

Survey on map server information technology essay

[Technology](#), [Information Technology](#)



Abstract: - A geographic map is a two-dimensional, geometrically accurate representation of a three-dimensional space. It is a system which stores, represents features present on earth surface & analyzes them. The earth is round. The challenge of any world map is to represent a round earth on a flat surface. Our contribution is to design a Map Server. Map server is a web mapping service application that powers many map-based services. For travelling across different locations (by different means) map server provides a route planner. Map server is also called as a locator for locating urban business all over the world. Keywords: Geographical Information Systems, Map Server, Spatial Data Mining, Spatial Maps.

I. Introduction

GIS is Geographical Information System. GIS is modeled to seize, repo site, operate and examine different types of spatial data. In the simplest terms, GIS is the merging of cartography statistical analysis and database technology [1]A GIS combines geographic data, hardware and software. GIS represents the geographic data in the form of charts, maps and globes. GIS allows us to answer queries easily by observing the data in the form of a geographic map.

Spatial analysis with GIS

Analysis of geospatial data is an actively transforming field. Geographical Information System packages which include standard built-in facilities, plug-ins is growing actively [2]. In most of the cases these packages are accommodated by the actual software suppliers and in the remaining cases these packages are provided by third parties [3].

Mining of Geographical Information System

Application of mining techniques to geographical data is called GIS Data Mining. Data mining is the extraction of hidden previously unknown patterns from large amount of databases. GIS mining is widely used in environmental monitoring. GIS-based decision is made using GIS data mining. This type of application has the characteristic of spatial correlation of data measurements which needs the use of expertise algorithms for efficient analysis of data [3].

Top Five Benefits of GIS

Industries of different sizes in every field are benefitted by GIS. Vision towards economic values and strategic values of GIS has been increasing [4]. The advantage of GIS comes under five basic areas: Money is saved and efficiency of the system is improved Improved making of decisions Communication is improved Record keeping is improved Analyzing Geographically

The spatial Approach

Geographical data when paired with GIS helps us to have a clear knowledge on earth. So that we can apply geographic knowledge to the human activities [5]. The spatial procedure - an innovative way of thinking and problem solving that combines geographical data. The spatial approach helps us to create geographical information by measuring geographical data, classifying this data, determining and forming various methods and their relationships. The spatial approach helps us to apply this information to the approach we sketch, scheme and alter ate the world. In emerging technology

paradigm, Geographical Information System (GIS) has emerged as a powerful tool which has potential to organize complex spatial environment [5]

II. Map Server

A map can be viewed as an area which is a symbolic description highlighting relationships among elements of that geographical area i. e objects, regions and themes [6]. Majority of the maps are not dynamic, accuracy in geometry and are 2-dimensional observations of 3-dimensional space and few of the maps are dynamic, interactive and three-dimensional.

Types of Maps

Climate maps
Economic or resource maps
Physical maps
Political maps
Road maps
Topographic maps
Map Server is an open source platform for publishing spatial data and interactive mapping applications to the web [7]. Map Server is an open source environment. Using Map server we can build geographically enabled internet applications. It can be executed as a CGI program or via Map Script which supports several programming languages
Map server is a popular project. The purpose of map server is to display dynamic spatial maps in the internet[8]. Maps server has many features like capability to run on different environments like windows, Linux etc, assist for scripting languages and supports different development environments like PHP, Python, Java, Ruby and . NET. Map server is a Common Gateway Interface that acts inactive on the Web server [9]. Map Server can be extended and customized through Map Script or templating. It can be built to support many different forms of vector input data

and raster input data and it can produce a multitude of output formats. Most pre-compiled Map Server distributions contain most all of its features.

Anatomy of a Map Server Application:-

Map server has a .map file which is a configuration file and it is in the ASCII format. .map file is formed by different objects [10]. The parameters of .map file are aligned in a map file. Comments in a map file are specified with a '#' character. Map server analyzes map files from top to bottom. So the map file layers at last will be appeared on the top of all layers. Map server includes relative paths. These paths should be quoted in single or double quotes.

MAP Object

EXTENT is the extent of result. Width and height of the map image are represented by SIZE. Image background color is denoted as IMAGECOLOR.

LAYER Object

Starting with Map Server 5.0, there is no limits to the number of layers in a map file the DATA parameter is relative to the SHAPEPATH parameter of the MAP object if no DATA extension is provided in the filename, Map server imagines it as an ESRI Shape form (.shp)

Vector Layers

Vector layers of TYPE point, line, or polygon can be observed. The given instance shows how to show only lines from a TYPE polygon layer, using the OUTLINECOLOR parameter

III. Spatial Maps

Position and shapes of environmental characteristics as well as events occurring in the environment are defined by spatial data. Determining this information is critical.

Advantages of Spatial Maps

We can observe extreme benefits by using maps and Geographical Information Systems. It is a way to store geographical information [11]. Using maps we can easily recognize and analyze patterns of spatial data. They are effective in presenting information and communication findings. The GIS offers many advantages over paper maps. Paper maps are used to manage huge amounts of data very faster and easily. Paper maps require less number of individuals, less amount of time and more money.

IV. Dengue Disaster Representation:

Dengue virus and dengue hemorrhagic fever are amongst the most important challenges in tropical diseases due to their expanding geographical distribution, increasing outbreak frequency, hyperendemicity and evolution of virulence [13]. Artificial Intelligence (AI), with its various subfields, has a long history of knowledge extraction, representation, and inference in medicine. The field of computer-assisted dermatology has thus benefited greatly from advances in knowledge representation techniques and machine learning algorithms [14]. Clinical dermatology is mainly a visually dominated discipline. The recognition of signs and symptoms as well as their interpretation of patterns typical for specific diseases remains the core task for diagnosis. During the last decade computer-assisted

applications have proven to be of value for the diagnosis of various forms of skin cancer, especially cutaneous melanoma, Dengue, Malaria, Polio, etc. Geography is a centralizing discipline. Analysis of geographical data includes data about many disciplines. GIS information which includes health maps is necessary for health related areas [13]. This is motivated by many factors. 1. Every pattern includes a peculiar variable subset from the original data and the available combinations of attributes are many. 2. A potential pattern inside a subspace may be of 3. For a specific shape, its parameter space is still larger4. Patterns differ from location to location [14].

V. Disaster Representation in Map Server

Information Systems enable us to capture up to date effects due to disaster. Spatial data analysis does not reach the needs for determining the huge amounts of data [15]. Epidemic management through geographical maps is determined. This system is used to acquire, process and interpret the data (Health Companion) as a basis for action. Spatial Map for disaster identification is designed

Rendering OSM data with Map Server on Ubuntu

1. Build directoryAll the map files are installed in a directory called " gsm-map" in the home directoryMkdir ~/gsm-mapcd ~/gsm-map/2. Install Map server & GIS classesInstall other non-GIS packages that will be needed later on3. Data for OSM is downloaded4. Set imposm using virtualenvcd ~/gsm-map/sudo apt-get install python-virtualenvvirtualenv venv5. Install imposm: pip install imposm6. Build a databaseimposm-psql> create-sql. sh7. Store

data using imposmcd ~/gsm-map/Imposm --read india.osm.pbf8. Make mapserver-utils map file generator

9. Setup Map Cache

As an example the following map server is designed representing dengue affected areas. Some of the geospatial data characteristics build challenges [15] and some of the characteristics that make geospatial data as a problem has been reported in many other articles [16]

VI. Results

Map showing Guntur and Vijayawada as Guntur (5) and Vijayawada (7) which means that Guntur and Vijayawada is affected by the epidemic disease Dengue

VIII. Conclusion

Map server is used to exhibit dynamic geographic maps in the internet. Mapserver includes features like capability to run on various platforms like Unix, Linux, Mac OS etc, assistance for visualization of hundreds of raster data forms, assistance for different scripting languages and assistance for different development environments projections and high quality rendering. For analyzing, manipulating, storing and capturing of different types of spatial data we have Map Server

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