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"I CAMMINI DELLA REGINA" - Open Source based tools for preserving and culturally exploring historical traffic routes.

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"I CAMMINI DELLA REGINA" (The Via Regina Paths) is an Interreg project funded within the transnational cooperation program between Italy and Switzerland 2007-2013. The aim of this project is the preservation and valorization of the cultural heritage linked to the walking historically paths crossing, connecting and serving the local territories. With the approach of leveraging the already existing tools, which generally consist of technical descriptions of the paths, the project uses the open source geospatial technologies to deploy innovative solutions which can fill some of the gaps in historical-cultural tourism offers.

The Swiss part, and particularly the IST-SUPSI team, has been focusing its activities in the realization of two innovative solutions: a mobile application for the survey of historical paths and a storytelling system for immersive cultural exploration of the historical paths.

The former, based on Android, allows to apply in a revised manner a consolidated and already successfully used methodology of survey focused on the conservation of the historical paths (Inventory of historical traffic routes in Switzerland). Up to now operators could rely only on hand work based on a combination of notes, pictures and GPS devices synthesized in manually drawn maps; this procedure is error prone and shows many problems both in data updating and extracting for elaborations. Thus it has been created an easy to use interface which allows to map, according to a newly developed spatially enabled data model, paths, morphological elements, and multimedia notes. When connected to the internet the application can send the data to a web service which, after applying linear referencing and further elaborating the data, makes them available using open standards.

The storytelling system has been designed to provide users with cultural insights embedded in a multimedial and immersive geospatial portal. Whether the tourist is exploring physically or virtually the desired historical path, the system will provide notifications and immersive multimedia information that foster a new sight of the territory: award of the culture and history of the place thanks to attractive description of the geological, land use, historical and ethnographic contexts.

The technologies used for these developments are: mongoDB, tornado, Android SDK, geoserver, bootstrap, OpenLayers, HTML5, CSS3, JQuery. The approach, methodologies and technical implementations will be discussed and presented.