

THE WEBGIS FOR THE FRANCIGENA PILGRIMAGE ROUTE

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Summary

The aim of the project is to give free and friendly access to the resources connected to different aspects of the Francigena pilgrimage route. Through the open source WebGIS “pmapper” it is possible to visualize, query and download many information about the tracks (e.g. watch the pictures of the route, get info about the altimetry and the differences in height, type of road surface, points of interest, download GPS tracks, etc.) keeping the technical standard of Tuscany Region. The further development of this WebGIS is an application for smart phones.

Keywords: webgis, francigena, mobile phone application, open source GIS, GPS route surveys, pmapper.

Introduction

This project rises from the agreement between Aquaterra and GEESAF for the implementation of the Francigena Route into the footpaths network database of the Regione Toscana. The Francigena WebGIS allows the programming of a journey, find information on facilities or visualize the detailed map of the chosen leg pointing out the level of difficulty and extracting the related documents. It can be used by Public Administrations as an instrument for coordinating all the projects involving the Francigena route. The WebGIS can also be used by the tourists to plan their journeys along the Francigena route.

Materials and methods

Materials

The surveys were made by feet, mountain bike and off-road car. All data and information were recorded on field sheets, georeferenced with Garmin GPS and described on a HP palm computer. The pictures were taken using a Nikon camera with an integrated GPS sensor. The program

used for building the WebGIS is the open source framework “pmapper” running on a Mapserver engine.



Fig. 1. Palm computer connected with a GPS and data sheets fixed on a Mountain Bike

Based on UMN MapServer and PHP/MapScript by DM Solutions The p.mapper framework is intended to offer broad functionality and multiple configurations in order to facilitate the setup of a MapServer application based on PHP/MapScript. Functions included are:

- DHTML (DOM) zoom/pan interface (no use of frames)
- Zoom/pan also via keyboard keys, mouse wheel, reference map, slider
- Easy configuration of layout and behaviour with XML config file
- Query functions (identify, select, search)
- Fully featured attribute search, including suggest, select boxes, etc.
- Flexible layout of query results via JavaScript templates
- Query results display with database joins and hyperlinks
- Multilingual user interface
- Fully XHTML 1.0 Strict compliant
- HTML legends and various display styles of legend and layers/TOC
- Print functions: HTML and PDF
- DHTML pop-up windows and dialogs
- Pop-up identify when moving with mouse over map
- Support for point layers with data in a database supported by PEAR framework
- Distance and area measurement function

- Adding points of interest with labels on map
- Start map with pre-defined zoom extent: via explicit extent or layer feature
- Plugin API to add custom functionality
- Various plugins: layer transparency, query result export, and more
- pmapper has been tested with MapServer version 5.6 to 6.2 under Linux and Windows.

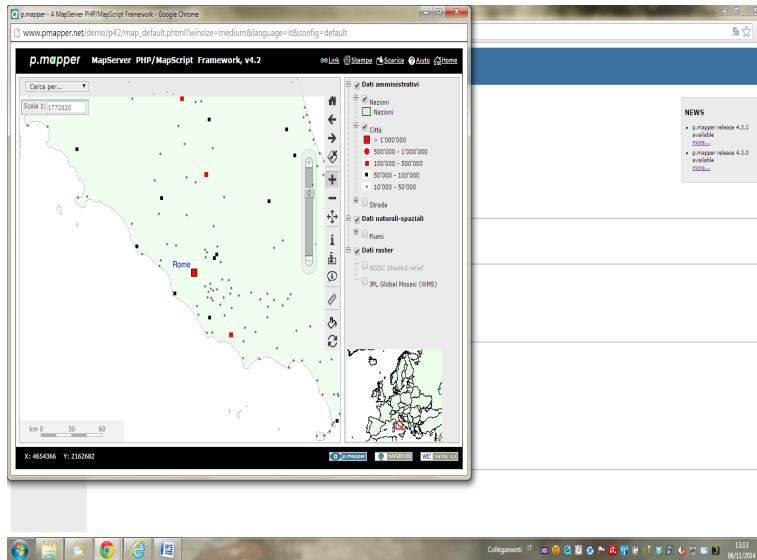


Fig. 1. Example of Pmapper interface

Methods

Every track (from 1 to 15) has been completely surveyed by two operators going in direction Rome, during the spring 2014. Points of interest, boundary stones, signs, resting areas, water and food, hospitality were implemented on a geodatabase build in accordance with the technical standard of the “Rete Escursionistica” (Track Network) of the Tuscany Region. Once completed the field phase, the collected data were verified, revised and prepared as shapefiles for the WebGIS. The track n.8 (S. Miniato – Gambassi terme) has been implemented on the open source Pmapper.



Fig. 1. Boundary stone near in Orcia valley

Results

The WebGIS is online at the internet address:

http://95.110.146.86:8080/Francigena_pmapper/map_plain-layout4.phtml

The information provided are:

- Characteristics of the reach: length, slope, altimetry, road surface,

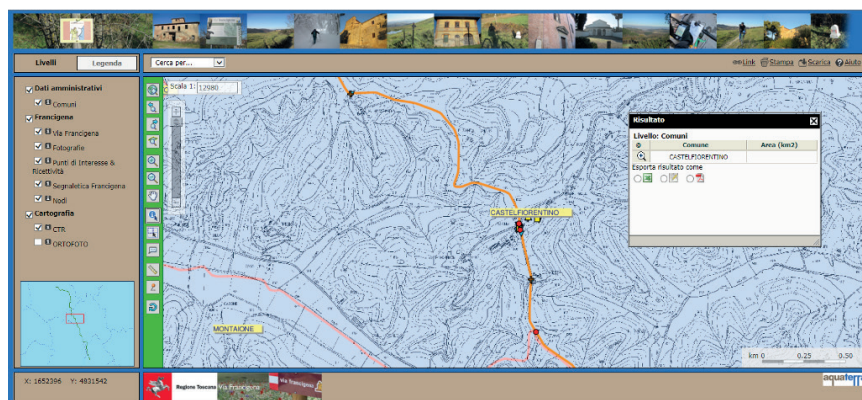


Fig. 1. View of the Pmapper

- signs, state of conservation.
- Points of interest: water, resting areas, monuments, historical and religious buildings, *etc.*
- Hospitality for pilgrims
- Images and photos
- Aerial view
- Download GPX files, pictures, and pdf files of the selected views (maps)

Discussion

The track n.8 of Francigena (in Tuscany) is now available on the web for pilgrims and users in general; they can find important information and it's possible to make queries using the special filters. The experiment could be extended to the total reach in Tuscany, give free and friendly access to the resources connected to different aspects of the Francigena pilgrimage route. The further development of this WebGIS is an application for smart phones.

References

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