

# A WebGIS for the Knowledge and Conservation of the Historical Wall Structures of the 13th – 18th Centuries

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## SUMMARY

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The presented work is part of the "L.R. n. 7/2007 Promozione della ricerca Scientifica e dell'innovazione tecnologica in Sardegna" (Regional Law 7/2007 – Promotion of scientific research and technological innovation in Sardinia) research project, titled "Tecniche murarie tradizionali: conoscenza per la conservazione ed il miglioramento prestazionale" (Traditional building techniques: from knowledge to conservation and performance improvement), with the purpose of studying the building techniques of the 13th - 18th centuries for their knowledge, conservation, and promotion. The end purpose of the entire study is to improve the performance of the examined structures. In particular, the task of the authors within the research project was to build a WebGIS to manage the data collected during the examination and study phases. This infrastructure was entirely built using Open Source software.

The work consisted of designing a database built in PostgreSQL and its spatial extension PostGIS, which allows to store and manage feature geometries and spatial data. The data input is performed via a form built in HTML and PHP. The HTML part is based on Bootstrap, an open tools library for websites and web applications. The implementation of this template used both PHP and Javascript code. The PHP code manages the reading and writing of data to the database, using embedded SQL queries.

The structure of the DB is organized in schemes. Each scheme represents a specific architectural typology of the building and contains several tables pertaining to the different input categories for each data

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type.

The DB is accessed in QGIS via a PostgreSQL connection, with the ability to import, export and modify the DB tables. A number of queries for interrogating the DB have also been built in QGIS.

The database is published on the Internet as a WebGIS built using the Leaflet Javascript open libraries, which allow to create map sites with background maps and navigation, input and query tools. This too uses an interaction of HTML, Javascript, PHP and SQL code.

The GIS files were predisposed for their eventual publishing on the official GIS of the Autonomous Region of Sardinia (SITR).

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