

Capturing georeferenced tourist experiences on a global grid-based web mapping application

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The cooperation between lay public and professionals allows to create and keep updated various types of data, including those that are usually not considered by classical cartography. This collaboration permits to develop more knowledge about space, a space that in these days has to be considered under new dimensions linked with the technological and digital revolution, what has been generically called as flexidimensional space [1]. In particular, capturing and getting insight into the experiences of tourists on the places they visited is a crucial dimension for concerned authorities and other tourists to make decisions.

A Discrete Global Grid System (DGGS) is a spatial reference system that combines grids of cells with multiple resolutions for the whole surface of the Earth. There is an OGC abstract specification that intends to standardize what a DGGS is [2]. The concept of the minimum mapping unit is relativized in DGGSs because their multi-resolution grids facilitate the transition between scales in the conceptualization of geographic facts.

This work describes an in-development, DGGS-based, mobile friendly web application designed to capture tourist experiences. The application is based on rHEALPix, a DGGS which cells are quadrilateral [3]. As well as a georeference, the rHEALPix grids can provide a user-friendly way of selecting areas. The development of the application is focused on creating a simple user experience by making profit from those grids.

The application is supported by a model whose goal is the capture of data about the user's perception and valuation of tourist landmarks in Los Monegros region. This is an area of 2700 square kilometers with low population density located in the center of the Ebro valley, with semiarid climate and important natural, architectonic and ethnologic heritage. This tool may allow the valuation from the particular to the global with identic level of detail and therefore it would favor other exploratory models that may boost data and qualitative analysis that are hard to discreet in traditional models, but very useful in the framework of touristic activities and of the territorial management in any ambit.

The application follows a three-tier web architecture. The front end uses OpenLayers mapping library, Bootstrap and GeoJSON. The users select one or several grid cells just by tapping on the desired area on their smartphones. The web tier is built using Python with the Django framework, and the database tier uses MongoDB for the user-created data, and PostgreSQL to store the grids.

[1] Pueyo Campos, Á.; Ortiz Taboada, J.; Elía García, J.; Zúñiga Antón, M.; Sebastián López, M.; Valdivielso Pardos, S. (2015): "Recomposición del modelo de transporte urbano en el área metropolitana de Zaragoza: respuestas globales a necesidades locales". In: Espinosa Seguí, A.

[2] Purss, M., ed., 2017. The OpenGIS Abstract Specification - Topic 21: Discrete Global Grid Systems Abstract Specification). Open Geospatial Consortium.

[3] Bowater, D., & Stefanakis, E. (2018). The rHEALPix Discrete Global Grid System: considerations for Canada. *Geomatica*, 72(1), 27-37.

PALABRAS CLAVE

Flexidimensional Space, Discrete Global Grid, Tourism, OGC.

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