

# **MediaTurDownloader: An accessible tourist assistant application**

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## **Abstract**

Nowadays it can be seen that the average length of holiday trips (in number of days) tends to decrease, so tourists have less time to spend and therefore they need to plan their holidays better. In order to do this, there are several software tools for the organization before the trip, and for scoring it at the end. However, there are very few software tools that help tourists during their stay. During the trip, tourists need to locate the places of interest for them, according to their preferences, and close to them in a quick and comfortable way, for example through the use of mobile devices for geolocation. It is also important that the proposed places and the way to show this information have been adapted for people with disabilities. The Laboratory of Information Technologies and Multimedia is developing the MediaTurDownloader project, an accessible application for geographic location via mobile phones that allows tourists to know at any moment the situation where they are and the closer tourist attractions available that they can see or visit and keep track of the touristic route done so far.

**Keywords:** eTourism, accessibility, resource search, personal profiling, online tracking support, Web 2.0.

## **1 Introduction**

One of the most common images on destinations are tourists with a guide in their hands, trying to locate tourist attractions, or tourists disoriented asking for help because they are unable to locate a particular place. Moreover, the average length of holiday trips dropped considerably in recent times. Thus, in Balearic Islands, the number of days stayed in August has decreased 23.75% between 1999 and 2008 (Instituto Nacional de Estadística, 2009).

In this context, tourists have less time, so it needs to be optimized. To make the most of time, they prepare the trip in their origin place using Information Communications and Technology (ICT) causing the emergence of the concept of eTourism (Zhou, 2004), (Egger & Buhalis, 2008). Three fundamental moments can be defined in use of ICT in this context:

- Before the trip: research of tourist resources in the tourist destination and the purchase of tourist services (accommodation, transport, etc.).
- **During the trip:** the use of geographic location systems and mobile Internet to obtain information.
- After the trip: contributions in forums, blogs, social networks, publishing photos and videos, etc.

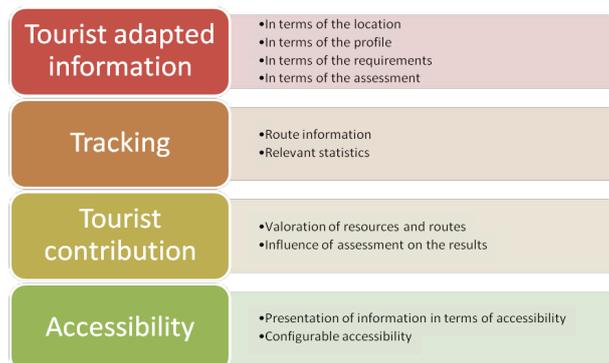
Most eTourism applications focus on the trip planning and/or its subsequent valuation. However, there are few applications to assist tourist during their trip so information needs of tourists are not completely satisfied. The presented project is aimed to meet this need by the means of a geolocation application for mobile phones that offers a personalized service: **anytime, anywhere, anyone**.

- **Anytime:** the service is available 24-7 (over the Internet).
- **Anywhere:** the application runs on mobile phones, the device that users most likely keep with themselves most of the time.
- **Anyone:** the application is accessible for people with special needs.

Another unique feature of the presented solution is the contribution of the tourist opinion (**application 2.0**) by the means of refreshing his/her profile and the resource rating. The MediaTurDownloader application is being developed by the working group of the Laboratory of Information Technologies and Media (LTIM) at the University of the Balearic Islands (UIB), within the project *MEDIATUR de Nuevas Experiencias Turísticas en la Gestión de Contenidos Turísticos* funded by the spanish *Ministerio de Industria, Turismo y Comercio*.

## 2 MediatuDownloader project

MediaTurDownloader consists of the development of a geolocation application that allows attending tourists during their trip through their mobile phones, providing the following advantages to the tourist:



**Fig. 1.** Tourist advantages of MediaTurDownloader.

## 2.1 Project description

Recently the introduction of mobile phones with Internet access, GPS technology and a certain screen size, suggests that such terminals could be the means by which tourists will make their queries. The goal is to build an application that runs on mobile phones that allows determining the location of tourists and, based on this location and their preferences, to offer a range of tourism resources that may be of their interest as well as keep track of all visited attractions. The inherent limitations of mobile phones are being considered in the design and development stages:

- Presentation: the design of the presentation layer must take into account the limitations of the screen size: an excessive scrolling, or a bad navigation design, causes a poor experience or a complicated interaction.
- Data input: the input mechanisms on mobile phones difficult the introduction of large amounts of information.
- Bandwidth: Internet connections in mobile phones are slower, so the resulting latency and the response time increase considerably.
- Small number of supported content-types.
- User goals: when using a mobile phone the information requested by user is specific. Users have immediate intentions and clear objectives.
- Limitations of the device: mobile phones have a small processing power and a limited memory. Computationally intensive tasks or large memory consumption should be avoided in applications oriented to this kind of devices.

## 2.2 Functionality

MediaTurDownloader is a mobile application that aims to provide support to tourists and meet their needs of information during their holiday trip. The main aspects are:



**Fig. 2.** Tracking online: tracking a route and speed graph corresponding to the route followed.

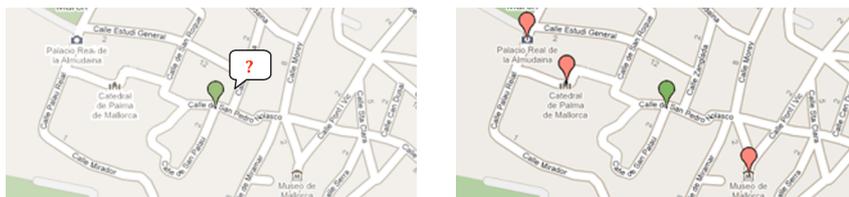
**Tracking online.** During a visiting route tourists may consult at any time their geographical position and the route done so far by a clear and intuitive interface (based on GoogleMaps)(Zheng, Zhang, Xie & Ma, 2009). Moreover, tourists will be able to store statistics of their routes (distance, velocity, etc.), see figure 2, and

personal ratings that will be used to refresh their preferences. The application will also provide a routes agenda to get the routes performed during each day of travel.

**Search for close resources.** Tourists can view the resources near their location using search options that suit their needs (García-Crespo, Chamizo, Rivera, Mencke, Colomo & Gómez, 2009):

- Search for most valuable closer resources of a certain type (e.g. restaurants) depending on the tourist preferences (e.g. vegetarian restaurant).
- Search for most valuable closer resources of any type, taking into account the tourists preferences.

With this system for searching, tourists will not experience the feeling of disorientation or misinformation and can plan their route based on their priorities and needs at that precise moment (see figure 3).



**Fig. 3.** Resource search: A geolocated tourist looking for resources and resources close to tourist's location

**User involvement.** The user makes comments about the resources and routes visited, giving an assessment in order to facilitate the choice of routes and resources for future tourists (Lee & Mills, 2007). Tourists will experience the importance of user feedback by getting automatically updated their profile.

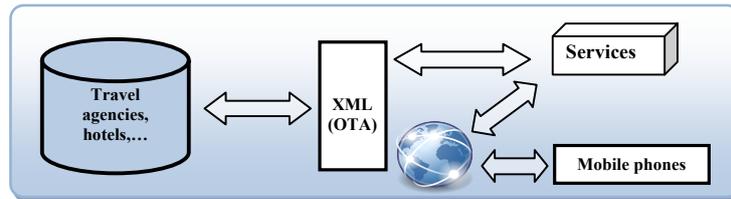
**Accessibility.** The application will provide different levels of accessibility according to tourist profile (Pühretmair, 2004):

- Accessibility for visually impaired: Adaptation of the design in terms of levels of visual impairment by using suitable colours and sizes of text and a simplification through the elimination of decorative elements, displaying the information in a clear and organized way. People with a high degree of visual disability have the possibility of reproducing an audio guide of the route and selected resources.
- Accessibility for hearing impaired: Adaptation of the design in terms of levels of hearing impairment through a lot of visual information.

### 2.3 Architecture

The application architecture (figure 4) can be inscribed within the MEDIATUR project and allows the management of tourism content in real time, through:

- Indexing and semantic content handling. The information related to tourism resources is organized so that each of its features can be evaluated.
- Real-Time personalized information. Users have a defined profile, populated from questions that are asked during the creation of the user and refreshed with the contributions of the user. This profile is used to get the most appropriate recommendations for the user from the whole tourist offer available.



**Fig. 4.** General architecture of the Application. For more information see (Bibiloni, Luo, Mascaró, & Palmer, 2007).

### 3 Conclusions

MediaTurDownloader offers a comprehensive assistance throughout their journey to tourists, meeting their needs of information and adapting its recommendations depending on the location, the preferences and the capabilities of each user. This application arises because tourists have changed the way they plan their trips, which has forced a rethinking of tourism in general. With MediaTurDownloader, the proposed solution, it is possible to offer to tourists a support that allows them to make a much better use of their time.

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