



GEOINFORMATICS IN TOURISM

- A CASE STUDY

Lal Rishikant

CSRE, IIT, Bombay

Sharma R.N.K.

Dept. of Remote Sensing, BIT, Mesra

Sivakumar R.

Dept. of Remote Sensing, BIT, Mesra

ABSTRACT

Tourism is first about gathering information about a geographically located place and then travelling to it. The method of gathering information about a tourist place to visit is dependent on the means and technology available at that relevant time. Out of the various tools that are available for the purpose, the most powerful emerging tool is Geoinformatics: i.e. dynamic non spatial attribute information linked with spatial information. In the present case study, some of the capabilities of Geoinformatics are explored as applicable to tourism for a major pilgrim place Devghar, in Jharkhand State.

Arc View GIS software, have been used to customize, keeping in mind, the various entities to be used for the particular study area useful for tourist information system of the place, after the generation of various thematic information. Though some database inventory was made using secondary data for the study, an additional information was collected first hand from the site. A lot more effort needs to be put up for collection of data upon which information could be made available to the tourists/pilgrims visiting Devghar. The present study has explored but a tip of the iceberg. The analysis and the result of the study gives web enabled solutions for the tourist related information.

Key Words: *Tourist information, Customization, Geoinformatics.*

1.0 INTRODUCTION

Way back in the eighties, handling GIS data from the tourist point of view was thought. (Shupeng, C. 1987). In the past decade, there has been many fold advances in information, technology in general, and telecommunication technology in particular, including the internet, (Lo, C.P., Yeung, A.K.W 2002.), as a result, GIS is now becoming an essential

part of main stream information technology. The sharing of GIS data towards the goal of grassroot empowerment targeting the communities lacking the expertise of exploring through various softwares and resource,(Caldeweyher, D., Zhang J, Pham, B., 2006), with the world fraternity is becoming popular day by day. The concept of Web based GIS has been established by many authors, (Waugh, T.C., Healy, R.G., 1987), (Healey, R.G., Delve, J., 2007), (Nijagunappa, R., et. Al 2007). wherein the input data can be in various structures, Structured Query Language (SQL) has been used extensively for queries. The spatial search procedures have been given importance On line retrieval, shortest route between two predefined places of interest, optimal routes, (Hung, B., Wu, Q., Zhan, F.B., 2007), and many other options are possible based on attributes and attribute descriptions of the features. (Nijagunappa et al, 2007)

Keeping this in mind, one of the tourist places in Jharkhand, Devghar, was taken up and a tourist information system was made, customizing various softwares and web enabling the information ready to be browsed by the tourists online, free of any software. as it is a place of immense tourist potential from both religious as well as from a picturesque angle.

2.0 STUDY AREA

DEVGHAR (DEOVGHAR) - THE ABODE OF GOD

Devghar locally known Deoghar literally means the abode of God. It is a district headquarters. The district lies in the north east of Jharkhand. (Fig.1) It is a major Tourist and Pilgrimage spot. One of the twelve “Jyotirlinga” in India is instated here. Associated with the main temple are numerous temples in and around Devghar. Besides this, there are many mutts, yoga centres and picturesque places to visit.

The township has an expanse of from longitude 86.66 to 86.73 East and latitude 24.510 to 24.660 North. It is an area of approximately 32 square kilometer. The major river which passes by Devghar on its West is the river Ajoy. Small hillocks dot the surroundings of the town with temples on their pinnacles. The nearest airports are Patna-270kms, Ranchi-345kms, Nearest railway station is Jasidih, on the main line of Delhi - Patna - Howrah.



Fig. 1 : Study Area

3.0 GEOINFORMATICS APPROACH

Geographic Information System inputs data in its domain as spatial and aspatial data. Every spatial data is associated with their attribute data. There is no limit to the attribute data (aspatial data) associated with spatial data. This is one of the strengths of GIS over conventional maps. With the available GIS softwares, customization of the softwares, i.e. freedom of bending the capsuled available software for a particular use, using the

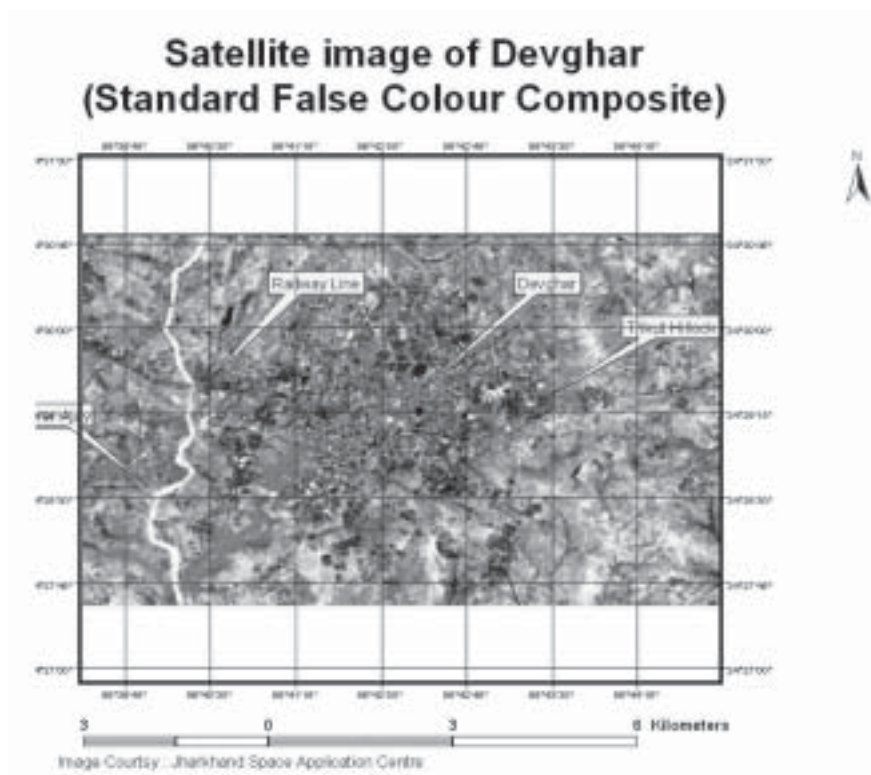


Fig. 2 : Satellite image of the study area

programming languages available within the software, is possible (monad, 2002). This is termed as customization. Now, this customized software can also become a powerful Tourist Information System (TIS). It is also possible to upload the information on the World Wide Web (www). Thus Geo-informatics in tourism could lead to a virtual tour of a place without going to it physically. Not only that, depending on the uploading structure of the GIS, and the privileges given at the user end, it is also possible to make the TIS Dynamic, i.e. updation of the data is also possible from the user end (Alok Kumar, 1998).

3.1 METHODOLOGY AND DATA USED

For the study, two sources of Data were used.

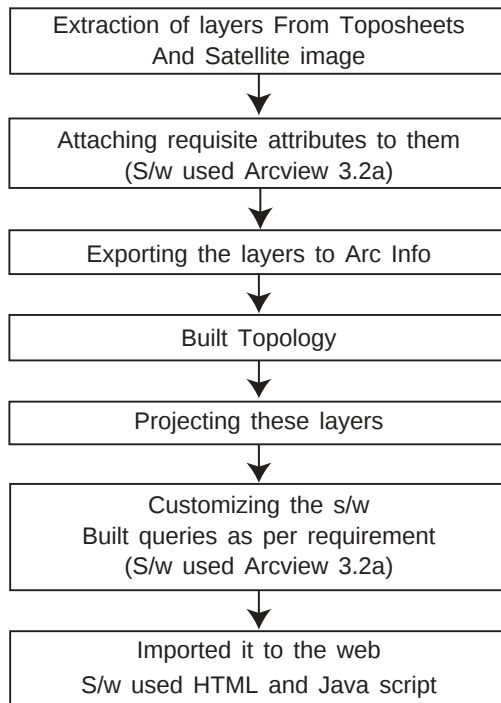
Remote Sensing Data

LISS III & LISS IV Satellite images (courtesy JSAC), SOI Topographical sheets, No72L/11 on 1:50,000 scale (Fig. 2).

Ancillary Data

Data from JTDC and DTDC, data from different organizing boards of temples of Deoghar, road maps, tourist maps field collection of other data.

In the present case study, the following steps are used (Flow chart 1 and 2):



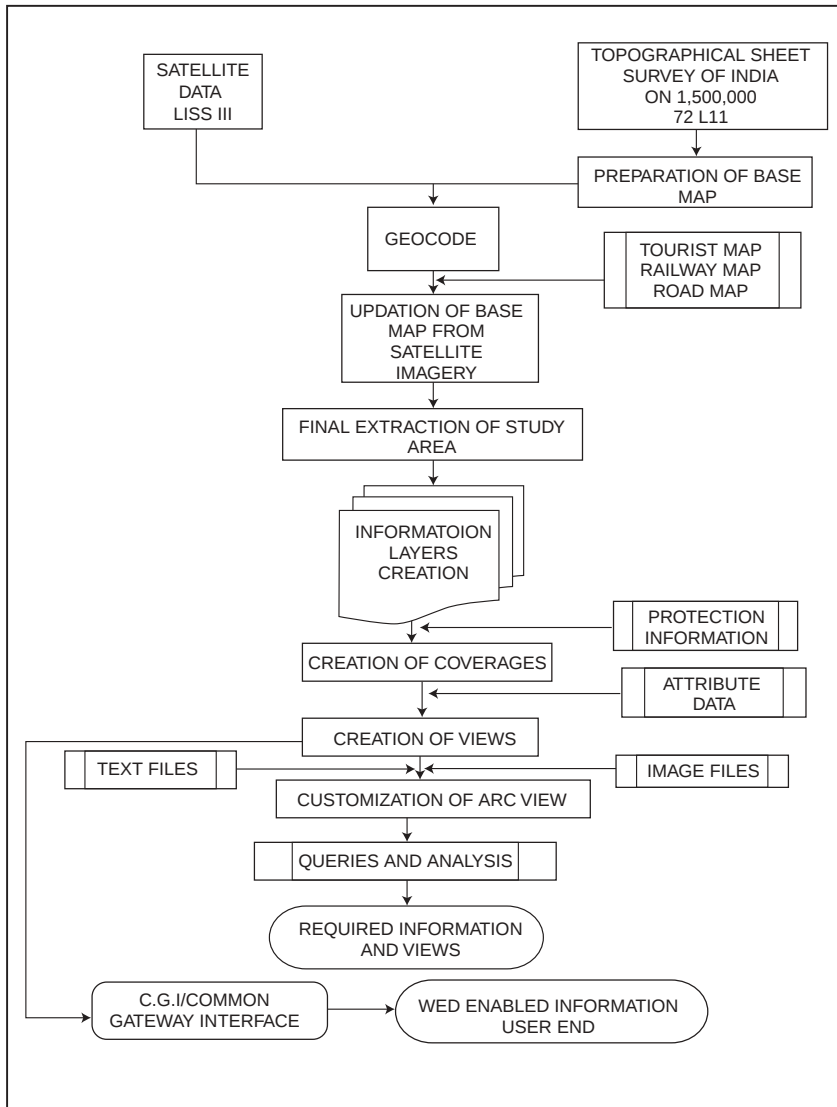
Flow Chart - 1

4.0 THEMATIC DATABASE CREATION

The themes created were just based on the application and were in no way exhaustive. The themes were created in Arcview and imported as coverages into ArcInfo. After giving them a GIS environment they were again exported back to Arcview for query building.

4.1 MAPS

In GIS we have three entities through which data input is done. These are the point or labels, line or arcs and polygons.



Flow Chart - 2

In tourism we could use the line entity to highlight routes (networks). The networks allow us to perform modeling of a multitude of flow types from automobile and rail traffic or flow of any commodity. To operate a network, the lines or arcs must share the attributes necessary for analyzing the flows like speed limits, one way streets, shortest routes, alternatives routes, best path covering a certain number of places of interest etc. Demrs, M. N. (1997)

In the present context, the point entity is useful in collecting / depicting site of ATMs/Banks, places with no area entity attached like taxi stand, transit information small temples, hand pumps, railway ticket reservation counters etc. These can be depicted as a GIS data and become the source of non digital data.. The points can be collected with the help of Global Positioning System (GPS) with in an accuracy limit. (Robinson A. et al). However, the accuracy and portability of these instruments are improving day by day Bonhom -Carter G. F. (1994).

The third entity, the polygons can be used to depict any entity with space, for example- a temple complex, a garden, an urban feature, a tourist feature, Comprising of an area.

All the above three entities when combined with attributes (non spatial entity) often help in finding out the name and other details of the objects of interest. Bonhom -Carter G. F. (1994).

.The most basics question they can answer are “The Characteristics of a location, and where abouts of these characteristics?” Bonhom -Carter G. F. (1994).

4.2 ANALYSIS

In the present case study, many GIS maps were generated concerning the three entities.

The road map, the location map of the temples, the hotels, dispensaries, bus stand, parks etc. The field visits were made twice. Once, to collect the information and locations and the second time, after the completion of the work, to check the results. The respective picture galleries of the places of interest were created. These geographically correct maps were brought back to the software Arcview and under its ‘network analysis module’,

The shortest path between two tourist places, in whose case, the shortest road length was considered. The optimum path covering more than one point of interest was found out.in this case the shortest distance was not the consideration, but the route length which housed all the visiting points were to be included.

The point entities such as the hotels, dharamshalas etc. were attached with their attribute data like ‘type of accommodation’, ‘facilities’, ‘phone numbers’, ‘cost’, nearest atm’s etc and queries were build wherein this information could be seeked.

5.0 INTEGRATION IN GIS FOR TOURIST INFORMATION SYSTEM

After the creation of the query shell and network analysis and using HTML (Hypertext Markup Language), and Java Script this information was imported on the web to create a web page. Depending upon the privileges given to the user on the web, a dynamic web page could also be uploaded. This could be taken up in the future.

6.0 CONCLUSION

Web GIS holds the potential to make ‘distributed geographic information’ available to a very large worldwide audience. Internet users will be able to access GIS applications from their browsers without purchasing proprietary GIS softwares. Moreover, the information available to them will be priceless.

The present study was done with a lot of constraints. The constraint of time, man power, funds and lack of facilitation from any quarters however, the main objective of achieving the tourist information system, with a very small data base was achieved. This work could be carried out in the future with a collection of an exhaustive data base.

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