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Proposal Title: Simon Workspace Integration (Voice Control KDE Desktop)

Brief explanation about the Project:

Currently, the Simon is just able to control the browser and some functions of the system. The project "Simon Workspace Integration" aims to expand the Simon to the KDE desktop. Working with AT-SPI 2, Qt and Dbus, we expect become the Simon able to parse the informations of running programs, generate the necessary vocabulary, grammar, commands and, using voice, may control any on-screen buttons, menus, etc.

Motivation/Goal:

Research on speech processing area has made great progress recently, perhaps motivated by its numerous applications, of which Simon is example. I want to expand the Simon to all applications of the KDE desktop, due to the importance that have to the people who have difficult to use the computer and to all other kinds of Simon's users that don't want just control the browser and some functions of the system. Furthermore, I feel that Simon is a very nice open source project and would be great to work.

ATI-SPI 2:

The ATI-SPI 2 client library provides a wrapper around the D-Bus interface and also caches information when possible to avoid making round-trip D-Bus calls for commonly-accessed information that can easily be cached. It will help the project, because I will not need a specific configuration. The Simon will generate the necessary vocabulary, the grammar and the commands to control the running programs.

Implementation Details:

Currently, Simon is very limited and may control some applications like "gedit", however has no full support for the KDE Desktop (You can see a video about the simon 0.4: AT-SPI Integration - http://www.youtube.com/watch?v=mjVc8bKRdqA). To make the Simon able for

control the KDE Desktop, I will use the AT-SPI 2 to get information about the accessible applications on KDE Desktop. I will use AT-SPI 2 for Gtk and Qt applications to get all the necessary informations or controls elements and exported them on the Dbus interface. The vocabulary, correct grammar and commands for the applications will be decided with the help and discussion with the mentor.

Finally, these commands, vocabulary and grammar will be exported to Simon for use.

Expected Result:

The expected result is Simon plugin able to listen to messages in AT-SPI interface DBus and can take advantage of the new information. Consequently, Simon will be able to control of running Qt and GTK applications without any specific configuration and a better AT-SPI support from Qt and Gtk resulting in more Widgets being exposed correctly.

About me:

I'm student of computer engineering and a member of the group FalaBrasil, a project that was initiated in 2009 and if maintained by members of the Signal Processing Laboratory at Federal University of Pará (LaPS).

Brief explanation about the FalaBrasil:

It aims at developing and deploying resources and software for Brazilian Portuguese speech processing. The public resources allow to establish baseline systems and reproduce results across different sites. Due to aspects such as the increasing importance of reproducible research, the FalaBrasil project achieved good visibility and is now fomented by a very active open source community. One example of our work is the software called SimonBR, a program that let you control the browser FIrefox, the keyboard, the mouse and many OS commands by the voice. For more infomation about our project: http://www.laps.ufpa.br/falabrasil/index_en.php or you can found some posts related with the group in http://www.simon-listens.org/.