

Introduction

A Geographic Information System (GIS) is a computer system that analyzes and displays geographically referenced information. It uses data that is attached to a unique location. These are just a few examples of the many uses of GIS in earth sciences, biology, resource management, and many other fields.

A geographic information system (GIS) is a system that creates, manages, analyzes, and maps all types of data. GIS connects data to a map, integrating location data (where things are) with all types of descriptive information (what things are like there). This provides a foundation for mapping and analysis that is used in science and almost every industry. GIS helps users understand patterns, relationships, and geographic context. GIS stands for Geographic Information Systems and is a computer-based tool that examines spatial relationships, patterns, and trends in geography.

GIS is any manual or computer based set of procedures used to store and manipulate geographically referenced data. A geographical information system may be defined as a computer-based information system, which attempts to capture, store, manipulate, analyze and display spatially referenced and associated tabular attribute data, for solving complex research, planning and management problems.

Uses

- A GIS consists of a package of computer programs with a user interface that provides access to particular function.
- A GIS is a computer-based tool for geographical analysis of information. It is not simply a digitized map, nor does it hold maps. It holds a database of spatial data and attribute or descriptive information about features on a map which can be used to create desired maps.
- The benefits include improved communication and efficiency as well as better management and decision making

❖ Applications of GIS in Various Fields

- Agriculture
- Disaster Management
- Oil Spill
- Urban and Town Planning
- Mapping and Navigation
- Reservoir and Dam Site Location
- Deforestation and Vegetation Management
- GIS for Business, Marketing, and Sales

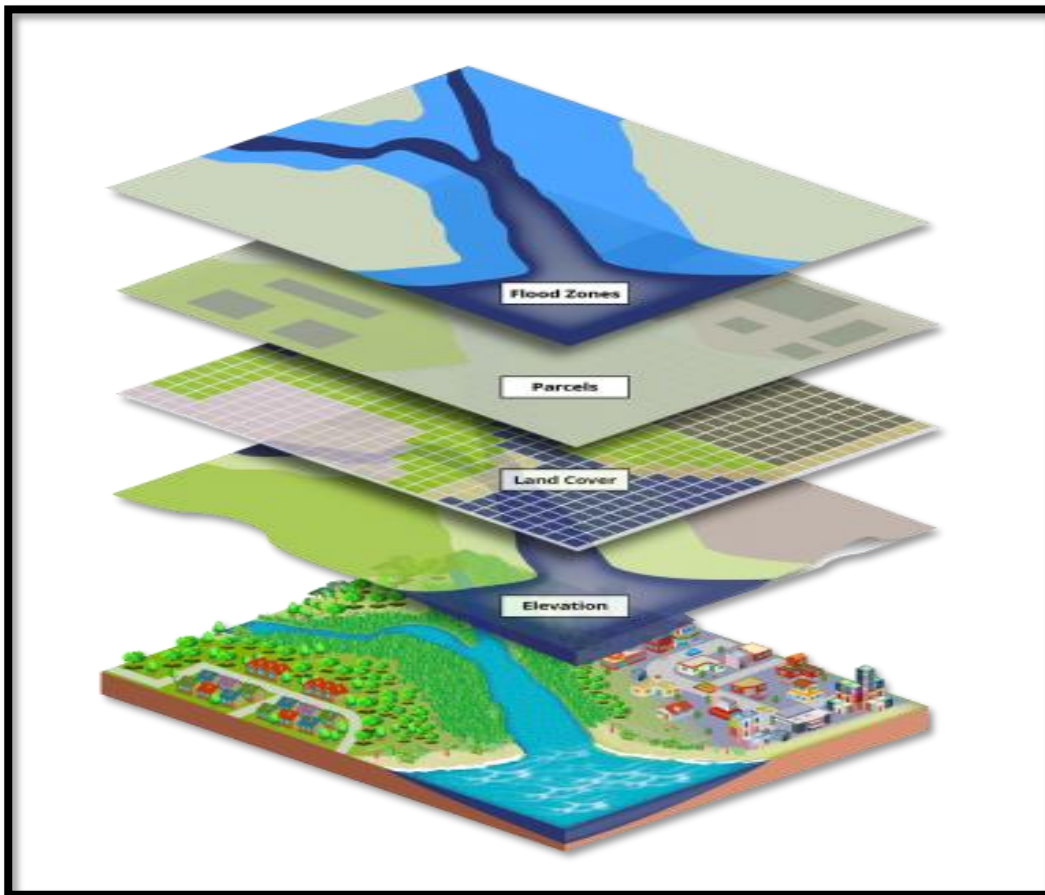
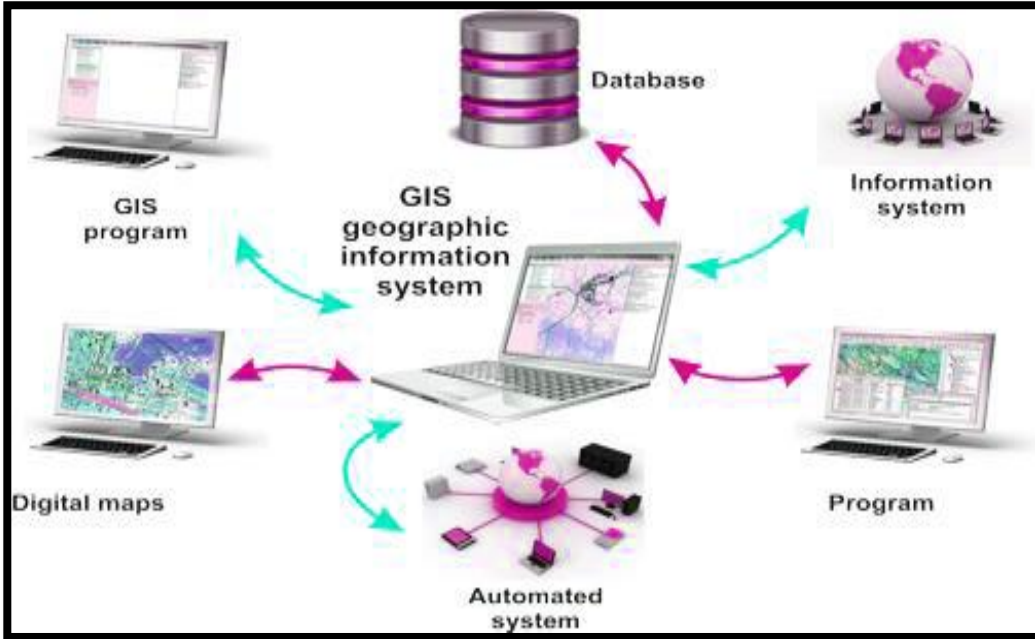
Features

GIS is an integrated system of computer hardware, software, and trained personnel linking topographic, demographic, utility, facility, image and other resource data that is geographically referenced.

Applications of GIS allow people and organizations to do geological observations and analyze the spatial data in a granular format.

The hardware and software functions of a GIS include:

- Acquisition and verification
- Compilation
- Storage
- Updating and changing
- Management and exchange
- Manipulation
- Retrieval and presentation
- Analysis and combination.



Technical Specifications:

S.no.	Parameter	Remarks
A	GENERAL	
1	Centralized and Integrated Solution	Geographic Information System Software
2	Technology Used	COTS (Commercial Off The Shelf) Technology
3	Access Features	RBAC Model (Role-based access and control)
4	Architecture	N-tier scalable architecture, modular design, robust software
5	Framework	.NET Core Framework, ASP.Net MVC
6	Database	SQL Server 2016 and above, Mongo DB, Posgre SQL, Unifieddatabase for all SWM data
7	Operating System	Windows / Open Source Linux
8	Front end	Java Script, JQuery, React JS, Angular, HTML, Bootstrap, RazorPages
9	IOT Hub Integration	Kafka, Rabbit MQ, Socket Programming, Web APIs
10	Application Availability	High availability and DR replicability
11	Single-Sign On facility	Available
12	Audit Trail	Ability for logging, audit, and tracking of any changes carried out on the database
13	Interoperability Standards	Can be integrated with any other application through web APIs(Push or Pull)
14	Security Features	<ol style="list-style-type: none"> 1. Security design with well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system. 2. Support for security features such as W3C specifications, Information access/transfer protocols SOAP, HTTP/HTTPS, etc. 3. API Integration allowed post authentication
15	External Communication	Through SMS Gateway and SMTP Integration
16	Web Enabled Solution	Yes
17	Services for GIS Integration	Google Maps, ESRI Map, Any other available open map

Building sustainable future

18	GIS Features	Geo-mapping, Geotagging, POI, Geofencing through Geo JSON and drawing tool
19	Deployment Features	SaaS Model, On-Premise Model, BOOT Model
20	Cloud Deployment	Amazon AWS, Microsoft Azure
20	Information Security	ISO 27001 certified System
21	Operations	ISO 9001 Certified
B	FUNCTIONAL FEATURES	
➤	General Features	Geographic Information System Platform is used for any computer-based capability for the manipulation of geographical data.
		Using GIS, any particular point on a map can serve as a reference to a particular area.
		A GIS is a computer system for managing spatial data
		GIS is a automated system for the capture, storage, retrieval, analysis and display of special data.
		GIS is an integrated package for the input, storage, analysis and output of spatial information, analysis being the most significant.