

Smart visitor recommender: a new technology applied to cultural tourism

Technology and tourism: augmented reality for the promotion of the Roman and Byzantine itineraries

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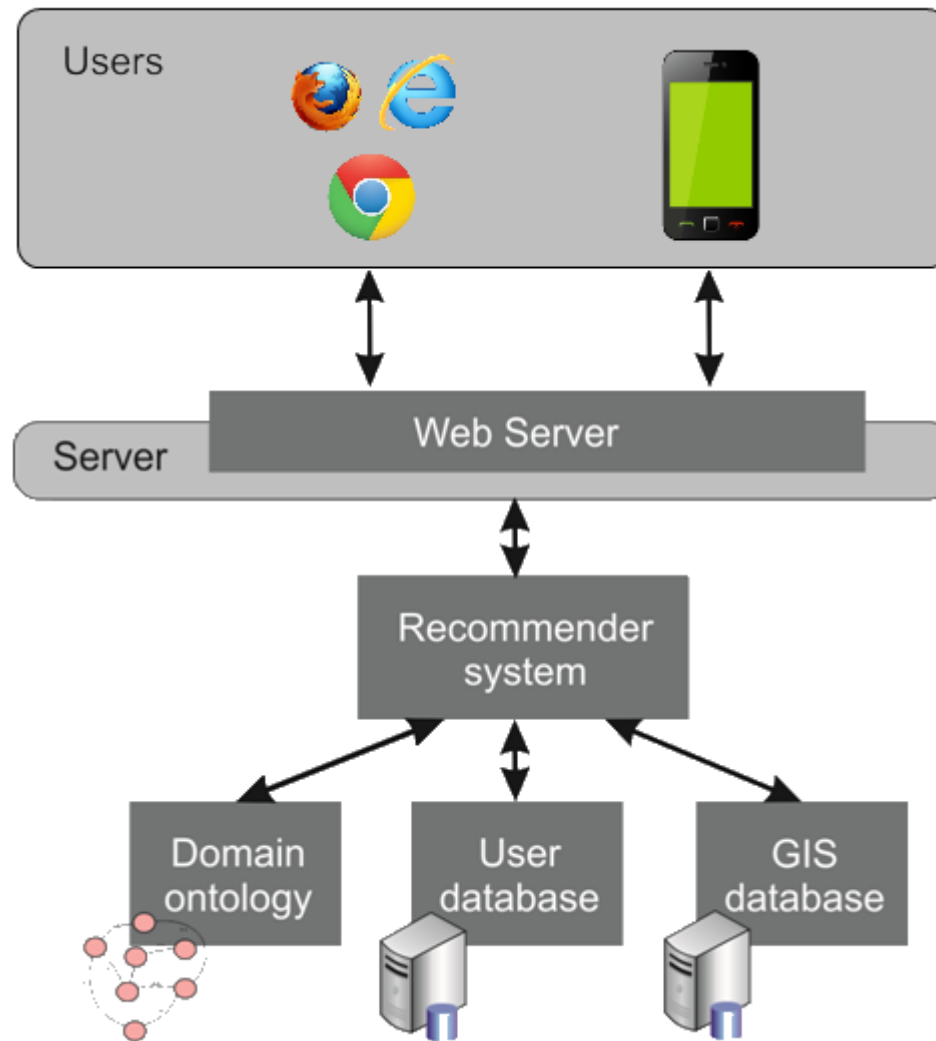
Science & Technology Park for Tourism and Leisure (PCTTO)
Vila-Seca (Spain)



Motivation

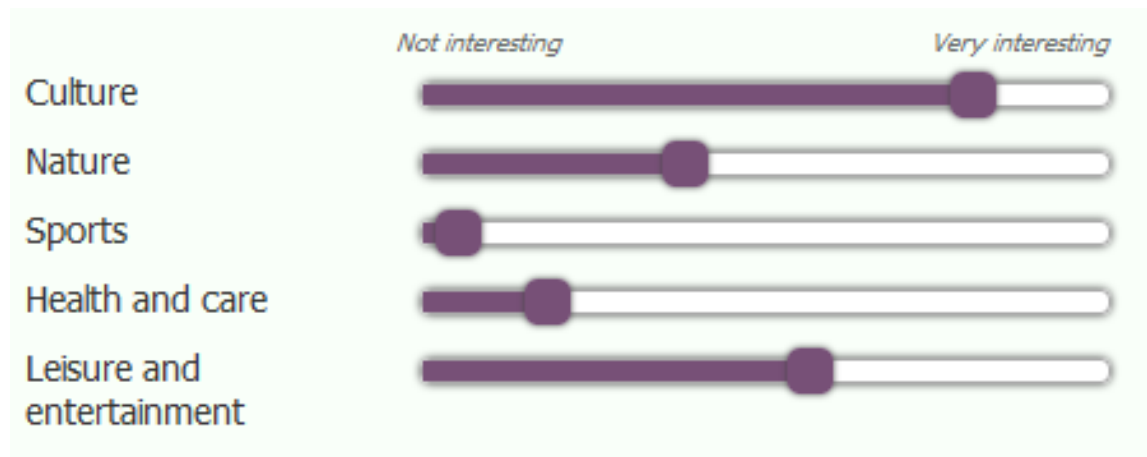
- Recommender systems are emerging as important tools in the development of management strategies in Tourism.
- Satisfactory recommendation of the most adequate places to visit (according to the user's preferences).
- Experience of SigTur: a project aimed at building a Web/Mobile Recommender System for tourists visiting "*Costa Daurada and Terres de l'Ebre*".

Architecture



Ontology-based user profiles

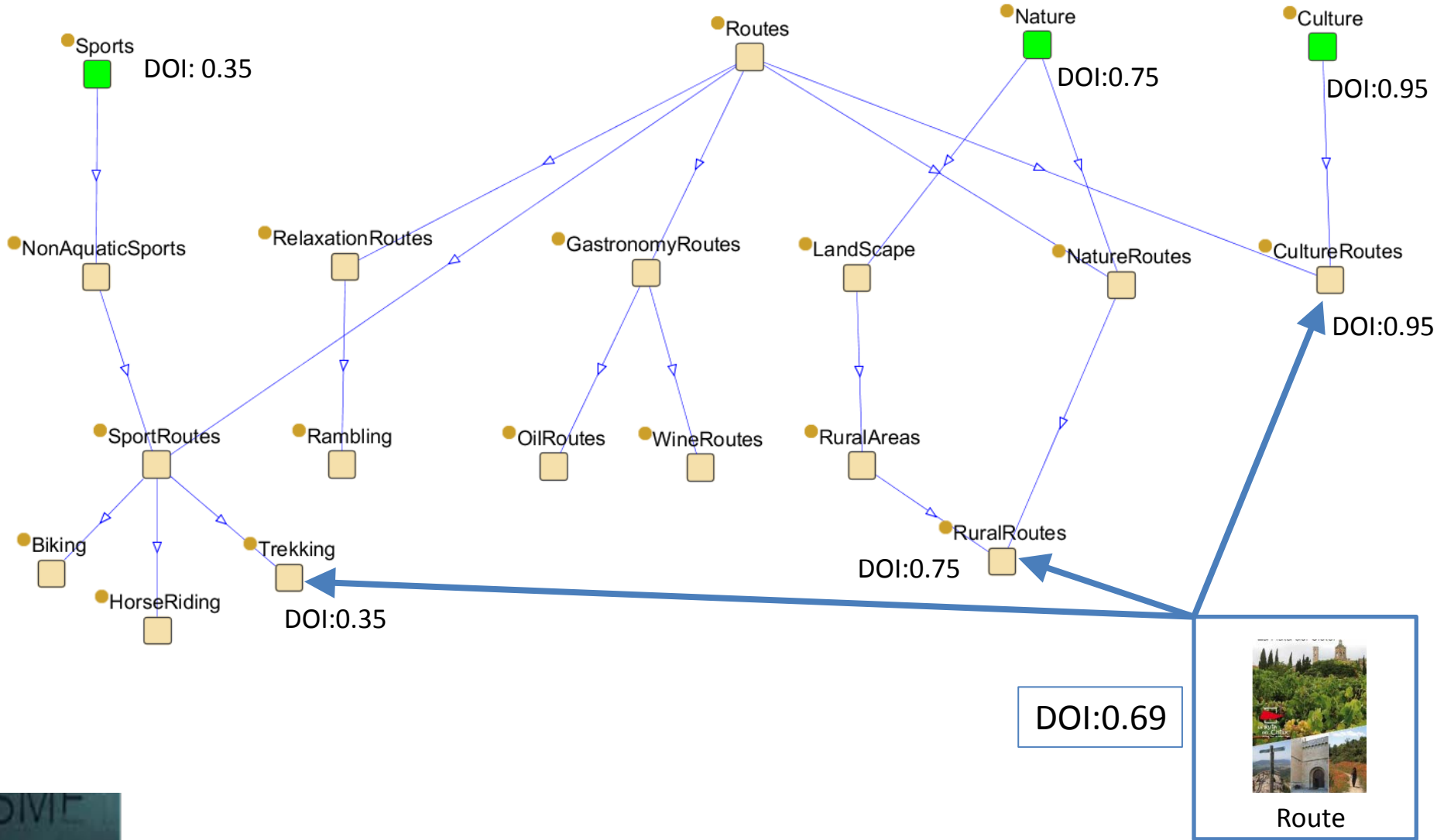
- The user indicates his/her degree of interest (DOI) on some general concepts.
- DOI values are propagated on a tourism ontology (network of concepts).
- User behaviour is analyzed to update DOI values and learn from profile usage.



Collaborative-based recommendation

- Recommendation of places is based on the behaviour of users that are similar. E.g. “Who visits this also visits that”
- Similarity between user profiles:
 - Travel group composition
 - Country of origin
 - Travel motivations
 - ...

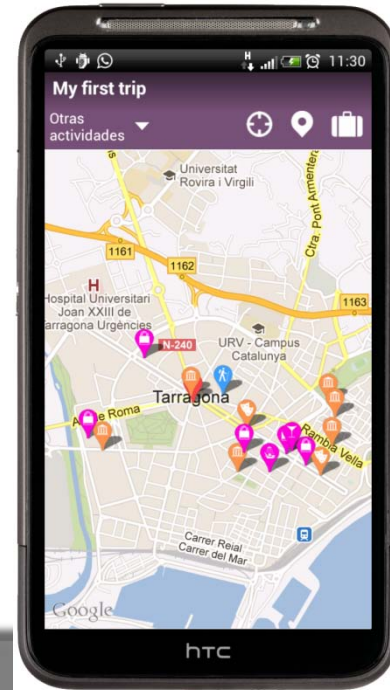
Matching Recommendation



- Show places to visit if accomplish some conditions:
 - Distance
 - Time
 - Travel budget
 - Calendar
 - Weather
 - etc.

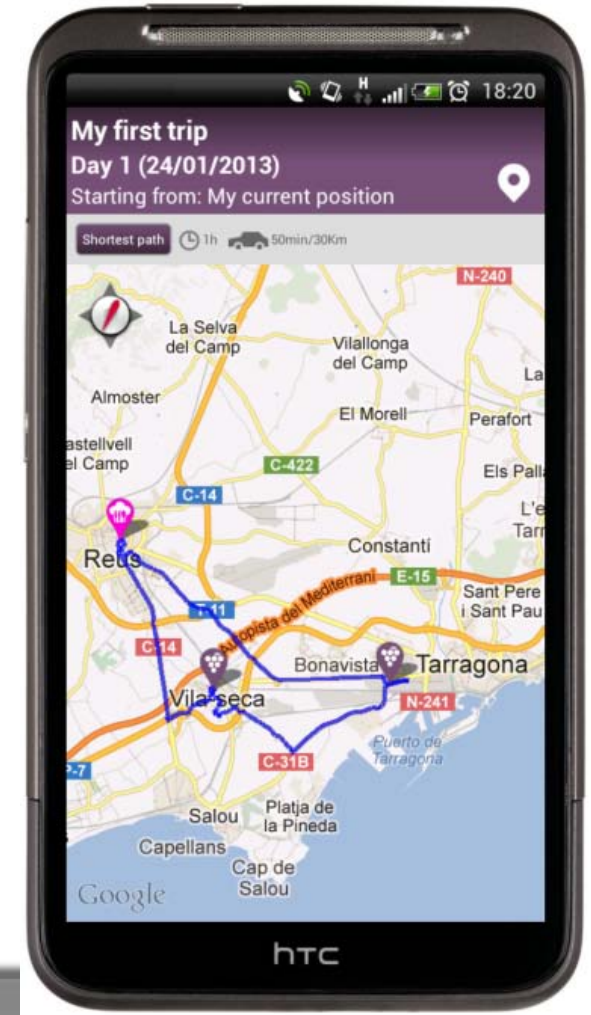
Recommendation process

- Ordered list of TOP N resources with most appropriate interest score given by content and collaborative methods.
- Context is applied to exclude those activities not feasible to visit.
- Places to visit shown in a list and a map



Travel Plan

- Tourists create travel plans for each day
- The route is shown in a panel and a map
- Can be ordered manually or automatically by shortest path
- The route identifies other elements that can be chosen by visitors (restaurants or other tourists services)
- Information about distances and times



Recommender System in TechTour

- In the context of TechTour, the RS uses an ontology centred on the resources of the Roman and Byzantine itineraries as “signalled” by the digital panels developed by LiveView
- Its objective is to
 - Facilitate visitors to find their way along the itineraries between the various nodes
 - Enable visitors with different profiles (for time available, group characteristics, personal interests) to select and reach services and complementary cultural / other attractions *along the route and at the main sites*

A value-generating tool

- The value it brings to the project depends on:
 - Capacity to make experience of visitor at sites along the route as “efficient” as possible given the visitors’ preferences and constraints
 - INCREASE VISITOR SATISFACTION from a better personalisation of the visit
 - INVOLVE VISITORS who could not be sufficiently motivated by individual heritage elements
 - Capacity to connect heritage elements with visitor services
 - INCREASE VISITORS EXPENDITURE AND TIME SPENT at heritage sites
 - INCREASE ADHERENCE OF VISITS TO DESTINATION MANAGEMENT OBJECTIVES for instance providing recommendations for more distributed, diverse visits involving less congested places

How will it work

- Visitors can download the RS as off/online application on their mobile when they select the TechTour itineraries
 - Upon visiting website
 - Upon visiting tourist offices of sites involved
 - Upon visiting heritage sites
- The digital panels could “feed” the Recommender System providing updated info with no need to be online
- The system “learns” from the choices and profiles of users

Development of the RS

- In TechTour (March-April 2013):
 - Requirement analysis
 - Uses case (describing functional and interface requirements)
 - Architectural details of the system (Technologies to use in each module/ Data Base modelling / Sequence diagram)
 - Development schedule diagram
 - Definition of a business / stakeholdership / management model (who will pay for its implementation among the actors involved in TechTour? Which local agents will be providers of information and receptors of the services? How will the system be maintained? By whom?)

- After TechTour:
 - Set of global/local databases
 - Development/programming
 - Prototype tested in time for the operation of TechTour itineraries

Smart visitor recommender: intelligent assistance to heritage tourists

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