines speech recognition, chatbot capabilities, and system control functions to serve as a smart companion for students and educators. Developed using Python and integrated with APIs for weather, email, Wikipedia, and music playback, the assistant offers an intuitive interface and improves productivity in academic settings.

Keywords: Virtual Assistant, Educational Technology, Chatbot, Python, Speech Recognition, Smart Assistant

1. Introduction

With the increasing reliance on digital tools in education, virtual assistants have emerged as valuable assets in learning environments. This paper introduces a customized virtual assistant that not only provides information retrieval and conversational support but also facilitates system operations and educational content delivery. The system is designed to help students manage tasks, conduct research, and interact with software more naturally.

2. Literature Review

Several virtual assistants like Siri, Alexa, and Google Assistant demonstrate the potential of AI in daily use. However, their integration into educational systems remains limited. Recent studies have explored educational chatbots, but few provide multifunctional support such as speech-to-text writing, system control, and personalized interactions. This project bridges that gap by delivering a tailored assistant for academic and personal system use.

3. Methodology

The virtual assistant is built with:

- Programming Language: Python
- Framework: Flask for the GUI
- Libraries/APIs: pyttsx3 for text-to-speech, Speech Recognition for voice input, Wikipedia API, Weather API, and smtplib for emails

The assistant supports tasks like voice typing, opening applications, sending emails, searching Wikipedia, playing music, and responding to academic queries via a chatbot module powered by OpenAI API.

4. Results and Discussion

The system was tested in a simulated academic environment, showing high efficiency in handling student queries, performing system operations, and delivering fast responses. Users reported an improved learning experience due to the conversational interface and multifunctionality. The assistant was able to handle varied tasks while maintaining a friendly and responsive interaction style.

5. Conclusion

This study presents a functional and adaptable virtual assistant for educational settings. Its ability to merge learning support with system automation makes it a powerful tool for students and educators alike. Future developments may include integration with learning management systems and advanced NLP for personalized learning assistance.

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