SpeechOO: A Dictation Extension for the LibreOffice Writer

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Abstract. People with special needs encounter serious difficulties in having access to computers. In this scenario, speech technologies may be seen as adaptive and contribute to increased autonomy and social inclusion of people with disabilities. This work presents SpeechOO, an extension for the Writer application in the LibreOffice office suite. Using this plug-in, physically impaired people can control the Writer software, dictate and edit text via speech commands in Brazilian Portuguese.

1 Introduction

In recent years, the performance of personal computers has evolved with the production of ever faster processors, a fact that enables the adoption of speech-enabled applications. There are several speech technologies that are effective in accessibility tasks, among which Text-to-Speech (TTS) and Automatic Speech Recognition (ASR) are the most prominent.

This on-going project uses the ASR technology to make it possible for people with motor disabilities to use the Writer application of the LibreOffice office suite [1]. In summary, the user is able to control all the software features, and also dictate and edit text via voice commands in Brazilian Portuguese (BP). The development was made in the form of an extension (or plug-in), which is called SpeechOO. The proposal research takes an important digital impact since, according to the Brazilian Institute of Geography and Statistics (IBGE), there are more than 9 million of physically impaired people in Brazil [6].

The remainder of the paper is organized as follows. Section 2 describes the SpeechOO architecture and technical implementation details. Section 3 explains how the SpeechOO demo will be presented.

2 Technical description

SpeechOO needs two major resources: a text editor program and a ASR engine. The Writer software was used because LibreOffice is the main open source cross platform office suite available. SpeechOO was implemented in Java, because
this programming language has a great support for extension development on LibreOffice and is cross platform too. The Java Speech Application Programming Interface (JSAPI) [3] was adopted as the ASR interface, mainly because it is written in Java and the open source Coruja engine [7] (which provides the BP ASR support in this project) implements it. Note that the JSAPI specification provides an engine independent ASR interface.

Figure 1 illustrates the SpeechOO architecture. As a LibreOffice extension, SpeechOO has to communicate with the Universal Object Model (UNO) environment, so it is able to control some LibreOffice features exported via UNO.

The Coruja engine uses the Julius decoder [4] which is written in C programming language. The LaPSAPI wrapper was developed using the Java Native Interface [2] to control Julius in the Java environment. Finally, the JLaPSAPI block implements the JSAPI specification [9]. The language and acoustic models were trained using the SRI Language Modeling Toolkit (SRILM) [8] and Hidden Markov Model Toolkit (HTK) [5], respectively.

3 Presentation details

SpeechOO is distributed as an extension to the LibreOffice office suite. So the LibreOffice Extension Manager is used to install it. Once installed, the SpeechOO is available as a button in the LibreOffice Writer User Interface (UI).
When the SpeechOO is activated, the user is able to dictate any text, that is written in the LibreOffice Writer UI. To input special commands, like changing the font style or make the text bold, the user has to hold the Ctrl key. At this time, the ASR engine changes the language model to a context-free grammar. When the Ctrl key is released, the language model for dictation is activated again.

We intend to present SpeechOO in a computer notebook with a headset and let the users test the speech UI.

References

8. Andreas Stolcke, SRILM an extensible language modeling toolkit 7th International Conference on Spoken Language Processing, 2002.
People with special needs encounter serious difficulties in having access to computers. In this scenario, speech technologies may be seen as adaptive and contribute to increased autonomy and social inclusion of people with disabilities. This work presents SpeechOO, an extension for the Writer application in the LibreOffice Extensions category. The extension is installed in LibreOffice system folder and will be available for all users. In general, choose to install it for only me, which doesn't require administration rights on the operating system. After, you may be asked to accept a license agreement.

Remember to restart LibreOffice Writer after installing the package! Share. Improve this answer.


I didn't know where the feature was but I used it years ago (more than 6) and tried to find it again. Here my results: I have version 5 of LibreOffice on Debian Stable. I have a tab bar with "notes" (Notizen in my local). This provides me with access to the notes. Or I can select "View" → "Notes" (Anzeige → Notizen) in menu.

Now I can edit and add my notes. Now when I enter presentation mode (key F5 or somewhere in the menu) and my monitors are set up in "extended mode" â€œ, then the notes are displayed on my notebook screen and the slides on my ext. monit...