Designing E-Marketing Application of GIS for Urban Tourism in AP

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Since few decades Andhra Pradesh government had taken many successful steps in tourism business to determine the tourism planning and development huge amount research scholars pay their attention in research and marketing, the first most GIS application for tourism planning. Both tourism and information technology increasingly provide strategic methods and planning tools are implemented for economic growth, redistribution of wealth and development of equity around the globe. By considering the technology integrates common database operations like query optimization techniques which unique visualization and geographic analysis benefits offered by digital maps. It considers all homogeneous and heterogeneous databases geographical location of Andhra Pradesh digital maps. Here design and develop the application of GIS for urban tourism in AP, specially we considered few urban areas surrounding to kadapa district. This GIS in three types of applications such as inventory, analysis, design and evaluation of plan based on tourism development through e-marketing.

Keywords: Tourism, E-Marketing, Information Technologies, GIS, Maps, Geographic Analysis, Novel Architectural Design

1. Introduction

Tourism is one of the world’s largest and most rapidly expanding industries, contributing with over ten per cent to global GDP and generating employment for 200 million people, according to annual research by the World Travel & Tourism Council (WTTC), Ake (2001).


2. GIS in Tourism Planning

In the tourism industry, GIS is used to provide a digital map base for printed maps, digital files for Internet mapping, digital files for mobile mapping, attractions map, website with interactive mapping. GIS technology offers great opportunities for the development of modern tourism applications using maps. This technology integrates common database operations such as query with the unique visualization and geographic analysis benefits offered by maps. The integration of tourism data and GIS data is a big challenge for the tourism industry, today.

**Table 1 Properties of GIS and its Functions**

<table>
<thead>
<tr>
<th>Properties of GIS</th>
<th>GIS analytical Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A process</td>
<td>A system for capturing, storing, checking, manipulating, analyzing and displaying data, which are spatially referenced to the earth.</td>
</tr>
<tr>
<td>A toolbox</td>
<td>Containing tools for collecting, storing, retrieving, transforming and displaying spatial data.</td>
</tr>
<tr>
<td>A database</td>
<td>Spatially referenced entities</td>
</tr>
<tr>
<td>An application</td>
<td>Cadastral information system, marketing information system, planning information system etc.</td>
</tr>
<tr>
<td>A decision support system</td>
<td>Integrating spatial data within a problem solving environment.</td>
</tr>
<tr>
<td></td>
<td>Presentation and thematic Mapping Data query Spatial query Database integration Route finding</td>
</tr>
<tr>
<td></td>
<td>Point in polygon analysis Overlays Buffering Visualization and 3-D modelling</td>
</tr>
</tbody>
</table>

GIS operates on two data elements: spatial and attribute data. Spatial or geographical data refers to a known location on the Earth’s surface. Tourism planning refers to the integrated planning of attraction (i.e., natural, cultural, man-made), service (e.g., accommodation, restaurants, shops, visitor information, tour and travel operations, money exchange, medical facilities, postal services etc.), and transportation facilities (i.e., both material infrastructure and transportation services), here also referred to as „tourism infrastructure“.

[2]

2.1 Creation of Spatial Database

Tourism industry is rapidly becoming a leading destination for tourists. Government efforts are already under way through the institutions of tourism to develop and maintain this sector to become a major source of revenue for development in the country. It is evident that the country’s tourism potential has not been fully explored and marketed. The procedure followed in the development of the spatial database included the following: Acquisition of graphical maps covering the Region; Converting the paper maps into digital maps by
digitizing; Creation of topology to establish relationships between the map features; Transformation into real world coordinates.

2.2 Application Scenarios

In regards to its function, the application uses a geographic search to perform complex geographic queries in geographic context. It allows the combination of touristic attributes, like object type (e.g., hotel, restaurant, event location, etc.), object name, category of hotels, etc., with geographic criterions like nearness, distance, location (city or province) or objects located inside a selected rectangular map region. The user defines a query by selecting tourist criteria and choosing a geographic area (e.g., map area).

![Integrated GIS system](image)

**Figure 2 Integrated GIS system**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celeron R CPU 2.66 GHz</td>
<td>Arc GIS 9.1, Arc MAP</td>
</tr>
<tr>
<td>512 MB RAM</td>
<td>Arc Catalog</td>
</tr>
<tr>
<td>74.5 GB HDD</td>
<td></td>
</tr>
<tr>
<td>42&quot; Monitor</td>
<td></td>
</tr>
<tr>
<td>DVD+RW</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3 Hardware and Software used in this Study**

3. GIS and Network Analysis

Some difficulties of Geographic Analysis are plenty of data; Spatial relationships are important but difficult to measure; inherent uncertainty due to scale; difficult to make data sources compatible; difficult mathematics; quantity vs. quality questions; multiple objectives etc. Before commencing geographic analysis, one needs to assess the problem and establish an objective.
Network models are based on interconnecting logical components, of which the most important are: "Nodes" define start, end, and intersections, "Chains" are line features joining nodes, "Links" join together points making up a chain. Network Analysis is closely related to spatial interaction modeling. A set of geographic locations is interconnected in a system by a number of routes. A network refers to a system of lines topologically structured. Networks may be reduced to topological graphs, which are arrays of points connected or not connected to one another by lines. This simplification facilitates the revelation of common topological structures of the networks. The following elements may be identified: nodes, links, and regions. The number of edges (links) in the network, the number of vertices (nodes) in the network, and the number of isolated (i.e., no connecting) networks (sub graphs) are employed to develop a series of topological measures to characterize the network structure. It should be noted that an edge is defined by two nodes. There are two main groups of measures: (1) those based on gross characteristics and (2) those based on shortest-path characteristics. These measures allow a quantitative description of the network and a comparison of one network with another.

Case Study - Tourist Destination Ysr Kadapa Andhra Pradesh

The success of tourism in any country depends on the ability of that country to sufficiently develop, manage and market the tourism facilities and activities in that country. Most developing countries depend mainly on tourism for economic growth and diversity. In Serbia, tourism authorities are continuously collecting data on tourist facilities. With the information in different place, some in paper files, some on the computer, it usually takes a long time to respond to a client’s query. An information system that is capable of answering questions about where facilities and resources are located represents enormous benefits. An application of GIS in this case study provides tourism information in an integrated manner and will be of immense benefit not only to the region but Serbia as a whole. This study was carried out in tourist destination YSR kadapa and its surrounding places of Andhra Pradesh, which have a lot of tourist resources, facilities, products and offers. Some of the hotels in destination YSR kadapa andhra pradesh and most important tourist places were considered and transferred to the system. Furthermore, hardware and software used in this study are written below.
4. Results and Discussions

In this paper GIS has been established as a tool for collecting, analyzing, modeling and visual presentation of tourist data. Also, GIS is used for bringing the geo-referenced data (spatial and non spatial) of geographic location Ysr kadapa Andhra pradesh into digital maps. In the tourism industry, government strategy, decision making in E-marketing, GIS is used to provide: digital basic map, digital files for analyzing and mapping, digital files for mobile mapping and modeling, digital multimedia.

5. Conclusion

6. References

2. Bahaire, T., and M. Wliott-White, “The application of geographical information


