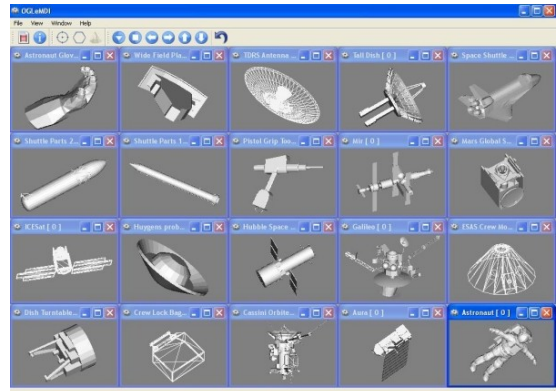# OGLeMDI v.2.1.

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   OGLeMDI application is the "Open Graphics Library (OpenGL) example of Multiple Document Interface (MDI)", based on extended Qt code.
   This software demonstrates implementation of the main instruments for work with 3-Dimensional (3D) vector images.
   Source code of this application (extensible Qt-project) can be a base for creation of software with using of the 3D engineering graphics.

   OGLeMDI application exhibits the following developed solutions, extensions and improvements for present Qt library:
- Organization of code with ability of using the basic necessary graphical instruments, processing and storage of the appropriate data (at first order - encapsulation of code, which belongs to the OpenGL layer).
- Ability to work with several 3D drawings (or different views of the same drawing) simultaneously.
- Initialization of the drawing environments according to the user defined settings.
- Making the vector drawings by means of developed code of basic 3D elements (Point, Line, Face, Mesh) with possibility of creation of another such elements on base of them.
- Implementation of methods for processing the mouse events (mouse's wheel rotation, clicks and motion for scaling, rotation around axes and translation of the current drawing, accordingly).
- Ability of selection of the graphical entities.
- Presence of several kinds of rendering of images (by points, wireframe or solid).
- Changing the actual basic views of opened drawings.
- Managing with opened images and navigation through them.
- Obtaining of the information about actual drawings and used software.
- Organization of access to help information.

   References.
- Qt v.4.7.0 (is available under the Lesser General Public License, LGPL), Copyright (C) Nokia Corporation, http://qt.nokia.com ;
- OpenGL (is a registered trademark of SGI, http://www.sgi.com)
http://www.opengl.org ;

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- Icon set (freeware), Copyright (C) Aha-Soft, http://www.aha-soft.com ;
- dxf2cpp v.2.1, Copyright (C) Vadym Shvachko,
http://shvachko.net/my3w/vsh_wares_eng.html#dxf2cpp ;
- Calculated drawings, based on images from the following open sources:
http://samadhi.jpl.nasa.gov/models/ ,
http://www.nasa.gov/multimedia/3d_resources/models.html ,
http://www.nasa.gov/multimedia/3d_resources/3d-models-gallery-collection_archive_1.html ,
http://www.nasa.gov/multimedia/3d_resources/3d-models-gallery-collection_archive_2.html .

Platform.

OGLeMDI application was created with using of C++ as cross-platform software. There are executable codes for Windows and Ubuntu Linux operating systems. Also, OGLeMDI can be compiled for other operating systems - according to availability of Qt software for appropriate platforms (http://qt.nokia.com/products/platform).

License Agreement.

This software is free for personal and commercial using. By purchasing OGLeMDI software, the purchaser agrees to the terms of this agreement, as detailed below.

OGLeMDI application is provided "as is". Developer cannot be held liable for any negative issues that may occur as a result of using this code.

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Installation and Uninstallation.

Installation procedure is not needed for work under Windows. Just unpacking of content of distributive archive (OGLeMDI-2.1.zip) to any place on disk is necessary. The OGLeMDI application will be started after the mouse's click on OGLeMDI.exe file. The uninstall procedure is simply deletion of appropriate files from actual place on disk.

Debian package for work under Ubuntu Linux should be unpacked from OGLeMDI-2.1.deb.tar.gz archive. Then, Package Installer can place (after the mouse's click on OGLeMDI-2.1.deb) the appropriate files (OGLeMDI.*) to /usr/bin and the necessary libraries (libQt*) to /usr/lib directory. Application will be started by /usr/bin/OGLeMDI executable module. Removing of package can be done by execution in terminal: dpkg -r oglemdi .

Using.

OGLeMDI application has a standard intuitive interface. This application is example of visualization of the graphical information which is presented in the calculated drawings. There are twenty such drawing in core of application and these drawings will be shown cyclically after selection of "File->New"

menu item (or by pressing the appropriate button of ToolBar). Quantity of such selections is unlimited and images will be appeared till exhausting of the computer memory.

Opened graphical windows can be quickly managed by selection in "Window" menu, accordingly: closed - "Close" and "Close all", suitably placed - "Tile" and "Cascade", navigated - "Next" and "Previous".

User can rotate the image around axes by pressing of left or right mouse button and then by moving of mouse.

Quick setting of the Front, Back, Left, Right, Top and Bottom view of image can be done by selection of the appropriate item at "View" menu (or by appropriate button of ToolBar). Return to the source view can be done by "View->Source view" also here.

Scaling of image can be done by rotating of the mouse wheel. Translation of image can be done by the simultaneously pressing of left and right mouse buttons and then by moving of mouse.

The rendering of image as "Set of points", "Wireframe" or "Solid" state can be done accordingly by selection of "Point rendering", "Wireframe rendering" and "Solid rendering" items in "View" menu (or by appropriate buttons of ToolBar).

Double clicking by left mouse button does a selection of the stated graphical entity (clearing of selection can be performed by the same double clicking on the background of the drawing).

Information concerning important data of the shown drawing (name, dimensions, quantity of the drawing entities) can be obtained by selection of the "File->Information..." item (or by appropriate button of ToolBar).

Data concerning actual version of the used Open Graphics Library (OpenGL) will be displayed after showing of the first drawing.

Color of the background of the drawing can be changed by the double clicking of right mouse button on the field of drawing (the appropriate dialog of the changing of color will be called). Also user can switch layout direction by selection of the appropriate item in "File" menu. Necessary help information is accessible via appropriate item of "Help" menu.

Development.
The actual information concerning OGLeMDI application can be found in Internet at http://shvachko.net/my3w/vsh_wares_eng.html#oglemdi.

The graphical software of any complexity can be created on base of OGLeMDI code - according to the actual needs of the future customers.