

PowerPoint Voice Assistant

Multimodal Interaction - 1st Assignment

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Introduction and Project Objective

For this project, it was expected for us to develop a voice assistant to control an app, platform, game or something similar. We decided to implement a voice-controlled system for PowerPoint presentations, using natural language understanding (RASA NLU) to interpret (MMI framework) and execute user commands.

This assistant can improve the flow of a presentation enabling the user to perform various actions during the slide show without having to click anywhere. Of course, this could also help disabled people, which is the biggest advantage of this type of system.

The primary goal was to create an intuitive, user-friendly interface that enhances the presentation experience through voice commands.

The next section documents the intents implemented, their functionality, purpose, example utterances, and the system's behavior in response to each.

Implemented Intents and System Feedback

1. Next Slide

The '*next slide*' intent is one of the core functionalities of the system, enabling hands-free navigation through slides. This intent was chosen because it addresses a fundamental need during presentations.

Example Commands:

"Próximo slide, por favor"

"Avançando para o próximo slide"

"Já terminei este"

"Estou farta deste slide passa para o próximo"

System Feedback:

"Avançando para o próximo slide."

2. Previous Slide

The '*previous slide*' intent can be crucial for addressing audience questions or revisiting key points.

This feature, just like the previous one, eliminates the need for physical interaction with the computer, allowing the presenter to maintain eye contact with the audience and focus on delivering their message. It ensures a seamless flow during the presentation, especially when transitioning between slides.

Example Commands:

"Slide anterior"

"Esqueci-me de dizer uma coisa no slide anterior"

"Vai para trás"

System Feedback:

"Voltando ao slide anterior."

3. Jump to Slide by Title

The '*jump to slide by title*' intent allows users to directly navigate to a specific slide by providing its title. This feature is particularly useful in large or complex presentations or during the Q&A sessions when a particular topic needs to be revisited.

Example Commands:

"Passando aos [Resultados]."

"Voltando ao slide da [Introdução]."

"Mostra-me o slide da [Introdução], por favor"

System Feedback:

"Indo para o slide com o título {title}"

"Slide com o título {title} não encontrado."

4. Jump to Slide by Number

The '*jump to slide by number*' intent was chosen to provide an alternative navigation method for users who prefer or remember slide numbers instead of titles.

This feature enhances the system's versatility, catering to different user preferences.

Example Commands:

"Passando para o slide número [3]."

"Mostra-me o slide número [5], por favor."

System Feedback:

"Indo para o slide número {slideNumber}."

"Slide número {slideNumber} não encontrado."

5. Highlight Phrase

The '*highlight phrase*' intent was designed to enable dynamic emphasis on key points during a presentation by highlighting text. This functionality is particularly valuable for drawing the audience's attention to specific content, enhancing visual impact.

Example Commands:

"É de destacar que [phrase]"

"Sublinhando que [phrase]"

System Feedback:

"Texto '{phraseToHighlight}' destacado."

"Não foi possível destacar o texto '{phraseToHighlight}'."

6. Zoom In

The '*zoom in*' intent allows users to focus on specific areas of a slide, such as an image or graph, by enlarging them for better visibility. This functionality improves audience engagement by focusing attention on key visual elements.

Example Commands:

"Dá zoom na imagem."

"Ampliando a imagem."

"Quero ver melhor esta imagem."

System Feedback:

"Simulando zoom na área principal: {focusShape.Name}."

"Nenhuma área principal foi encontrada no slide para aplicar zoom."

7. Zoom Out

The '*zoom out*' intent complements the previous one allowing the users to revert to the original slide view after using the '*zoom in*' functionality.

Example Commands:

"Reduz o zoom."

"Voltando ao tamanho original."

System Feedback:

"Zoom revertido."

8. Show Elapsed Time

The '*show elapsed time*' intent provides the time elapsed since the start of the presentation, helping presenters track how much time has passed to ensure they stay within their allocated schedule.

Example Commands:

"Quanto tempo já passou?"

"Qual o tempo desde o início?"

"Espero não estar a ultrapassar o tempo decorrido."

System Feedback:

"Tempo decorrido: {hours} horas, {minutes} minutos e {seconds} segundos."

9. Current Slide

The '*current slide*' intent provides the user with information about their current position in the presentation, helping them to stay oriented, especially in larger slide decks where it can be easy to lose track of progress.

Example Commands:

"Em que slide estou?"

"Qual é o slide atual?"

"Onde estou na apresentação?"

System Feedback:

"Você está no slide número {current_slide}."

10. Slides Left

The '*slides left*' intent was included to provide users with an immediate overview of their progress in the presentation. This is particularly useful for time management, as it helps presenters determine how much content remains to be covered.

Example Commands:

"Quantos slides faltam?"

"Quanto falta para terminar a apresentação?"

System Feedback:

""Ainda faltam {slidesLeft} slides para terminar a apresentação."

"Você está no último slide."

11. Restart Presentation

The '*restart presentation*' intent allows users to restart their presentations from the first slide and it was implemented with the thought that it would be useful when users are training their presentation or after an interruption. It is particularly helpful in academic or professional presentations where timing and structure are being practiced.

Example Commands:

"Reinicia a apresentação"

"Começa do início"

"Volta ao início"

System Feedback:

"Apresentação reiniciada no primeiro slide."

12. Start Timer & Stop Timer

The '*start timer*' and '*stop timer*' intents allow users to start and stop a timer, as the name reveals, and they were added to help presenters practice timing specific sections of their presentation. These features are particularly valuable during the training phase.

Example Commands:

"Inicia o temporizador"

"Para o temporizador"

System Feedback:

"Temporizador iniciado."

"Temporizador parado. Tempo decorrido: [hours] horas, [minutes] minutos e [seconds] segundos."

13. Close Presentation

The '*close presentation*' intent gives users a convenient way to end their presentation through voice commands. This eliminates the need for manual interaction, maintaining the flow of the session.

Example Commands:

"Terminamos assim a apresentação."

"Termina a apresentação."

System Feedback:

"Apresentação fechada com sucesso."

14. Helper

The '*helper*' intent, as the name reveals, can be used for users, especially first time user, to understand how the system works and what commands they can use.

Example Commands:

"Preciso de ajuda"

"Que comandos existem?"

System Feedback:

"Aqui estão os comandos que pode usar para começar: "

+ "- Próximo slide para avançar para o próximo slide. "

+ "- Slide anterior para voltar ao slide anterior."

15. Greet

The '*greet*' intent can be used to establish the initial interaction between the user and the system and it works also as a quick way for the user to verify that the system is active and ready to receive commands.. It recognizes salutations such as "Olá" or "Bom dia," allowing the system to acknowledge the user in a polite and friendly manner. The system responds with an appropriate greeting, ensuring that the user feels welcomed. For example:

Example Commands:

"Olá"

"Bom dia"

"Boa tarde"

"Olá, como estás?"

System Feedback:

"Olá! Como posso ajudar hoje?"

16. Ask How Are You

This intent enables users to inquire about the system's state, further fostering an interactive and conversational environment. The system replies positively or neutrally, maintaining a friendly tone. It helps the user feel like they are interacting with a friendly assistant rather than a rigid tool.

Example Commands:

"Está tudo bem?"

"Como está?"

"Tudo bem contigo?"

System Feedback:

"Estou ótimo, obrigado por perguntar! Como está você?"

17. Respond How Am I

The '*respond how am I*' intent allows users to share their state of mind with the system. This was added to allow users to express their state of mind. This small touch of empathy from the system makes the interaction feel more meaningful and supportive.

Example Commands:

"Estou bem"

"Não estou muito bem"

"Estou cansado"

System Feedback:

"Estou aqui para o que precisar."

18. NLU Fallback

The '*nlu fallback*' intent acts as a safety net for unrecognized commands or situations where the system cannot determine the user's intent. This ensures the system remains responsive and provides feedback even when it cannot fulfill a request.

Example Commands:

"Pode repetir a última parte?"

"Qual o tema de hoje?"

"Quantas pessoas estão a assistir?"

"Esta luz é muito forte."

"Obrigado pela atenção."

"Esta parte não é clara."

"Onde é que estava?"

System Feedback:

"Não entendi. Repita por favor !"

Conclusion

The implemented intents demonstrate the versatility and user-centric design of the voice-controlled PowerPoint system. From basic navigation commands to dynamic interactions like highlighting and time tracking, the intents collectively create an intuitive and useful tool for presenters. Each intent has been rigorously tested to ensure reliability and responsiveness, making this system a valuable enhancement to traditional presentation tools. This project not only showcases the potential of voice control in professional settings but also in inclusion, serving as a foundation for further development and refinement.