
Subject: Leptonica library support
Posted by [mdelfede](#) on Sun, 06 Sep 2009 16:12:27 GMT
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Hi,

I started the porting to UPP of Leptonica image library (<http://www.leptonica.com/>).

The library provides many high-level raster operations on almost all pixel formats, like morphing, blending, pattern finding, document layout recognition and much more.

The library in bazaar by now wraps just a small amount of Leptonica functions, as the list is really huge, and will be extended in time.

There are 2 packages plus a test application :

PixRaster package : provides PixRaster class wich encapsulates PIX and PIXA Leptonica images and array of images.

It's a multipaged raster class, similar of MemoryRaster, but with many extensions.
Documenting is in progress (almost) with the function wrapping.

PixRasterCtrl package : provides PixRasterCtrl control, which (similar to RasterCtrl for StreamRaster class) provides display and more of Pixraster objects.

The test application demonstrates the usage of both; by now it duplicates just one of the huge amount of examples of Leptonica library, but it'll be extended too.

The example demonstrates background line removal, i.e. the "cleaning" of a scanned drawing originally drawn on a paper with horizontal lines. It uses deskewing of image (elimination of page rotation during scanning process), gray morphing and mask blending, with a really nice result.

On next days I'll add an example about document layout recognition, i.e. the separation of graphic and text parts of a scanned document.

Please beware, the porting has just begun, so it's surely not bug-free nor complete.
If somebody wants to help me with extending the lib/docs is wellcome !

Ciao

Max

Subject: Re: Leptonica library support
Posted by [mdelfede](#) on Sun, 06 Sep 2009 21:51:19 GMT
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Added a simple document page layout analysis function, with the TestLeptonica demo updated.

I think this one shows one of the most interesting stuffs that can be done with Leptonica.

Ciao

Max

Subject: Re: Leptonica library support
Posted by [mdelfede](#) on Mon, 07 Sep 2009 23:00:33 GMT
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Added routine for text baseline finding, with demo.

This one is able to :

- 1) Deskew (i.e. eliminate rotation of text scanned page)
- 2) Locate all baselines of text lines in the page.

The demo simply load a page, locates the baselines and shows them on a PixRasterCtrl.
Must be fed by 1 bpp (monochrome binary) image.

Ciao

Max

Subject: Re: Leptonica library support
Posted by [mdelfede](#) on Sun, 13 Sep 2009 09:49:37 GMT
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I completely restructured the code, as it was becoming ugly

Now we have :

PixBase class, a base for all Leptonica derived image classes
(Abstract class -- mainly used by PixRasterCtrl)

Pix class, encapsulating a single Leptonica image (PIX). It behaves as a single-paged Raster object.

PixRaster class, adding multipaged behaviour.

I started adding polygon markers to images too, useful for document analysis and extraction.

Ciao

Max

Subject: Re: Leptonica library support
Posted by [mdelfede](#) on Sun, 20 Sep 2009 15:07:41 GMT
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Added rectangular marker handling on PixRaster/PixRasterCtrl.
They allow to mark rectangular (in future will be polygonal) areas
of images; markers are editable on PixRasterCtrl.
By now the demo supports just editing of pre-existing markers, next I'll add creation of them by
point'n click.

Use : Page layout analysis of scanned documents, image parts extraction, and more.

Ciao

Max

File Attachments

1) [lept.jpg](#), downloaded 1324 times

Line removal test

Page layout test

Baseline test

Page markers

Quit

Chapter 3

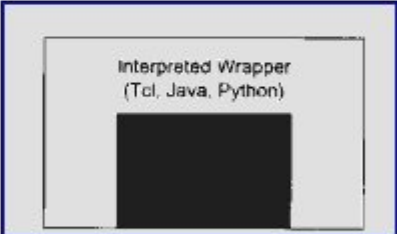
System Overview

The purpose of this chapter is to provide you with an overview of the *Visualization Toolkit* system, and to show you the basic information you'll need to create applications in C++, Java, Tcl, and Python. We begin by introducing basic system concepts and object model abstractions. We close the chapter by demonstrating these concepts, and describing what you'll need to know to build applications.

3.1 System Architecture

The *Visualization Toolkit* consists of two basic subsystems: a compiled C++ class library, and an "interpreted" wrapper layer that lets you manipulate the compiled classes using the languages Java, Tcl, and Python. See **Figure 3-1**.

Interpreted Wrapper
(Tcl, Java, Python)



The advantage of this architecture is that you can build efficient (in both CPU and memory) algorithms in the compiled language C++, and retain the rapid code development features of interpreted languages (avoidance of compile/link cycle, simple but powerful tools, and access to GUI tools). Of course, for those proficient in C++

Subject: Re: Leptonica library support
 Posted by [koldo](#) on Fri, 20 Aug 2010 12:27:28 GMT
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Hello Massimo

I wanted to compile TestLeptonica package in Windows but I have had some problems. I have used MinGW as it has simpler errors.

As there was errors for not finding png.h, tif.h and zlib.h I have added these internal includes to package:

```
../..../uppsrc/plugin/png
../..../uppsrc/plugin/tif/lib
../..../uppsrc/plugin/z/lib
```

Compiling I get this error:

In file included from C:\upp\uppsrc/Draw/Draw.h:6:0,
from C:\upp\uppsrc/plugin/png/png.h:4,
from C:\upp\bazaar\PixRaster/lib\pngio.c:110:
C:\upp\uppsrc/Core/Core.h:39:20: fatal error: typeinfo: No such file or directory

Do you have any idea?

Subject: Re: Leptonica library support
Posted by [mdelfede](#) on Sun, 22 Aug 2010 22:50:45 GMT
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Hi Koldo,

no clues, sorry... I just tried to compile with MSC8, but got tons of errors.
For the graphics libs, you can disable them in 'environ.h' include file, but then you'll have no I/O support for them.

I'll try to check it on windows when I'll have a bit more time.

Ciao

Max

Subject: Re: Leptonica library support
Posted by [o_wild](#) on Sun, 05 Dec 2010 06:16:06 GMT
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koldo wrote on Fri, 20 August 2010 14:27Hello Massimo

I wanted to compile TestLeptonica package in Windows but I have had some problems. I have used MinGW as it has simpler errors.

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from C:\upp\bazaar\PixRaster\lib\pngio.c:110:
C:\upp\uppsrc/Core/Core.h:39:20: fatal error: typeinfo: No such file or directory

Do you have any idea?

You should add 'lib' as internal includes to package plugin/jpg, plugin/tif and plugin/z using package organizer. I've solved it.

However, another error occurs. My platform is Win32, so 'fh' is defined as 'HANDLE', but my compiler(mingw) report an error about the function 'fdopen', see below.

```
bool Pix::Load(FileIn &fs, int page)
{
    int format;
#ifdef WIN32
    HANDLE fh;
#else
    int fh;
#endif
```

```
    Destroy();
```

```
    fh = fs.GetHandle();
    if (!fh)
        return false;
    FILE *fp = fdopen(fh, "r");
    if (!fp)
        return false;
```

```
    ...
}
```

error message:

G:\MyApps\PixRaster\PixRaster.cpp:792:27: error: invalid conversion from 'void*' to 'int'

G:\MyApps\PixRaster\PixRaster.cpp:792:27: error: initializing argument 1 of 'FILE* fdopen(int, const char*)'

Wild
