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OSGeo project(s): WXGUI GRASS, Windows Flooding

Title: WXGUI GRASS, Windows Flooding

(please include the name of the member project as part of the title, for example: "Gee Whiz Foobar 2001 for QGIS")

Describe your idea

1. Introduction

I will introduce several features that make WXGUI more user-friendly. These include but not limited to taking care of the windows flooding problem. Several solutions are proposed for this. Multiple windows could be captured in the same frame. This leads to better visualization . A novel approach of using tabs and windows together is proposed.

2. Background

I have last year worked with Grass in Gsoc, 2011. I was involved with implementation of wms support for Grass. I have complete background knowledge of the wxgui and I think this will lead to better way this year.

3. The idea

The idea comprises mainly of following steps.

1. Analyze the other formats used by other softwares to handle the problem of multiple windows and choose the method which is best suited for Grass.

For starting puposes we can have an optional layout which is similar to QGIS. All the windows for different tasks could be captured in a single frame.

The New Idea proposed

The interface could be modified to support dynamic tab - window switch. By default when a new window needs to be opened, it opens as a tab in the current frame. A user can drag by holding the tag handle. When a user releases the tab handle, the tab gets converted to a seperate window. This approach could solve both the problems of window flooding and switching between the two modes ie tab mode or separate window mode. This is a tried and tested approach in web browsers. Most of web browsers such chrome, firefox, have shifted to this approach.

Another approach used could be to keep on adding tabs to the same frame , till a certain threshold is reached. Once, that threshold is crossed (Threshold can be based on the number of tabs opened

which further depends on many factors) a new opened tab opens as a new window.

A magnetic docking approach could also be used. Whenever a new window is opened it is kept magnetically locked to previous window opened. In this way scattering of windows across the screen can be prevented.

If we wish to continue using our current WM, then a better multi thread support could be done at the source or we can provide support for user level multithreading to support different windows in parallel on the same frame.

One approach could be to Open a current window, while just keeping legends of other windows. This solves the problem of window flooding but might be little inconvenient for the user.

We can do user level multithreading

Roadmap

1. Publish my goals to the WXGUI community and try to get some feedback and suggestions on my plans. I will get familiar with the specific project internals that I require for my work. (until mid of May)
2. Implement features in the order they are specified above.
3. Testing of all features with the help of the WXGUI community. This will begin as soon as one component is finished and should be completed by the end of August.
4. Project plan (detailed timeline: how do you plan to spend your summer?)
5. Future ideas / How can your idea be expanded?

Each new window could be started as a separate process. This would facilitate independence among windows and would lead to a general increase in overall performance.

Explain how your SoC task would benefit the OSGeo member project and more generally the OSGeo Foundation as a whole:

Facilitate the use of WXGUI by creating tab-window approach. This type of approach has become very common these days in web browsers such as google chrome, firefox, etc. Allowing windows to appear as a tab or a separate window would increase usability experience of the user and would lead to more smooth transition between older version and newer version. This will lead to making the interface more intuitive and responsive.

Please provide details of general computing experience: (operating systems you use on a day-to-day basis, languages you could write a program in, hardware, networking experience, etc.)

I use Ubuntu OS most frequently.

Languages - Python (Advanced), WXPYthon(Advanced) , Java(Advanced), C++(Advanced), C(Advanced), PHP, JQuery, SQL, JSP (Medium)

I have good experience in networking and have done couple of projects in it , including a course in networking. I built SMTP server, Packet sniffer , Go Back N protocol, etc as part of my term projects. I also have experience in writing a Compiler for C language. And designing and implementing a 32-

bit CPU on FPGA using verilog.

Please provide details of previous GIS experience:

I implemented support for WMS in Grass in GSOC 2011. I have familiarity with the working of WXGUI and I believe it would help me in my current project. I did my Bachelor's project in GIS. We designed a formal framework for WPS and WMS. A publication was also made as a result of the project.

Please provide details of any previous involvement with GIS programming and other software programming:

I participated in GSOC, 2011 and successfully completed it with OSGEO organization. The link for my part of code:

<https://trac.osgeo.org/grass/browser/grass-addons/grass7/gui/wxpython/wx.wms>

The wikilink for progress of the project

http://grass.osgeo.org/wiki/WXGUI_WMS_service_rendering_GSoC_2011

I have experience of working as individually and with teams. I have a good coding experience with organizations and delivering quality code. I have previously done internship at following organizations

1. EPFL and Nokia Research Labs, Switzerland 2010

Implementation and Analysis of Crypto Algorithms for Nokia N 900 devices.

2. Yahoo Research Labs, Banaglore 2011

Described above

3. Telecom Sudparis

Implementation and increasing fault tolerance of PLUGS: Secrets of Museum , a pervasive game

<http://plug-futur-en-seine.it-sudparis.eu/en/>

Open Source

- Please describe any previous Open Source development experience:

I participated in GSOC, 2011 . I worked with OSGeo organization and worked on GRASS Software. For more detail please refer to

<https://trac.osgeo.org/grass/browser/grass-addons/grass7/gui/wxpython/wx.wms>

The wikilink for progress of the project

http://grass.osgeo.org/wiki/WXGUI_WMS_service_rendering_GSoC_2011

Please tell us why you are interested in GIS and open source software:

My bachelors project has been in GIS. I would like to seem my code as a part of next release of GRASS. Open Source fascinated me as I can directly contribute to the software and see the result being shipped with the actual released version.

Please tell us why you are interested in working for OSGeo and the software project you have selected:

I last year also worked with OSGeo and got a wonderful experience while working with OSGeo community. A very diverse and mature community at OSGeo is appreciable. The project I have selected relates to the work which I did last year with OSGeo and hence I feel I would be more suited to complete this project.

Please tell us why you are interested in your specific coding project:

The windows flooding project seems to capture what most of us experience very often. Unnecessary flooding of the screen leads to a bad user experience and moreover a cluttering of the screen leading fall in user responsiveness and experience with GRASS. I am really interested to implement my approach of tabs-windows. A further more useful discussion with the community would lead to further refining of the approach during community bonding period.

Would your application contribute to your ongoing studies/degree? If so, how?

Yes, The application would be an extension to my last years work with osgeo, which was an extension of my Bachelors Project.

Please explain how you intend to continue being an active member of your project and/or OSGeo AFTER the summer is over:

I intend to be an active member after the summer is over by being in touch with my mentor and the community. I feel certain issues/bugs in the implemented approach would be reported. I wish to take care of these bugs as they come , so as to lead further robustness of the implemented approach.

Do you understand this is a serious commitment, equivalent to a full-time paid summer internship or summer job?

Yes, I understand this is serious commitment, equivalent to a full-time paid summer internship. I am fully committed to it and complete the project successfully .