3D RECONSTRUCTION PROJECT

VOXELSDK INSTALLATION

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INTRODUCTION

This tutorial relates the easiest manners and most useful tools to install and use the voxel SDK in order to read and process the data of the T.I. OPT8241 TOF camera. It allows also a bridge to the Point Cloud Library (PCL) for visualizing and handling point clouds.

INSTALLATION

The voxel SDK package and its documentation can be found in github : `https://github.com/3dtof/voxelsdk` . If you follow the wiki webpage, you will have all the information for installing the package into your system.

We have followed the installation on windows x64. This lists all the dependencies the voxel SDK requires. In this list are mentioned *Qt 5 for mscv13* and *PCL 1.7.2.*, so it explicitly says that you need to have Visual Studio 2013 installed on your PC. You can get it for free with the following link : `https://www.visualstudio.com/fr-fr/downloads/download-visual-studio-vs.aspx`

All the step mentioned in this wiki page have been followed, except that we have just taken a different PCL installer that they mentioned, because the structure of the dependencies folder (e.g. boost) was not the same and this was easier to find the libraries automatically. The one we have downloaded is the *"PCL 1.7.2 All-in-one Installer MSVC2013 x64"* from the following website : `http://unanancyowen.com/?p=1255&lang=en`.

The version of the voxel SDK we have downloaded is the *Voxel-SDK-0.6.0-win64-debug.exe*

If you encounter any warnings during the installation saying that the path in the environment variables is too long, make sure you have :

- **VOXEL_SDK_PATH** = %MAIN_VOXELSDK_FOLDER_PATH%
- **PCL_ROOT** = %MAIN_PCL_FOLDER_PATH%
- **PATH** = %MAIN_VOXELSDK_FOLDER_PATH%/bin;
  %MAIN_VOXELSDK_FOLDER_PATH%/lib;%MAIN_PCL_FOLDER_PATH%/bin;
  %MAIN_PCL_FOLDER_PATH%/lib;%PATH%

CODING IN VISUAL STUDIO

Once the voxel SDK is installed, here are the steps to start coding using its libraries.

- Open Visual Studio 2013
- Create a **new Project**
- Select **console application win32**
- In the pop-up window, check **"Empty project"** ("Projet vide")
- In the tool bar, go to "**Build**" ("Generer") and click on "**Configuration Manager**" ("Gestionnaire de configuration")
- Go to "**Active solution platform**" ("Plateforme de solution active") and select "**New**" ("Nouveau")
- Choose the new platform "**x64**", instead of "ARM", and validate.
- Go inside the "**Property Manager**" ("Gestionnaire de propriete"). This can be found in the pannel on the right.
- Right click on "**Debug | x64**" and "**Add New Project Property Sheet**" ("Ajouter une nouvelle feuille de proprietes de projet")
- Add a new **.props** file ; you can name it "voxelsdk.props"
- Open this file
- In "**C/C++->General**", write the path to the voxelsdk folder containing the header files inside "**Additional Include Directories**" ("Autres Repertoires Include") which should be somthing like $C:\ProgramFiles\VoxelSDK0.6.0\include\voxel-0.6.0$
- In "**Linker->General**" ("Editeur de liens->General"), give the path to the libraries in "**Additional Library Directories**" ("Repertoires de bibliotheques supplementaires"), which should be something like $C:\ProgramFiles\VoxelSDK0.6.0\lib$
- In "**Linker->Input**", ("Editeur de liens -> entree") give all the name of libraries you need in "**Additional Dependencies**" ("Dependances supplementaires") like *ti3dtof.lib; voxel.lib; voxelpcl.lib*

Notes

Some errors or warnings can occurs while using certain voxelsdk functions. You can avoid them by going to the "**Properties**" of the source file in question, then "**C/C++->Preprocessor**". Just add *_CRT_SECURE_NO_WARNINGS;* to the "**Preprocessor definitions**" line.