National Park Information System

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Overview

Tourism regions are currently exploring the potential of new digital presentation strategies that will maximise the promotional appeal of their region and assets, which include a unique landscape and scenery, a naturalness environment, an impressive cultural heritage, and a wide range of sport facilities and other tourist amenities. The tourism in rural areas and national parks can be regarded as a very sensitive economic factor. A prerequisite fundamental for a long term economic success in a strong competitive market is to maintain the naturalness of the environment. One main aspect in this context is a "proper organisation" of tourist streams to avoid negative effects of mass tourism. For the realisation of long term perspectives in the field of “green tourism” an innovative information system has to allow to guide the tourists in the rural tourism regions and national parks.

Currently, the Web presentation of the most rural areas and National Parks uses only sporadic the possibilities of the new innovative geo-multimedia technologies. The different digital devices like info terminals, PDAs (Personal Digital Assistant), GPS devices, mobile phones, etc. are not included in the presentation concept of the tourism regions. A sophisticated concept of an innovative information service will provide information on the National Park and the rural tourism region, enables the planning of activities on vacation, offer entertainment and also allows business transactions based on a geo-multimedia application framework and the use of multimedia devices.

This paper will briefly discuss the current situation of the digital presentation of national parks and includes also tourism aspects in

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the surrounding rural areas. It will discuss proposals for a novel interactive multimedia information system, focussing on the various components of such a system. The system will integrate satellite images, GPS data, GIS information and information on leisure activities, offering multimedia and 3D-visualization technologies and interactive navigation.

Geo-Multimedia Application Framework

The multimedia community has created different kind of multimedia application using e.g. pictures, audio and video. These kind of applications have been successfully applied in a lot of non-spatial tourism information systems. The geo-community has also applied their technologies derived from e.g. satellite images, aerial images in a wide range of specialised applications. Through a lack of applying common open GIS and metadata standards the full integration of multimedia and advanced geo spatial applications using geo-multimedia information has not been exploited as much as possible in regional information systems.

Strongly technical requirements are interoperability, access to data and meta data and exchange of the content. Interoperability can be regarded as one of the success factors for geo-multimedia data pool concepts. The application will contribute with a framework by using geographical web services. Geographical web services builds an interoperable framework for web-based discovery, access, integration, exploitation and visualisation of multiple on-line geo data sources and assets. Another aspect of access to geo-multimedia data is meta data management using meta-data descriptions standards (e.g. Dublin Core, MPEG-7), standards of the OpenGIS consortium (OGC) and several exchange formats (e.g. FGDC, XML/GML). For search & retrieval of geo data it is important that the actual geo-multimedia data is annotated by content description, format, coordinate system, geo quality, use conditions etc. Easy access to geo data requires the provision of adequate and affordable data. Major factors in the cost chain are the data collection, management and dissemination and multi-use of data.

Visualisation

Fundamental to the success of the tourist regions in the future will be the innovative use of visualisation 2D and 3D techniques including

interactive cartographic maps and satellite/aerial images, 3D models, Quick Time VR objects for panoramic and cubic views and also virtual flights based on current standards like Web3d, 3D-Dreams, Shockwave3D and MPEG-4. In the future, promotional strategies will increasingly draw on high resolution satellite data and aerial photographs, the integration of temporal, spatial and thematic information and the representation on multimedia devices. The visualisation based on geo-multimedia content using the geo-multimedia application framework.

Multimedia Devices

The recent developments in the sectors of information and communications technologies are influencing more and more the daily life of their consumer. Nowadays, a strong increase in the use of mobile devices like cellular phones, communicators, personal digital assistants, Notebooks and GPS devices can be observed. Furthermore it is forecasted by experts that the share of the wireless networks will be augmented to more than 50%. Tourism information and also information related to an national park is basically a location based information and it is of high interest for visitors. The geo-multimedia information will be provided on different output devices like a tourism region on the web, on CD-ROMs and on mobile devices. The online and offline data visualisation for tourism topics have to be optimised for the different output devices related to the software, the hardware requirements and the display design.

In frame of the EU-project “Multimedia Geoinformation for e-Communities in Rural Areas with Eco-Tourism” (REGEO) there will be created a comprehensive regional information system based on a decentralised (virtual) geo-multimedia database. REGEO offers a progressive information system under utilization of mobile devices and enables the unperceived guidance of tourist streams to avoid negative effects of mass tourism. In this paper we will present also results of this project.