

GIS Based Tourist Management System

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Abstract: Nowadays, time is considered as valuable as gold. Once time is used sensibly, access to a lot of information is possible. People who want to go sightseeing in different places as tourists may need to have some information about those places. Determining the shortest routes to the tourist places and natural beauties from their accommodation will be both timesaving and economical. Geographical Information System (GIS) technologies provide us with these possibilities. In this study, GIS design and network analysis were carried out by taking advantages of GIS possibilities for tourism. It is likely to carry out some queries by means of Network Analyst in GIS. In this study, results of these directed towards tourism will be presented. This study was carried out in Mumbai district, where there are a lot of historical and tourist places.

Keywords: Android SDK, GIS, Maps, Navigation, Tourist spots.

I. INTRODUCTION

The world's largest and fastest growing sector of the global economy is the tourism industry. It is defined as composite of facilities, activities, services and industries that deliver a travel experience that is accommodation, eating and drinking establishments, transportation, entertainment, historical and cultural experiences, destination attractions, recreation, shopping and other services available to travel away from home. In general when visitors are visiting tourism sites, information about the location and of related services is important during and before such trips is made. When a visitor is on his way to a destination, he may want to know the shortest route to reach the destination of interest and also check for nearest facility within a specified distance or time to his or her current location.

Network analysis is useful for organizations that manage or use networked facilities, such as utility, transmission and transportation systems. Utilities employ network models to model and analyze their distribution systems and meter-reading Routes. Municipal public works departments use networks to analyze bus and trash routes, whereas businesses use them to plan and optimize the delivery of goods and services. Network analysis can also be applied to retail store planning. For instance, solving of the driving times can aid in the determination of retail store trade areas.[1] Three principal types of Network analysis is network tracing, network routing and network allocation. Network Tracing: Network tracing determines a particular path through the network. This path is based on criteria provided by the user. Network Routing: Network routing determines the optimal path along a linear network. The selection of the path can be based on numerous criteria, such as "shortest distance," "fastest route," "no left turns" and "minimum cost." The path can pass between two points or through several selected points.

Network Allocation: As well as one of the most important processes in the Planning and investment activities is

network allocation. In other words, Network allocation is an analysis occurring at the same time of geographical entities and determination process as a point of the optimum center.

1.1 GEOGRAPHICAL INFORMATION SYSTEM

A geographic information system or geographical information system (GIS) is system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data. The acronym GIS is sometimes used for geographic information science (Geosciences) to refer to the academic discipline that studies geographic information systems and is a large domain within the broader academic discipline of geoinformatics. What goes beyond a GIS is a spatial data infrastructure, a concept that has no such restrictive boundaries. In a general sense, the term describes any information system that integrates stores, edits, analyzes, shares, and displays geographic information. GIS applications are tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations. Geographic information science is the science underlying geographic concepts, applications, and systems. GIS is a broad term that can refer to a number of different technologies, processes, and methods. It is attached to many operations and has many applications related to engineering, planning, management, transport/logistics, insurance, telecommunications, and business.[2] For that reason, GIS and location intelligence applications can be the foundation for many location-enabled services that rely on analysis and visualization. GIS can relate unrelated information by using location as the key index variable. Locations or extents in the Earth space-time may be recorded as dates/times of occurrence, and x, y, and z coordinates representing, longitude, latitude, and elevation, respectively. All Earth-based spatial-temporal location and extent references should, ideally, be relatable to one another and ultimately to a "real" physical location or extent. This key characteristic

of GIS has begun to open new avenues of scientific inquiry.[2]

II. GIS DESIGN AND APPLICATION IN TOURISM

In this study, all of the GIS implementation phases were applied. In addition to this, current state and necessities were fixed on feasibility phase. Data design, process design and physical design phases were carried out on design phase.

Table 1

Name Of Layer	Attributes
Way	ID, Name, Type
Train Station	ID, Name
Restaurant	ID, Name, Type, address
Bazaar	ID, Name
Public station	ID, Name
Church	ID, Name
Hotel	ID, Name, Type

The categories of the information users are people within the public that will be need to access the database that will be designed and implemented. The data that will be captured will be grouped into different categories which include Facilities, Services, and tourist's destinations. Each facility, services, and tourist's destination will be given different unique identifiers. In this project we will make use of the secondary data i.e. the road maps.

2.1 DATABASE DESIGN

1. The tourists and residents or public.
2. The government agency in charge of tourism.
3. Emergency service providers.
4. Law enforcement agencies.

The user's requirement is here guided on the type of information needed to build the database.

2.2 CONCEPTUAL DESIGN

It involves defining the entities which are the view of a reality.

1. The road networks are represented as line features.
2. The Tourists Destinations in a particular city which includes tourist/ historical place, Gate Museums, are represented as points.
3. The Tourists Facilities in a city which includes hotels, restaurants, are represented as points.
4. The Services which includes hospitals and police station are represented as points.

2.3 LOGICAL DESIGN

It involves the transmitting or translation of the conceptual schema into logical schema. It is also involves selecting the implementation software. Here within the entities identified become relations with attributes.

2.4 DATABASE CREATION

The point coordinates of tourist /historical place, gate,

museum, hotels, restaurants, hospitals, police station will be collected using Google API, and the data is sorted respectively. The point coordinates are to be grouped as tourism destinations ,facilities and services, and a feature class each and their corresponding attribute fields is to be created in the Google earth/ Google map Geo database using the Google earth to store the point data and their corresponding attributes. For the purpose of analysis, the facility feature class is broken down into separate feature class in the Geo database. [3]

III. ADVANTAGES

- 1) The system will allow the user to zoom into locations for more details.
- 2) It will allow the user to check images of a place by clicking on it.
- 3) System will also provide description as well as contact and address info of the place.
- 4) The system will provide information of nearby amenities close to the user's location.
- 5) The system will give information about how to navigate from source spot to desired destination, also time required to drive is displayed

IV. CONCLUSION AND FUTURE WORK

GIS Based Tourism is becoming more and more important in the modern world. In this study; optimum planning for sightseeing, query of geographical data, obtaining the visual and detailed information about the geographical data and network analysis was carried out.

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