


Digital Library of Portuguese Urban Cartography An example of a Public System



The main objectives of the Study Center for Urbanism and Architecture - CEUA are the organization and management of the Digital Library of Portuguese Urban Cartography as part of a research project on Portuguese Urban Morphologies.

The Digital Library of Portuguese Urban Cartography is a database of texts and images of historic cartography of cities of Portuguese origins from archives and libraries in Portugal and abroad and which are freely available on internet at <http://www.uep.up.pt>

This Digital Library aims to bring this widespread documentation together by electronic means so that it becomes accessible to researchers and the public at large. This is hoped to overcome the serious infrastructure, documentary and research shortcomings in the field of Portuguese Urban History whilst also serving as an important instrument for the understanding, dissemination and study of Portuguese urban heritage.

In this context was important to develop a Public Information System with the collection of historic cartography and the objectives are:

- Identification and Cataloguing of historic cartography of cities of Portuguese origin;
- Selection, Reproduction and Digitalization of the most relevant cartography;
- Obtaining of a Database, articulating cartographic records and the respective digitalized images;
- Availability and Dissemination of the Digital Library of Portuguese Urban Cartography.




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Access to the database

The access to this Digital Library requires an online registration. Once the user has registered he has free access to all the contents.




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Types of Search

The cartography search is done through the Porbase System with two different options:

- Free Text Search - the user can digitalize a word or expression referring to the archive, place, author or any other terms which are in the cataloguing file;
- Porbase System Search - the user has access to a cataloguing database structure which allows cartography to be searched from various fields, or from their cross-referencing: archive, author, title and classification, place of publication, region, date and word. The user has access to the record in the different visibility formats available: description in ISBD format, complete description, shortened description, bibliographic description and shortened bibliographic description. These visibility formats are complemented by a small image of the map referenced.




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Access to images

The images have various definition and visibility levels. The first image to be seen by the user is a thumbnail linked to the description of a plan in the Porbase System. The following images are an enlargement format optimized in three different resolutions. This different quality images allows different details of the cartographic documents.

The technical characteristics of the images available in the Digital Library were studied in an attempt to conciliate the following requests:

- Good quality of the images in the various accessibility platforms;
- Controlling the means of access and use of the images;
- Safeguarding the interests of the Archives and Libraries.




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Activities in progress

Developing news search functionalities in digital library like Geographic Referencing System Search is now the main aim of our work team. The first prototype is already available. Access to the database using cartographic documents that are in the Digital Library indicated. Alternatively you can locate any urban center or geographic entity in the Library.

The Geo-referencing system implemented comply the following requests:

- Have all the datum related with urban cartography;
- Have a group of servers that allowed the access at the same time by different users by internet - Map server, Web server, datum server;
- Have a database structured.

Model solution to this geoinformation system become in a CitriServer System were the request information is used through a browser and processed in the server, and then send to the remote user.




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Geoinformation System Search

The search by Referencing Cartography can be done in 2D or 3D world where the existences places or iconography of this Digital Library of Portuguese Urban Cartography are indicated using a detail map.

The 2D and the 3D geo-referencing system were implemented with ArcExplorer tool and Virtual Reality Modeling Language (VRML) respectively. In both systems it is possible to navigate in the image, make search in the cartography database and visualization the results of that search. Most of the VRML works with plugging to Netscape or to Internet Explorer (ie, Corona Player).

There are two parts of Corona VRML Client window:

1. Toolbars:
The vertical toolbar contains buttons used to specify navigation type in a world.
The horizontal toolbar contains buttons with predefined actions to change your position in a world.
2. The 3D window shows VRML world.

There is also pop-up menus, which you access by pressing the right mouse button while the pointer is over toolbars or 3D window.




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Developing Models 2D Prototype using VRML

This 2D Model indicate all the places presented in our database cartographic. Clicking in one of this places it's possible to access to our collection of historic cartography images.

The following examples demonstrate the different functionalities implemented thought 2D system search:



Result of clicking in a local

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Developing Models 3D Prototype using VRML

With the 3D Model we possibility to navigate in the image to visualize the existing viewpoints and like the 2D Model it's possible to access to the cataloguing Digital Library database.

The following examples demonstrate the different functionalities implemented thought 3D system search:



Viewpoints

Identification of locals

Database Cartography results

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Developing Models Prototype using ESRI Arc Explorer

The 2D system implemented in Digital Library of Portuguese Urban Cartography is a set of Gis-Information layers. Each layer correspond to Regions, Counties or Locals presented in our database.

With Arc Explorer it's possible to do two kinds of search:

1. Word search;
2. Query field search.

The following examples demonstrate the different functionalities implemented thought 2D system search:



Zoom in to show Lisbon

Result of clicking in Lisbon (database)

Result of query cartography database

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Conclusion

Digital Libraries are essential to make knowledge available in the world, in particular to developing countries that don't have easy access to traditional libraries and who can take the advantage of Internet to access information. With an integrated system of information it's possible satisfy all their needs and give them more than they expect.

The maintenance and the improvement of the Digital Library of Urban Cartography are realized permanently, to assure the quality, the functionality and the innovation by internet. To offer always new information and knowledge our future activities are focus in:

- Continuation of the research in Archives and Libraries;
- Establish ways of co-operating with other entities who are developing activities in these areas;
- Sign of protocols with new Archives and Libraries to make their cartography assets available in the Digital Library;
- Making technical improvements to the Library in accordance with the international norms and latest technical developments;
- Study new compile methods and improved image quality;
- Continuation of the development Geoinformation System;
- Continuation of activities for the dissemination of the contents of the Digital Library.

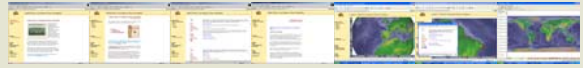


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Search by Geoinformation system

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Most of the VRML works with plugging to Netscape or to Internet Explorer and the one that we are testing is Cortona Player.

There are two parts of the Cortona VRML Client window:

1. Toolbars:

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