Geoid Resources

CAD, GIS & General Mine Planning Solution

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Geoid RESOURCES

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CAD, GIS & General Mine Planning Solutions

- GIS Services

- Engineering Design Drafting

- Field surveying

- Planning & Design

- Compliances

- Others

GIS Services:

Geoidresources provides numerous GIS services to its clients all over the world. The GIS services rendered by Geoidresources allow for the visualization of geographic data, analysis of spatial relationships, and efficient data management. The GIS data conversions allow data from different sources to be merged in one common format, which allows for easy access, analysis and utilization.

      Geoidresources works on GIS data conversions and prepares electronic maps using Geographic Information Systems (GIS) technology by utilizing the paper or electronic data that has been either captured by the clients or collected otherwise.

The vast expertise and experience allows Geoidresources to integrate GIS, CAD and Global Positioning Systems (GPS) services, by using high-end GIS Mapping and GIS data conversions software. These services assist the customers to produce contour maps, spatial maps, atlas maps, cadastral maps, thematic and zonal maps, landscape maps, and environmental maps for host industries such as mining and geology, utility, agriculture, petroleum pipelines, land information management, and other GIS Mapping companies and Remote Sensing companies.

Geoidresources provides GIS services with an all-inclusive solution for spatial data management to government and industrial organizations through GIS remote sensing services. Geoidresources complex GIS Mapping Services and GIS Remote Sensing services include capturing, storing, integrating, manipulating, analysing, and displaying data related to positions on the Earth's surface.

Geoidresources uses updated technology, research and innovation that are implemented by highly experienced and qualified staff to create maps. A Geoidresources team of engineers, geo-scientists, planners have developed GIS products and systems, integrated with GPS, GIS, and CAD. The services can be used for system design and architecture, management and maintenance, map production and analysis (specialized for GIS mapping agencies also), database design and development, user training and support, and 3d modeling and visualization for GIS mapping products and GIS remote sensing products.

- Digital Photogrammetry Services
- Digitization
- Remote Sensing
- 3D Building Landmarks
- Indoor Mapping
- Navigation
- Survey
- Municipal GIS
- Cadastral Mapping
- Topographical Mapping
- Parcel mapping
- GIS Data Capture
- Pole Loading Analysis
- LiDAR Data Processing Services
- Viewshed Analysis

Digital Photogrammetry

Photogrammetry as a science is among the earliest techniques of remote sensing. The word photogrammetry is the combination of three distinct Greek words 'Photo', 'Gram' and 'metry' which translated in English literally means, light, drawing and measurement respectively.

Geoid IT offers a wide variety of photogrammetric services such as aerial photogrammetry and Digital Photogrammetric services to its clients worldwide. The aerial photogrammetry and digital photogrammetry services are obtained using aerial acquisition through digital ortho-photography.

Geoid IT's high-precision aerial photogrammetry and digital photogrammetry services are offered at extremely rational prices with accurate and cost-effective data collection for planning and lin aerial photogrammetry and digital photogrammetry services.

Typical aerial photogrammetry and digital photogrammetry services by Geoid IT include:

- Aerial Triangulation
- Texturing
- DEM / DTM Generation
- Stereo Compilation
- Topographic and Planimetric Feature Extraction (2D and 3D)
- Ortho Generation and True Ortho Generation
- Colour Balancing
- Mosaicking And Tile Generation
- Contour Generation
- 3D Terrain Visualization
- LIDAR Data Post Processing
- 3D Texturing
- Orthophotography Services

Aerial Triangulation:

Aerial Triangulation is the calculation of true ground co-ordinates and 3D coordinates for object elements that are used as the base reference in aerial photogrammetry and digital photogrammetry. It is the method of developing several unknown coordinate points from a minimum of five control points inside each aerial photogrammetry model to be able to obtain absolute orientation of the model. Aerial Triangulation is an essential part of many successful aerial photogrammetry and digital photogrammetry project.

Geoid IToffers complete softcopy aerial triangulation services, providing highly accurate control for the map production. Digital images are uploaded into softcopy work stations. The airborne GPS coordinates and the ground survey control points are used to control the aerial triangulation solution.

Geoid IT utilizes LPS, SSK, DATUM software's to perform digital aerial triangulation computations and analysis. Depending upon the project requirement and volume,Geoid IT chooses the software as per the client request to provide qualitative aerial triangulation.

LiDAR Data Processing:

Geoid IT provides LiDAR data processing, a prominent technology of aerial photogrammetry and digital photogrammetry services for the generation of Digital Elevation Model (DEM), Digital Terrain Model (DTM) and Triangulated Inverse Network (TIN) and so on to provide highly accurate detail of earth's surface.

The aerial photogrammetry and digital photogrammetry technique of LiDAR data processing is carried out on the acquired data after filtering noise and pre-processing activities using GPS survey for obtaining a referenced coordinate system with accurate elevation details. Once the pre-possessing of the data is complete, Geoid IT technical staff uses Terra Scan and Terra Solid software for post processing of the LiDAR data. Geoid IT has extensive experience aerial photogrammetry and digital photogrammetry services such as, generating the 3D models like DEM, DTM, TIN and other surface models as per the requirement.

Geoid IT provides turn-key LiDAR data processing services in aircraft, digital orthophoto and various topographic mapping aspects, including:

- Preparation of Point clouds file (ground, canopy and intensity)
- Power line mapping, wire detection and transmission line survey
- Contour mapping and topographical maps
- Fusion with digital orthophoto or hyperspectral imagery
- 3D modeling and volumetric calculation
- Creation of vegetation cover and classification using LiDAR data processing

Digital Elevation Model:

Digital elevation model (DEM) is a medium of aerial photogrammetry and digital photogrammetry that is a representation of the Earth's relief used for geospatial analysis and modeling. Elevation data are captured in the form of points with defined interval and the Break lines. Geoid IT has vast experience in the creation of TIN Models and elevation models from the DEM data Contours.

Vector Mapping:

Vector mapping service is a branch of aerial photogrammetry and digital photogrammetry services provided at Geoid. It is a representation of the earth surface features in 3D manner and used for geospatial analysis and modeling.

Geoid offers the preparation of map by extracting the vector or point information of railroads, buildings, hydrological features, vegetation, etc., as required by the user by different Symbols (trees, wells, poles, etc.,), Line types (rail, road, streams, etc.,) and regions (buildings, tanks, forest, etc.,) with unique ID.

Ortho Photo Generation:

Digital Orthophoto is a raster image generated by differentially rectifying scanned aerial photographs to compensate for distortions due to the altitude of the aircraft and the relief of the terrain. Digital Ortho photos combine the image characteristics of a photograph with geometric qualities of a map. The Ortho Photo generation.

3D Modeling:

Using 3D Modeling and virtual reality techniques, Geoid IT is able to completely represent the client's real world, bringing together all the relevant aspects of the 3D environment that you wish to model. Geoid IT's key functions include 3D visualization, 3D environment modeling, true 3D landscape reconstruction, visual reality and virtual reality integration, real time roaming with huge amounts of data.

Digitization :

Digitization services involve converting any physical document into a digital file. This ensures easy handling, sharing and editing of the document. Digitization services are used for converting maps, sketches, schematic diagrams, or circuit diagrams. They are known for ensuring positional accuracy of the objects and is therefore useful in many industries. Digitization services are also used in contour maps, topographic maps, zonal maps, cadastral maps, and utility maps.

Geoid IT offers digitization services such as complete CAD Conversion, paper to CAD Conversions and CAD Drafting. These Digitization services are rendered using global standards and therefore the resulting products have high precision and quality. The digitization services at Geoid IT seamlessly convert paper drawings and maps into highly accurate digital files, with the help of paper to CAD conversions.

Remote Sensing:

Some projects require acquisition of information on objects and phenomena at a large scale. Physical survey in such a situation is not a viable option. Remote sensing is a technique that is time and cost effective and is therefore apt for such projects.

Geoid offers remote sensing services to its clients worldwide. The services ensure accurate and cost-effective data collection which is important input for planning and designing of mapping projects. Geoid's expertise in remote sensing branches out to meet classification, image correction, image enhancement, image processing, and change detection services. These services are rendered as per the project's requirements.

Geoid offers remote sensing services by creating data to analyse and compare data of forestry, weather, vegetation, pollution, erosion, land use. The remote sensing services offered by Geoid can also be helpful for city planning, military observation, archaeological investigations, and so on.

Geoid technical teams have good hands-on experience of using remote sensing software's like ERDAS IMAGINE, ENVI, and ER Mapper etc.

Geoid remote sensing services includes in the following verticals:

- Satellite imagery interpretation and classification
- Classification-supervised and unsupervised
- Change detection
- Slope aspect analysis
- Land cover classification
- Coastal ecosystem management
- Forestry mapping
- Agricultural mapping
- Mining and geology mapping
- Environmental impact assessment mapping
- Clutter data for wireless telecommunication network planning
- Watershed management
- Geioid has extensive experience and expertise in providing cost effective, time bound and flawless services. The clients are continuously kept in loop with the development of the project.

3D Building Landmarks :

Geoid IT creates 3D Building Landmarks and Photorealistic 3D Models for monuments, museums, places of worship, recreational destinations, petrol pumps and other establishments. 3D Building Landmarks and Photorealistic 3D Models are a unique amalgamation of geo-informatics and multimedia technology to achieve precisely geocoded real time 3D imitations of the landmarks.

These 3D Building landmarks add a dynamic feature to the navigation map databases. They allow the user to view a real time 3D view of the any landmarks on the map which helps them understand and view the map with a different perspective. These maps are a revolutionary concept as it would be helpful for a tourist to easily identify the building by its 3D Building Landmarks models/Photorealistic 3D Models available with the navigation maps.

The 3D Building Landmarks work involves the following stages:

• Real world, high quality photography of the said landmark.
• Images captured at ground level by digital camera or at a height using helicopters or light wing aircraft.
• Creation of the models using GIS software such as ArcInfo and, 3D applications such as 3D Studio Max
• Geo-referencing of the 3D models
• 3D representation of the landmarks i.e. 3D Building Landmarks are built to high level of details such as grid alignment, capturing dimensions accurately, drafting of slanting roofs etc.
• 3D model would be equivalent to real world scale and orientation presented in a variety of 3D formats.
• Interiors of these 3D building landmarks can then be created as per requirement.

Indoor Mapping :

These days the increasing complexities of building structures and number of smart phone users have led to need for indoor building maps. Indoor building maps are a feature installed in various devices like kiosks and phone applications for navigational purposes and personnel directories. They enable the user to navigate from one place to another within a building premise and save the user from being lost and clueless in a huge and complex building premise.

Indoor building maps operates on the basic fundamentals of calculated path mapping – a sophisticated system allows the user to find the shortest route between their origin and destination in real time, depending on sources of user input.

Typical indoor building map creation methodology includes the following steps:

Step 1: Collection of building floor plans and attributes

Geoid collects indoor building plans and its various attributes are collected from a variety of sources including websites, open forums, blogs and/or by visiting and coordinating with building owners.

Step 2: Building plan and attribute validation

Geoid technical resources visit the building site for validating the floor plans and the attributes. The team collects 5 – 10 geographic coordinates per building using GPS equipment.

Step 3: Digitization of Floor Plan

Subsequently, Geoid in-house teams use appropriate GIS software for digitizing individual buildings on a layer-by-layer basis with reference to floor levels and for various attributes.

Step 4: Geo-referencing and Validation

Geoid technical resources geo-reference and validate the digitized indoor building plans with reference to high resolution imagery or with respect to the geographic coordinates collected by the field team.

Step 5: Quality check of Indoor maps created

Extensive quality check and error fixing is carried out by Geioid Quality Assurance (QA) professionals for the quality and accuracy of indoor maps. Important points considered during QA/QC of the indoor maps include testing for missing vector layers, duplicate features, dangling errors, overshoots and undershoots.

Step 6: Shipment

The completed indoor maps are delivered to the client in required format via email and/or CDROM.

Navigation :

Navigation mapping assists the navigation content providers using GIS, GPS, and Remote sensing technologies instead of traditional method of manual assimilation of data for generation of navigation content. The accuracy of the new technology ensures creation of flawless maps. The rampant increase in the number of people who use computerised navigational services for everyday use. This trend has led to the development of new and innovative geodata content services and products.

GeoidIT offers mapping of:

- Street and road network

- Point of interest

- 2D Landmarks

- 2D footprints

- 3D city models

- Indoor Building Maps

- Street Digitization

- 3D Building Landmarks

The maps are created while paying attention to details such as grid alignment, capturing dimensions accurately, positional accuracy and completeness of content. The data can be provided on multiple platforms.

Geoid uses high end software such as ArcGIS, ERDAS Imagine / ER Mapper, MapInfo and AutoCAD Map to generate the final product in varied formats according to the project's requirements.

Survey :

Survey has played an important role in collecting data from areas that don't have updated maps. Survey maps also play a crucial role in ground truthing the concerned area for creation of accurate land information maps. These maps also assists companies in understanding the market trends, land information for real estate, architecture, mining and utilities industries. These maps bring about a multi-dimensional perspective for making informed decisions.

Geoid IT has a wide network of surveyors who assist various governmental as well as private organisation in completion of manual survey. They also play an important role in creation of detail oriented navigational maps.

Geoid IT offers surveys such as:

- Building Surveys

- Digital Terrain Models (DTMs)

- Engineering Surveys

- Legal Mapping Surveys

- Natural Resources Surveys

- Ordnance Survey

- Real Estate Surveys

- Urban Sprawl Surveys

- Utility Mapping Surveys

Geoid IT conducts the survey using the following methods:

• GPS or Global Positioning System provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. It is used in ground truthing of land use land cover maps.

• DGPS or Differential GPS survey provides improved location accuracy, from the 15-meter nominal GPS accuracy to about 10 cm in case of the best implementations. It is undertaken in two methods: Real Time Kinetic mode and Rapid Static mode. In both the methods, primary control points (PCPs) are required to be set up before taking up detailed survey on all pillar positions that compose the forest area.

- TS or total survey is an electronic/optical instrument used in modern surveying and building construction. It is useful to the mining, electrical and mechanical industries.

- ETS is used determine geo-coordinates of secondary control points. Integrated

- ETS equipment is used to conduct such surveys. They are useful for forestry surveys.

- Contact or door to door surveys are conducting by the surveyors at Geoid for various industries.

       The surveys can be produced on various platforms such as 2D or 3D AutoCAD, ERDAS, and ARCMap.

Municipal GIS :

Geoid has been working with the local and national governmental organisations for a long time now and understands the uniqueness and confidentiality of governmental work.

Many government aided bodies are recurring clients of Geoid, as Geoid provides a unique platform for generating timely and cost effective deliverables. The work involves GIS services such as georeferencing, satellite image processing, image classification, digitization, attribution, theme creation, map preparation, data analysis and report generation, computer aided designing and drafting services and remote sensing services. The client's requirements are paid utmost attention and the work is done in close co-ordination with the client.

A municipal GIS system is a GIS system which manages various tasks of a municipality such as property tax, birth and death registration, socio economic data management and holding registration amongst other tasks. The municipal GIS service also assists in generation of a geospatial view of the current municipal area linked with the corresponding up-to-dated database.

The databases ideally possess attributes of every individual property with information such as land owner, co-owner, mailing & permanent address, house style, built year, individual room measurements, compliance with the regulations of the building authorities, public / private utilities mapping to the plot, street characteristics and amenities. There can also be a provision of linking every individual plots with their digital photographs, and a link to the map showing the location of the plot.

A municipal GIS System involves several steps including:

- Computerization of land records

- Digitization of existing spatial entities such as base maps

- Updation of property records

- Property Tax Assessment

- Infrastructure database creation

- Survey of the individual properties

- Updation of the non-spatial database on a day to day citizen centric level

Urban Infrastructure planning, development and analysis for the future infrastructure requires a robust municipal GIS system in place. The generation of thematic map / zoning map created a high visual impact and is used for assessment of several sectors such as for water network planning, property mapping by assessor, snow plowing in temperate regions, maintenance of cities and civic amenities services, etc.

The updated spatial and non-spatial database on the Municipal GIS system helps the concerned municipality to export and print the generated maps for any specific usage by the concerned field officer, or the property owner at any point of time thereby saving cost and time.

A citizen centric service center is also organized wherein a daily updation of the spatial and non-spatial database is being taken care of, thereby keeping this Municipal GIS System in an updated position.

Cadastral Mapping :

Cadastral mapping is a comprehensive register of the details related to the property of an area. These details include the precise location, dimensions, and other geographical classifications of the properties or individual parcels of land. The maps generated using cadastral mapping services help in effective management of public land records. National and local governmental bodies, architecture and engineering firms, real estate developers, industries can uses the cadastral mapping services for making well informed decisions. Cadastral mapping services also enable to user to study additional details, such as survey district names, unique identifying numbers for parcels, certificate of title numbers, positions of existing structures, section or lot numbers and their respective areas, adjoining street names, selected boundary dimensions and references to prior maps.

CAD, GIS & General Mine Planning Solutions

Geoid IT provides cadastral mapping for creation of cadastral maps from hard copies of the administrative maps with specific details of each plot, roads, railway lines, water bodies, vegetation, etc. These cadastral mapping service provide all inclusive solutions to land information system problems by focusing on various forms of land records.

Geoid IT also has extensive experience of undertaking large scale cadastral mapping projects which include steps such as:

- Scanning of hard copy maps

- Digitization of the maps using proper layer structure

- Geo-referencing the individual maps

- Merging the individual cadastral maps to a single map pertaining to a specific area

The maps created using cadastral mapping services provide tools that support many types of record keeping, analysis and decision-making, high performance land surface modeling with data assimilation. These maps are created using high end software such as ArcGIS, ERDAS Imagine / ER Mapper, MapInfo, ArcFM, and AutoCAD Map.

Topographical Mapping :

Topographic mapping services helps in route planning, thematic data preparation, and decision-making for telecom and transport services and disaster management. The 3D topographic maps cover an area of approximately thousands of square kilometres and therefor require experienced expertise.

Geoid IT offers topographic mapping services to create comprehensive topographic maps and 3D topographic maps to the specified projection parameters, contours with 'Z' values, relief & planimetric details. GeoidIT has successfully executed large-scale topographic mapping and 3D topographic mapping project. The general steps involved in topographic mapping and 3D topographic mapping project are:

- Raster to Vector conversion of 3D topographic maps are conducted using high end, up-to-date CAD software such as AutoCAD, MicroStation etc.

- Different features of the 3D topographic maps such as contour lines, boundary lines, transportation, water areas, vegetation, habitations, forest areas etc. are captured

- These features are then digitized in different layers to generate a topographic map in vector format.

- The 3D topographic mapping is done by assigning the Z-values to the contours and generating the 3D terrain model of the topography.

- With the help of 3D topographic maps Geoidresources technical experts create digital terrain models (DTM), digital elevation models (DEM) and triangulated irregular networks (TINs).

Parcel mapping :

Parcel Mapping is a process in which land parcels are created for efficient and effective land management. Parcel mapping service generates maps, created from base maps, with polygons that have details about the ownership of properties and other related information. The base maps used in parcel mapping are the cadastral maps showing each individual plots in different sub divisions. The land parcels are the fundamental data layer on which different data are referenced. Parcel mapping has a variety of uses such as land administration & property registration by urban and rural governing bodies. Municipality planning & urban development is taken care through the use of various parcel mapping techniques, which have the ability to restore analytical data that is crucial for enhancing the operational abilities of the government bodies.

Use of parcel mapping services has increased over time and it has been observed that the time required to process and fulfil requests for land registry information has dropped by almost 80% in various countries. The use of parcel mapping services has consequently led to substantial improvements in handling the enormous requests generated over a period. Subsequently there is a huge reduction of overhead costs, and maintaining the data in a secured environment. Parcel mapping is also used by cartographic officials, rescue operations during floods and natural disasters for identifying property owners and retrieving crucial data. Parcel maps are also the base for any such GIS Maps.

Geoid IT can replace the cumbersome process of maintaining data on paper maps with digital parcel maps using parcel mapping for:

- Municipal & other Urban Bodies

- Government Departments

- Builders

- Real Estate Agents

- Appraisers

- Engineers

- Surveyors

- Developers

GIS Data Capture :

GIS data capture is a technique in which the information on various map attributes, facilities, assets, and organizational data are digitized and organized on a target GIS system in appropriate layers.

GIS Data capture can be divided into:

Primary GIS Data Capture Techniques
            The primary GIS data capture techniques use remote sensing and surveying technologies to capture the data using either raster data capture or vector data capture.

• The raster GIS data capture technique involves capturing of attributes and other data without physical contact. This is usually done with the help of satellite imaging techniques such as aerial photography. This type of GIS data capture is advantageous as there is a consistency in the data generated, and the whole process can be regularly and systematically multiplied to get accuracy of the data in a cost effective manner.

• The vector GIS data capture technique includes capturing of data-sets through physical surveying techniques such as Differential Global Positioning System (DGPS) and Electronic Total Station (ETS). Although this technique is the most effective process to have the accurate data on the target GIS system, it is more time consuming and expensive.

Secondary GIS Data Capture Techniques:

The secondary GIS data capture technique use technologies such as scanning, manual digitizing, vectorization, photogrammetry, and COGO feature construction to capture data by the following methods:

• Scanning the raster data for GIS Data Capture involves the use of high resolution scanners that generate highly accurate raster images from the hard copies which can be geo-referenced and digitized to get the vector output.

• Manual digitizing is done directly over the raster by the use of a digitizing tablet, which is a manual pointing device that creates an identical vector map on the computer screen, defining the vertices, points, line data, etc.

- Heads-up digitizing is a part of GIS Data Capture and is similar to the manual digitization, but in heads-up digitization, the raster scanned data is imported and laid below the vector data to be traced on the computer screen itself.

- Automatic raster to vector conversion is a great example of advancement of the technology, the technology uses special software using intelligent algorithms that have been developed to recognize the patterns of the points, lines and polygon features and capture them automatically to generate vector GIS data.

- Photogrammetry involves digital stereo-plotters that are used to capture the vector data from the Ariel photographs, pictures and images. This is comparatively the most effective method of accurate GIS data capture, but is one of the costliest methods too.

GIS Data capture services provided by Geoid IT can used for:

- Thematic Maps Creation: Analysing practical regional / cultural issues, transportation facilitation, hydrographic mapping, vegetation and other types of related features;
- Capturing Electrical power networks using special software for GIS data capture
- Capturing Navigation data for easy navigation
- Capturing   Land records and survey data for property, land, water and holding tax, etc. The spatial features are extracted from Ariel imagery using photogrammetry methods.
- Creation of Utility infrastructure GIS data capture for water lines, road network, pavements, sewerage network, and other related features.
- Generation of Environmental and geological GIS Data capture is done from geological maps, weather maps, mining and mineral exploration maps, etc.

Pole Loading Analysis :

Federal Communications Commission (FCC), following the National Broadband Plan for future, recognized that lack of access to physical infrastructure, particularly utility poles, is often a significant barrier to deploying communication services. Hence, there was a need to establish a more detailed framework to govern the accessibility timelines, rates, terms and conditions for pole attachments.

The establishment of timelines expedited the "make-ready" process considerably and NESC (National Electrical Safety Code) set the ground rules for safety compliance. In order to ensure compliance with NESC, joint use pole owners have to conduct utility pole inspections, including the pole loading analysis, before they allow a communication company to attach a new equipment to it. The pole loading analysis helps estimate and mitigate risk factors.

Pole audit, engineering, and make ready program, thus, maintain the structural integrity of the utility's aerial distribution and transmission systems while still meeting the fast-paced demands of the attaching telecommunication companies.

Effective analysis of pole loading factors shall not only assist efficient distribution of electric utilities, but also help estimate and mitigate the risk factors associated with each overhead line. Geoid is a leading provider of pole loading analysis services for the utilities industry. With data received from the customer's field staff, Geoid engineering team can provide detailed pole-level analytics, including the following:

- Structural analysis

- Stress analysis

- Clearance analysis

- Reporting of high-risk field assets

- Pole replacement design

- Make-ready design

LiDAR technology enables the data capture on field by lighting the target using pulsed laser. As LiDAR also provides elevation data, it finds applications in several industries.

Geoid provides a wide range of LiDAR data processing services that helps in creating Digital Elevation Models (DEM), Digital Terrain Models (DTM) and Triangulated Inverse Networks (TIN) to provide highly accurate detail of the Earth's surface. Geoid LiDAR data processing services have helped global industries in taking informed decisions about their business. LiDAR data processing services enable the electrical utility industry with the efficient planning and maintenance of electric networks. LiDAR classification also gives a supporting hand to the agricultural sector, by watershed delineation and crop assessment mapping using LiDAR point cloud data. This way, LiDAR classification and LiDAR data processing assists many industrial sectors in planning and making informed decisions.

**Typical LiDAR data processing services by
Geoid IT include:**

- LiDAR data processing of electrical utilities

- Watershed delineation using LiDAR data processing techniques

- LiDAR data processing of forestry area

- LiDAR data processing of agricultural features

- LiDAR data classification /point cloud classification

- LiDAR data processing of oil and gas networks

In addition, Geoid also provides the following services on LiDAR data :

- Data cleansing and noise removal

- Bare Earth & non ground LiDAR classification

- Generation of DTM and contours

- Vectorisation and feature extraction

- Image overlay and point cloud colourisation

Viewshed analysis :

Viewshed analysis helps users estimate the visibility of objects or areas from different points of view. The elevation value of each cell of the digital terrain model (DTM) is used to determine visibility to or from a particular cell. Viewshed analysis tools are useful when a user wants to calculate the visibility of objects — for example, the view of a cellular tower from a road.

Viewsheds can be derived using an individual point such as a tower or multiple points such as a line representing a road. These analyses could include colored representation of an image to indicate areas where the user may be missing some relevant data. Multiple images are required using Viewshed analysis because it is based on different angles of the same area so that all parts of the roads and infrastructure can be included in the analysis.

Viewshed analysis finds its use in various fields, including :

- Wireless telecommunication

- Construction

- Archeology

- Forestry

Geoid offerings :

Geoid provides Viewshed Analysis including the following services :

- Creation of Digital Terrain Model

- Derivation of Digital Surface Model

- Generation of Triangulated Irregular Network (TIN) surfaces

- Creation of buffer area based on circumference

- Calculation of distance between points

- Preparation of Viewshed maps with the specified radius around the object / area of interest.

- Cross section analysis at intervals around the object / area of interest.