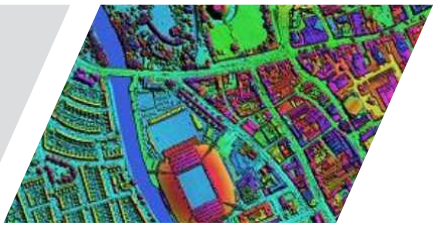
Weaverbird Engineering & Technology Pvt. Ltd.
(An ISO 9001:2015 Certified Company)
weaving smart information

Geospatial/ IT Services

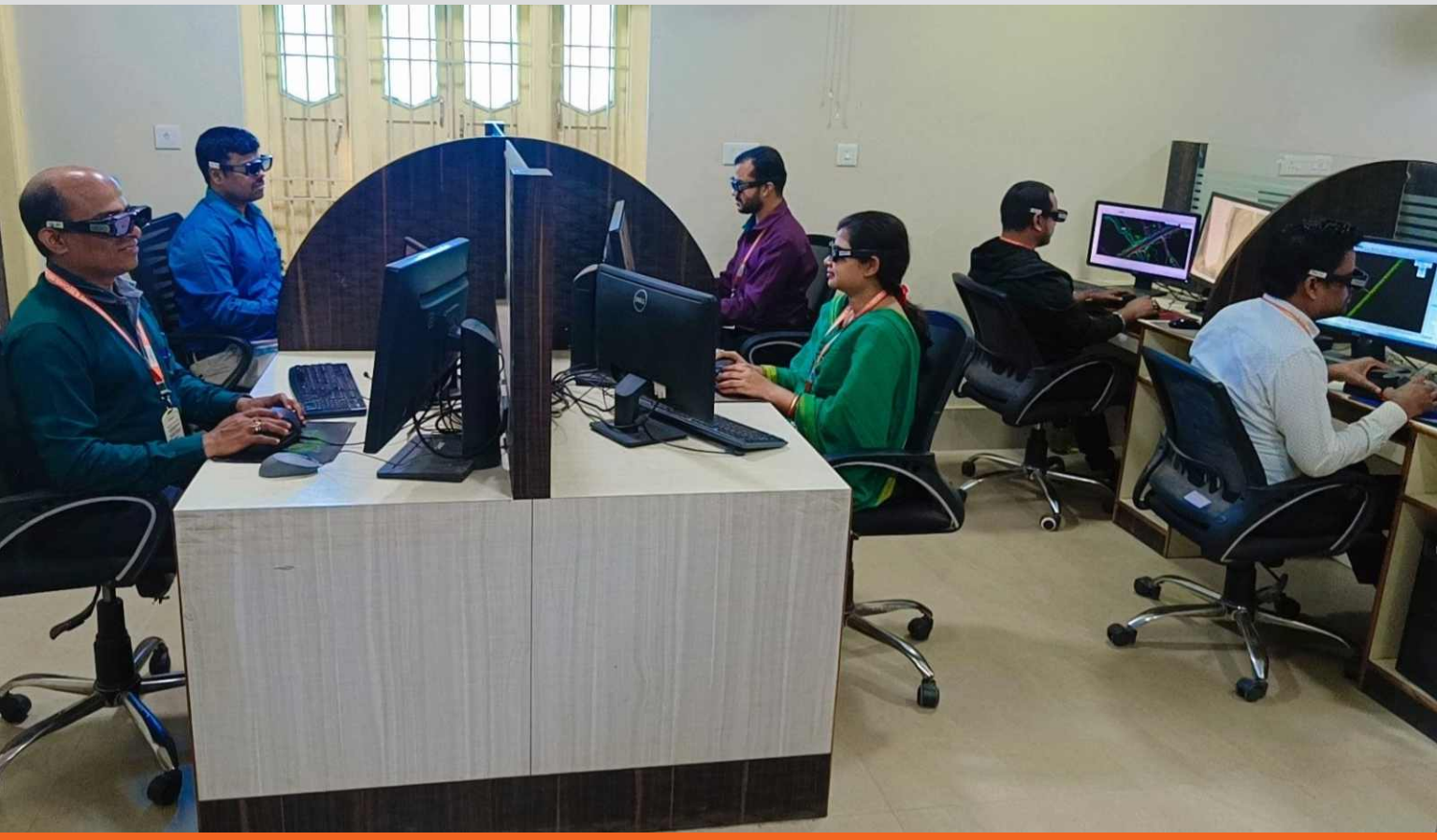


About WET

Weaverbird Engineering and Technology Pvt. Ltd. (WET), An ISO 9001:2015 Certified Company, registered with Software Technology Parks of India (STPI), is a young vibrant organization providing solutions in the domains of **Geospatial Services, MEP Engineering DESIGN - BIM Modeling - CAD Drafting Services** to global market since 2005. It is one of the fastest growing Geospatial and Engineering Services company in India. With customer-centric approach, striving to meet the rigorous quality & delivery schedules of its global clients, has enabled WET to render world-class solutions. Leveraging on the skills of its qualified & experienced personnel, equipped with the state-of-the-art infrastructure and backed by robust processes & systems, WET has been able to provide its clients cutting edge services. At the time when continual evolution has become vital for all organizations on global arena, we are completely geared up for the next level in Geomatics & Engineering Services domain.

WET Regional Office in Odisha

Photogrammetry



Services

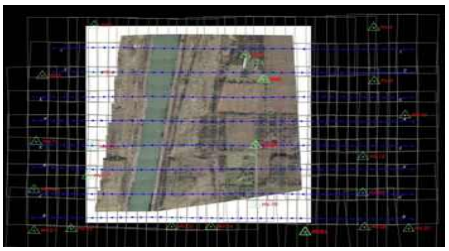
- Aero-Triangulation
- DTM / DEM / Digital Surface Modelling
- Orthophoto Generation/Ortho Rectification
- 3D Vector Mapping and Planimetric Mapping
- 2D Vector Mapping from Orthophotos

WET offers a wide range of high quality professional services in the Photogrammetry Technology. Applicable for Aerial Stereo Photos, Satellite Stereo Images and UAV/Drone Stereo Photography.

Photogrammetry

WET has an immensely qualified, well trained group to provide the full range of digital photogrammetry services and solutions - one of our prime focus areas in geographical services. We also have a group of highly qualified, well trained and skilled specialists who use the latest equipment and software available to provide the entire range of services in Digital Photogrammetry. These include:

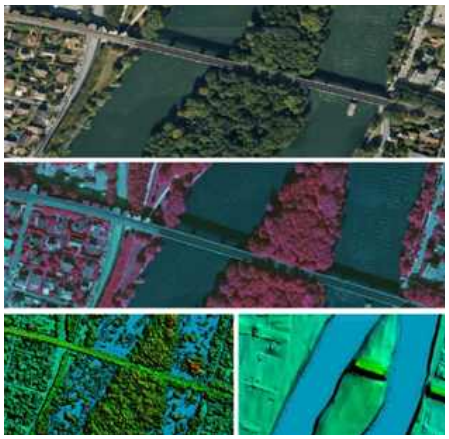
Aero-triangulation



- Aerial triangulation techniques are used to improve the accuracy of the INS/GNSS/IMU data of aerial images and positional sensor/orbital data of satellite images with the help of accurate ground control points collected by various survey methods.

- In combination with a minimum number of ground control points and adjoining matching image Tie Points, aerial triangulation delivers best fitting results on the ground for entire block of images.

- As shown in the image, the entire area's Aerial images are geo referenced with respect to some known Ground Control Points (GCPs). Only after this process the 3D measurement of the feature and terrain can be performed.



DTM /DEM/ DSM (Digital Surface Modelling)

Automatic, Semi-automatic and Manual terrain extraction with surface features and without surface features get extracted from aerial stereo images.

Orthophoto Generation

WET specializes in high-resolution orthophoto imagery production. An orthophoto is an aerial photograph/satellite imagery that has been geometrically corrected or 'ortho-rectified' such that the scale of the photograph is uniform. An aerial or satellite image is rectified with the terrain data to correct the lean and distortion due to terrain relief, and camera tilt and orientation.

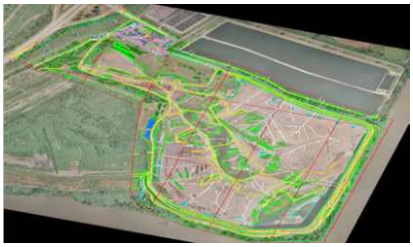
3D Vector Mapping and Planimetric Mapping

All project specific features extracted with accurate x,y,z coordinate on the earth from aerial stereo images. Like building outline, building ridge line, building highest elevation, roads, ditches, drains, bridges, ponds, rivers, dam, vegetation, trees, utility poles, manhole, catch basin etc.

Photogrammetry Projects

Planimetry & Altimetry Feature Extraction Project, USA

Scope - Feature Extraction from Aerial Stereo Images of Wild RC30 & other cameras to an accuracy of 0.1 ft, Contours at 1 ft interval by interpolating break-lines Mass Points and other Altimetry features



Cartography & Orthoimage Project, Canada

Scope-1 Meter DTM was created from LiDAR data to produce a seamless orthophoto mosaic of 0.1 Meter resolution from 15 Centimeter Stereo images of RCD30 camera. An ortho mosaic of 100 Sq. km created for this project.

AT/DTM/DSM/ORTHO Project, France

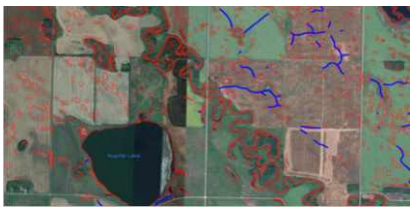
Scope-Seamless Ortho Mosaics of RGB & CIR images for each block in 10 cm GeoTiff, DTM & DSM for 0.5 m resolution GeoTiff

After the successful AT, automatic DSM is created and also edited to create bare ground earth DTM for the purpose of ortho-rectification. Final delivery of seamless ortho mosaics of Both RGB & CIR image were done for each block in 10cm GeoTiff. DTM & DSM also provided as 0.5 Meter resolution.

Wetland Features Mapping Project, Canada

Scope-All the wetland & clean water features from Aerial Stereo Images of 15 cm resolution from DMC Camera at an estimated mapping scale of 1:1000, capturing of drainages to create their data-base

In this project, all Wetland and clean water features have been collected from Aerial stereo images of 15 cm resolution from DMC camera at mapping scale of 1:1000. Different man-made drainages captured to create the drainage data base.



Integrated Lidar Mapping & Orthophoto Project, Kuwait 2019-2020

Scope: In this project, around 8000 Km2 area over Kuwait was covered for Aerial Photography and LiDAR Mapping. This is a Large Spatial Data Infrastructure Development and Asset management Project of a renowned Oil Company of Kuwait. The Target mapping scale was of 1:1000 and 1:5000.

Ontario Highway Mapping, Canada

Scope: In this project all highway feature are extracted as per the Ministry of Transport Ontario from 4cm Aerial Images. The outputs are DTM & Planimetry features at a Scale of 1:500 and 20cm Ortho Mosaics of each Delivery Segment.

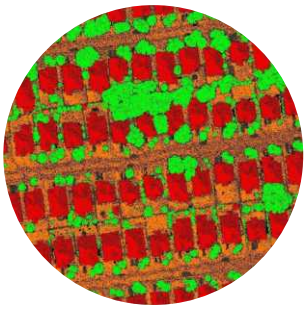
LiDAR Data Pre & Post Processing

LiDAR (Light Detection and Ranging) is a remote sensing method which is used for measuring the exact distance of an object on the earth's surface. This technology allows Mapping professionals to examine & analyse both natural & Man made features with precision accuracy.

LiDAR is used in a wide range of Land management services includes Forestry, Agriculture, Watershed Management & Geomorphological Mapping etc. Along with, it is highly instrumental in preservation of manmade assets such as Electrical & Highway etc.

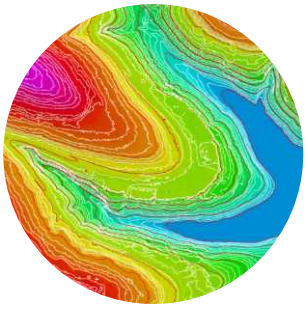
WET has expertize & experience in dealing with both **Airborne & Terrestrial LiDAR.**

Our gamut of LiDAR Services includes

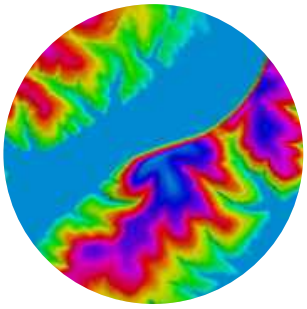


LiDAR Point Cloud Pre Processing & Post processing

Advance classification such as Building, Vegetation, Bridges, Hydro etc. (DSM)



Bare-Earth Product generation Such as Contour, DEM, Hill shade, TIN etc.



Bare-Earth Classification (DTM & DEM) with Hydro Break lines

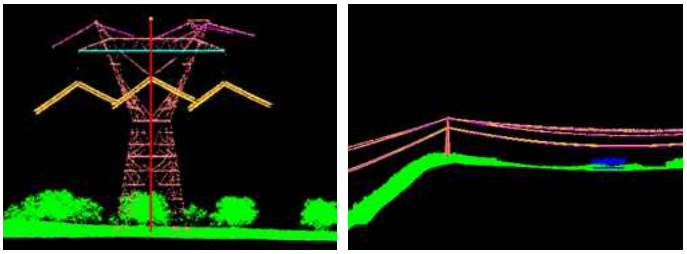
Corridor Powerline Classification, Vectorization & Catenaries Attachment

Highway Mobile Mapping

LiDAR Projects

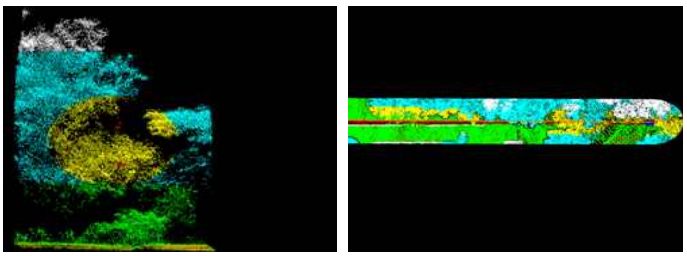
Electrical Corridor Mapping in Spain

Scope - Classification of all the Electrical Assets within a 100-metre corridor, including Bare Earth Ground, Roads &Waterbodies along with vectorization, Buildings & remaining Manmade structures, Placing of Tower cell at each tower locations and Placing of top & bottom points of Towers for measuring actual height of each tower.



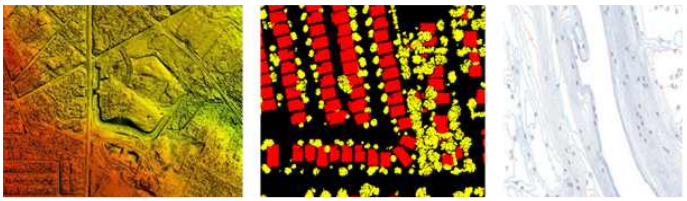
Electrical Corridor Vegetation Encroachment Mapping in Florida, USA

Scope - Mapping of vegetation-encroachment areas, alongside main power-line to ensure safety-distance.



Floodplain Mapping in Texas, USA

Scope - To Create High-resolution Elevation Data & associated products from airborne LiDAR Systems

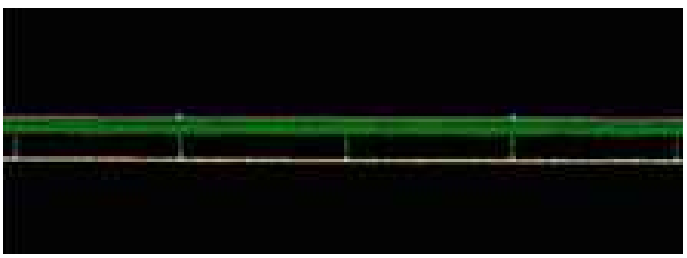


DTM Bare Earth & Advanced Classification Project, Netherlands

Scope - Classification of features such as Bare-Earth Ground, Slope, Buildings, Water Bodies & Civil Structures

Crash Barrier Mapping of UK

Scope - Plotting of 3D centreline of highway safety barriers, with ascertainign proper height. The prime objective of the project was to ensure Road Safety, Traffic Contril & Reduce Road fatality.



GIS Services

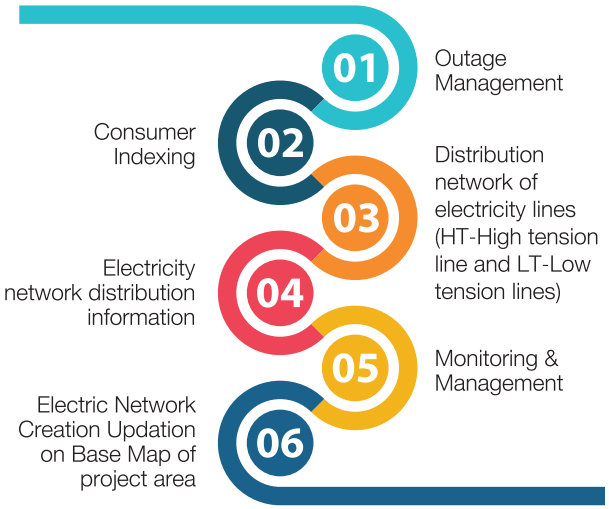
We're taking Geospatial Technology to Next Level in Applying Them In Multiple Spheres. As a Geomatics Service-provider, we create possibilities of geospatial technology in getting locational intelligence to serve a wide range of domains.

Our team is made up of talented & experienced individuals from various domains of Geomatics, those with their unique skills & experiences bring to you the very best services & solutions to solve some of the most complex geospatial challenges, in standalone or Full & Integrated-Project manner.

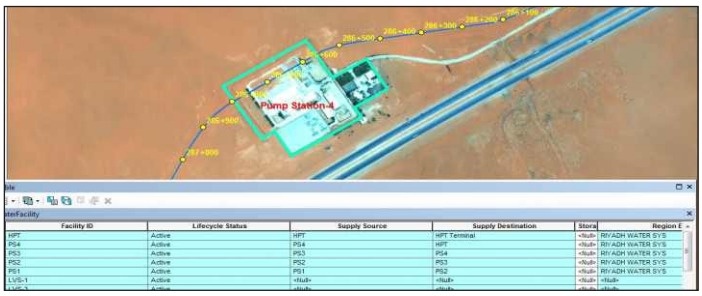
Utility Mapping - Telecommunication Network

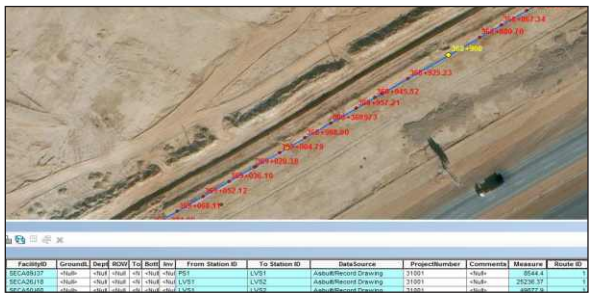
- Outage Management
- Telecommunication Network Creation/ Updation, Optical Fiber Cable (OFC) Network Monitoring & Management
- Data handling and Data Migration
- Capacity Planning & Demand Forecasting

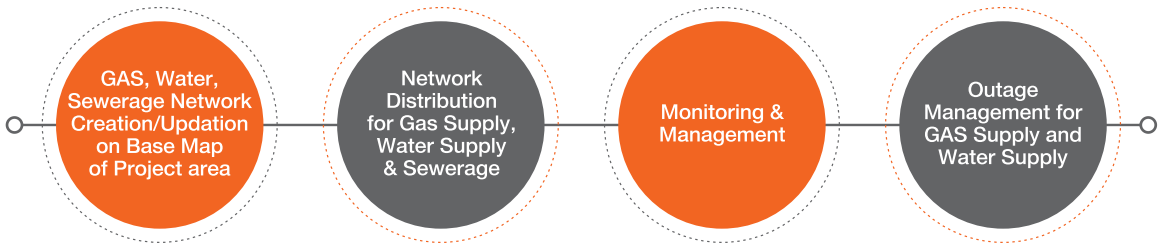
Utility Mapping - Electrical Network



Utility Mapping – Gas, Water, Sewerage







GIS Services

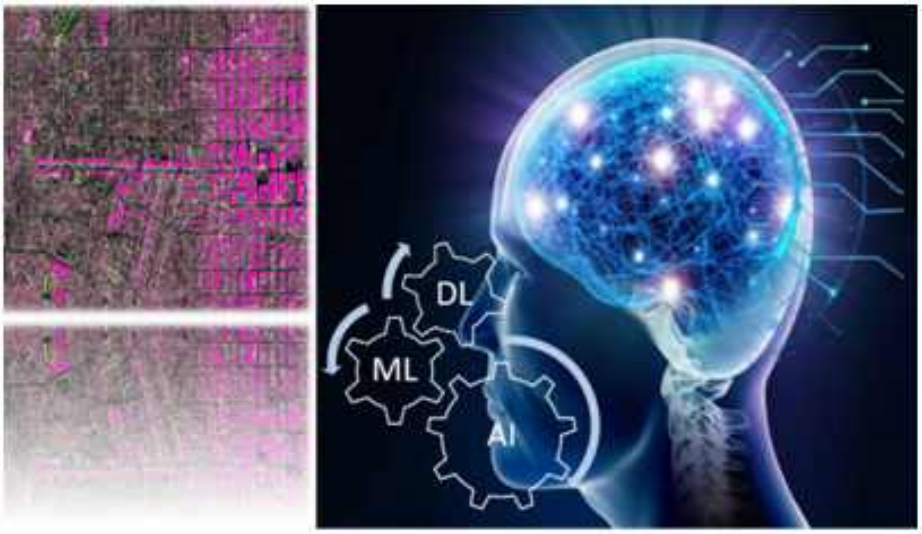
GIS Analytics

Location Based Data Analysis Applicable for:

- **Education Centers**
- **Hospitals and Health Facility**
- **Banking Facility and ATMs**
- **Business Centers**
- **Geocoded locations for GIS analysis**

Artificial Intelligence (AI)

Artificial Intelligence is a type of technology of making intelligent machines, especially intelligent computer program that enables machine to do cognitive processes. AI GIS is a combination of AI technology with various GIS functions, including spatial data processing and analysis algorithms (GeoAI) that incorporates
AI technology and a general term for series technologies of the mutual empowerment of AI and GIS.



Machine Learning is the core of artificial intelligence and deep learning is the hot research direction in the core. GeoAI includes two parts viz; Geospatial Machine Learning and Geospatial Deep Learning, which caters to

- **Geographic Data Mining(GDM)**
- **Optical Character Recognition.**
- **Artificial creativity and Computer vision.**
- **Virtual reality**

Disaster Management and Property Insurance

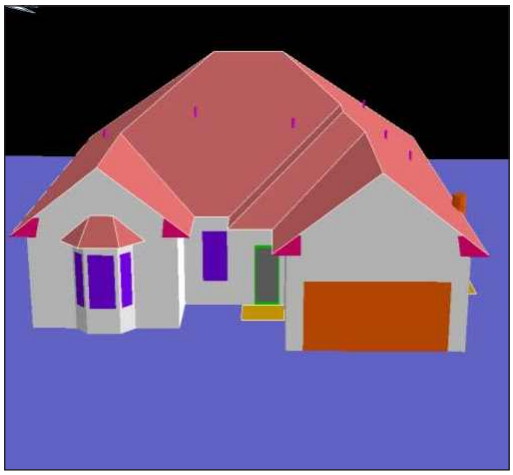
Under certain Natural Disaster Condition, there is an **"On Demand"** of the work to be delivered on a **war footing** manner. Hence, resources are to work in such a way that they can deliver the data to meet the insurance demand of the people on time. We have dedicated resources for this **on demand** Job.

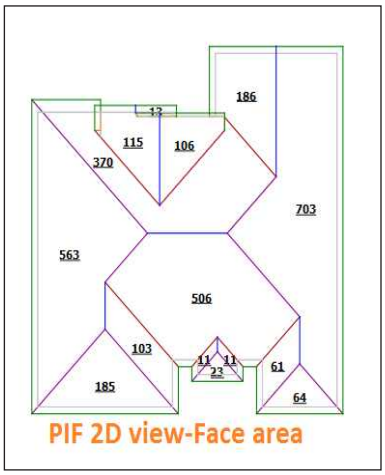
GIS Services

To measure the geometry of the structure and thus cost calculation for helping in quick settlement of insurance claims (Building Structure damaged due to Cyclone/Earthquake/Natural Calamities).

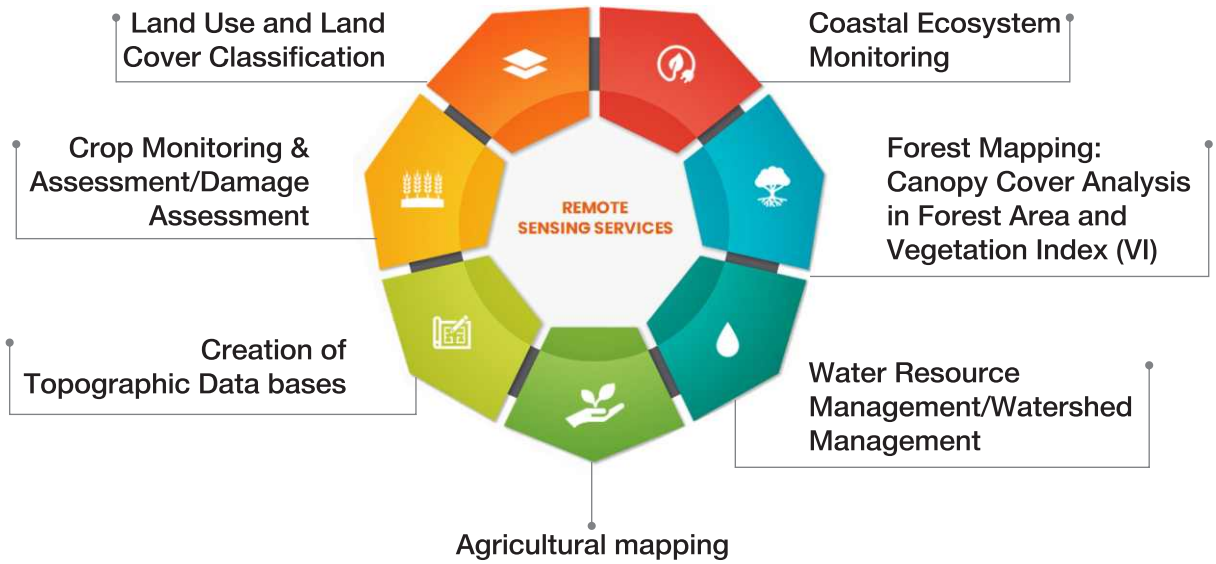
3D sketch creation of the Building/Structure along with collection of precise information of the property through following inputs:

- Ortho Imagery
- Oblique Imagery
- UAV/Mobile Imagery
- Blueprint of the Property to be Modelled





Application - GIS in Remote Sensing



GIS Services

Land Management, Land Records & Property Taxation

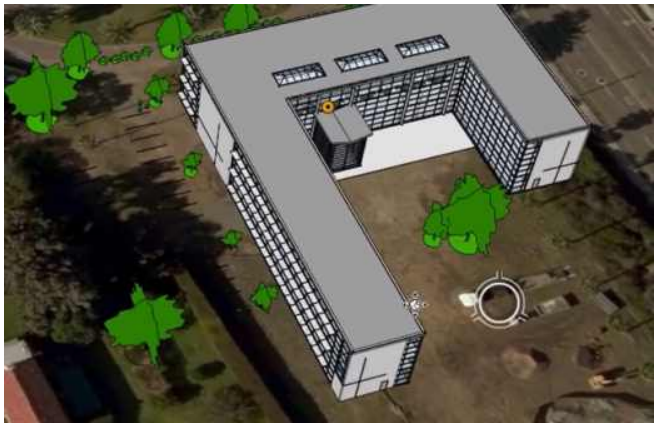
GIS-based modelling, visualization, collaboration & analysis, Land Management & Property Taxation become easy tasks.

GEO-BIM Services

BIM and GIS integration is the process of blending the BIM model into layers of the geospatial context. So, designers can use GIS to get the most accurate information about some areas where construction is to take place.

The use of BIM and GIS introduces a whole new spatial element to this smart and innovative industrialized construction process with one simple goal in mind – to increase the efficiency of the entire design and construction process.

As part of Geo-BIM services, WET delivers Geospatially positioned model along with BIM Model. It can be viewed in GIS platform superimposing with World Imagery.



GIS Consultancy

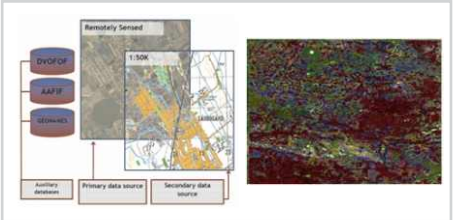
Geospatial Consulting Services are the one of the core domain expertise of WET. Having Experienced, Well qualified experts in the field, it provides consulting services for

- **All Domain of Geospatial Technology**
- **Natural Resources Management**
- **Utility Sectors**
- **IT Enabled GIS Services**
- **Site Suitability Analysis**

GIS Projects

Project -1:

GIS Mapping through Satellite Image for Multinational Geospatial Program



- The main purpose the project was to produce a 1:50K or 1:100K density spatial databases for specific cities.
- Collateral data sources to obtain vector's geometry or ancillary information to complete the attribute table (i.e. Google Earth, Open Street Map, Open Railway Map, Mapcarta,etc.)
- The creation of an up-to-date, modern in data content, almost word wide digital database to widely satisfy the emerging national and international needs, the fight against terrorism and other global tasks

Project -2:

Advance 3D City Modeling

- Creation of building footprints, ridgeline & crease lines using Ortho imagery.
- Creation of 3D sketch of Buildings using customized application.
- Categorization of Buildings based on Geometry & Window Type.
- Extraction of other information like Cladding Material, Construction Material & Roof Material of the Building etc.

Project -3:

Detailed Information Gathering & Layout Creation for Garden Style Apartment Complexes

- Creation of detailed layouts of garden style apartment complexes for the states viz; State of Colorado and State of Washington
- Digitization of map features from aerial imagery and creation of data model.
- Initial base map with building outlines have been updated with field data, collected from the field.
- On successfully capturing geometry and attributes for the features, referenced abovevalidation tools are run to check the completeness of geometry and topological validations. Attributes areincorporated as per the given data model.

Project -4:

Land Information System(NLRMP-India)

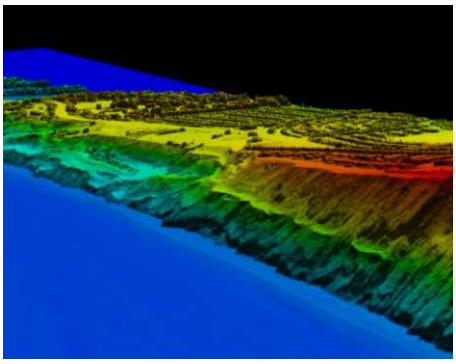
- Development of customized Land Information System.
- Digitalization of Cadastral Maps with specified layer, color &Symbology.
- Linking the vectors to database in Arc GIS Environment.

GIS Projects

Project -5:

Data Managing for Urban Tree Census by Incorporating Tree Data Conflation and High Resolution Optical Remotely Sensed Data- City of Los Angeles

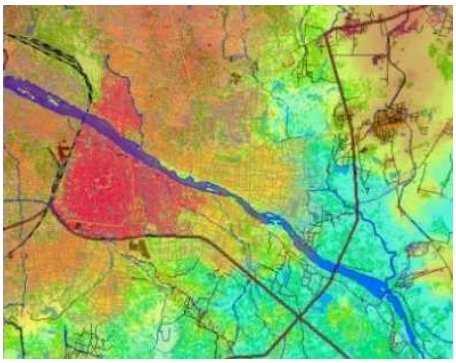
- Data contains 3 pairs of coordinate information, as well as address number and street name. No coordinate pair set is complete.
- All points created from Lat/Long pair as a starting point. 216,043 have 0,0
- X_original/Y_original coordinate pair is second location source to use
- Drgxcoord/Drgycoord coordinates pair? If real coordinates.
- Last method to match address components in geocode process “Locunit, On_strt”. Geocode to parcel directly, then to centerlines.
- Remainder without address parts (Manual Review)



Project -6:

Telecommunication Network Planning

- Land Use/ Land Cover Database preparation
- Vector/ Linear Infrastructure
- Village Location Database
- Administrative Boundary
- Telecommunication Network Planning



Project -7:

Utility Mapping for Gas and Water

- Vectorization of Gas and Water pipelines on the pre-digitized ground cadastre maps as per the dimension
- Review and analysis of input Field surveyed data to align the local Georeferencing data into UTM coordinates

Project -8:

Capturing of 2.5 D Building Footprint and Building Attribution from Street View/open source

- 2D building footprint capturization and give the building attribution like Building Type, Roof type, Roof Material, Wall Material

IT Based GIS Solution & Services

WET has deeply studied all the activity areas in Educational Institutes, viz; Manual Maintenance of School records and increasing work load on teaching staff and nonteaching staff, getting Real time data on Students related to enrolment, drop out, attendance, performance, CCE reports and Teachers attendance, Syllabus, Resource planning, budget etc. This creates an operational difficulty at institute level to go for a centralized planning and information sharing process. To resolve the problems enumerated above, WET caters for building tailor made applications depending upon the individual institute's requirement. Application will be mostly used in day to day

- School Management System
- College Management System.

IT based Solution/Services Offered:

School/College Management Software (SMS/CMS)

Basic Module

- Admission Management
- Student Management
- Fees Management
- Attendance Management
- Library Management
- Examination Management
- House and Activity Management
- Time table Management
- Accounts Management
- Inventory Management
- Syllabus Management
- Housekeeping Management
- Front Office Management
- Question Paper Generator
- Session End Processing Management

School/College Management Software (SMS/CMS)

Advance Module

- Transport management
- HR and Payroll Management
- Budgetary Planning and Management
- Security management
- Infirmary Management
- Configuration management
- Hostel Management
- Canteen Management and Meal Plan

WET Focuses on IT Development from Grass Root Levels

IT Based GIS Solution & Services

Salient Features: • User friendly interface requiring minimal learning and IT skills. • Centralized data repository for trouble-free data access with proper authentication • Designed in scalability approach • Availability of microscopic as well as macroscopic views • Designed to provide class information and analytical reports

Benefits : • Cost-effective and One point solution for total school/college management • Better organization of school/college activities • Increasing and Effective communication between teachers, parents and students • Processes Automation and Elimination of people-dependent processes • Timely managing the institutions recordsl • Generation of timetables with dynamic substitute management • Best possible resource optimization

IT based GIS Solution offered:

Location based Services

- Manage Schools and upgradation requirement, so as to limit distance travelled by students.
- Manage Public Health Centers, based on limiting distance that people need to travel.

Facility Management

- Optical Fiber Network/ Telephonel Line etc.
- Public Notification System
- Optimization of Distribution of Network
- Augmented reality for better Management.

Resource Managegmt

- Labour Management, so that no one need to wait at labour chowk for work
- Managing Distribution/Collection of Blood /Life Saving Medicines/ Dustbin/Saplings etc.

Energy Management

- Solar Panel Design Application.
- Lidar based Power line obstruction Mapping

Crop Management

- Deciding Best Crop based on Soil, Climate and Water Table condition etc.
- Best Market price of crop in the nearest locality and intimating Farmers through SMS

GIS Application Development

- GIS Application Development on top of GIS COTS Product
- Mobile based App Development - Android, i Phone and Windows

Time Management

- Calendar Like Mobile App. Daily/ weekly/ Monthly View of appointments and sharing with friends/ Family
- Device Tracking for Time Management

Database Design

- Spatial Database Design, Modeling & Development
- Solutions based on industry standard development environments and Service-Oriented Architecture (SOA) or as multi-tier architecture

Geospatial Services

- **Photogrammetry**
- **LiDAR Services**
- **GIS Services for**
  - Utility Mapping
  - GIS Analytics
  - Artificial Intelligence (AI)
  - Disaster Management and Property Insurance
  - Application - GIS in Remote Sensing
  - Land Management, Land Records & Property Taxation
  - GEO - BIM Services
  - GIS Consultancy

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