Trident3DAnalyst

Software written and produced by Geo3D Corporation

The Trident-3D Analyst is a software package which is used to analyze and interpret georeferenced digital imagery data. This package enables the user to perform measuring and surveying functions from data collected with an ICC vehicle. Users can collect data and images at highway speeds then perform their analysis in an office environment. The software has been optimized for asset management and feature extraction. It is an extremely safe and cost effective way to obtain accurate data for transportation planning, construction, utilities, municipalities and pavement management.

The ***Trident-3D Analyst*** software component is used to extract the inventory information as per the client's requirements. This application provides a user interface for positioning geographically any visible element shown on captured imagery and a method for performing measurements (distance, surface, volume).

The use of stereo photogrammetric algorithms enables the determination of geographic positions of any visible object from a conjugate pair of image pixels. *Only one camera sequence is necessary to position objects.*

Prior to beginning data extraction, equipment installation and configuration parameters on the vehicle should be specified in the data extraction software.

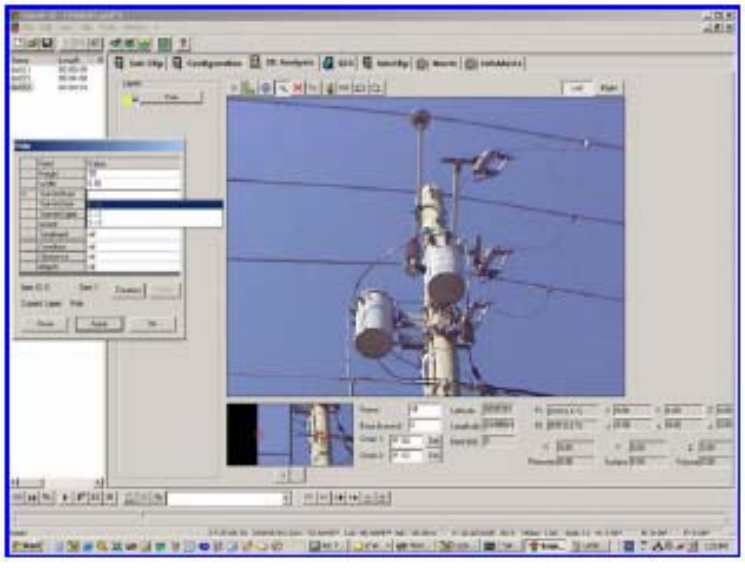
The database model reproducing the GIS layers must also be structured within the ***Trident-3D Analyst***. This implies that the client will have identified the type of data required prior to initiating the field survey, as well as the types of data layers required and the attributes associated to each data layer.

Geopositioning consists of first drawing a GIS object (point, polygon or polyline) onto the images using stereo windows. To position this electric pole, for instance, the 'pole' data layer is selected. The cursor is first positioned on the electric pole on the left image. A permanent zoom feature displayed at the bottom of the screen enables the user to position the object with greater accuracy. After having clicked on the left image, the right image appears automatically on the screen to complete geopositioning. The pre-configured form also appears automatically to specify the attributes associated to this object.

A tool is also available to measure objects in all 3D axes. Length, height, slope, surface area, perimeter and volume measurements associated to elements visible on a pair of images are performed in relative mode. Dimensions can also be transposed to fields specified for such purposes.

Other features or options are now available with ***Trident-3D Analyst***, including:

- Data export (data layers, attributes, and images associated to each element) once the inventory has been completed to a geographic information system (GIS). Data layers are generally transferred in .shp file format to the GIS while images are exported in .jpg format. Map layers can also be transferred into different map projections.
- ODBC connectivity now available for users to connect directly to MSAccess, SQL Server, Oracle, etc.
- Selected imagery may be incorporated in a report, a PowerPoint presentation, copied onto a disk or transferred by electronic means.



INTERNATIONAL CYBERNETICS CORPORATION

P.O. Box 17246 • Clearwater, FL 33762 • Phone 727.547.0696 • Fax 727.546.8633 • Web www.internationalcybernetics.com

Applications

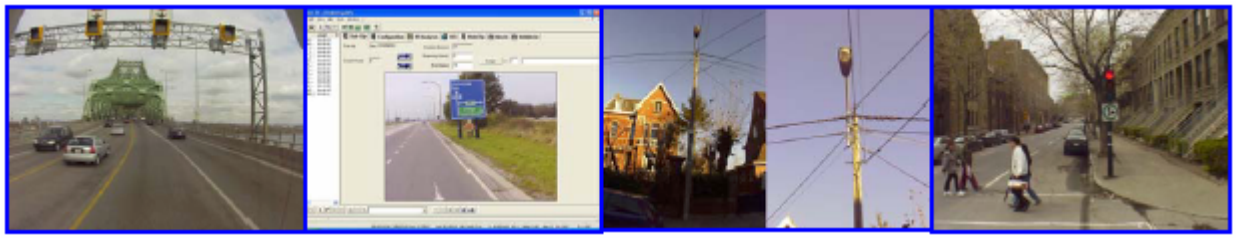
Used for Roadway Asset Management for the following industries:

- Transportation
- Utilities
- Municipalities
- Security
- Emergency and other fleet vehicles

Turn-Key Projects

Interface Features

- Roadside Digital Video Imagery
- Object Positioning
- Capture of Descriptive Information
- Length, Height, Surface & Volume Measurements
- Multidate Comparison
- On-screen 3D Viewing



Specifications

Input file format

- Image file: JPG
- Position files: GPS (proprietary) or DBF
- Layer files: DBF, SHP, L3D (proprietary) or ODBC

Output file format

- Image file: JPG
- Position files: DBF, SHP or GPS
- Layer files: SHP, DBF, L3D, BMP or ODBC

Coordinate systems and projection

- Latitude/Longitude WGS84
- UTM – Universal Transverse Mercator
- Others added as required.

Data extraction tools

- GIS Layer creation
- Layer data model definition interface
- Layer data entry form definition interface
- Layer links to ODBC data sources tables
- Layer types supported: Points, Polygons, Polylines
- 3D Measurement tool
- Zoom tool and permanent zoomed windows

Camera Orientation and Setup

- Single or dual camera system supported
- Camera installation angle from –180 to 180 degrees
- Camera – GPS lever arms configuration
- Camera roll, pitch installation configuration
- Camera interior orientation definition interface

Image filters

- Rotation clockwise & counter clockwise
- Brightness
- Contrast
- Contrast stretch
- Histogram equalization
- Others

Overview Map

- Input layers: SHP or BMP
- Coordinate system: Lat-Lon
- 2D Measurement tool
- Point object creation
- Tracking layer
- Zoom, Pan tools
- Objects query tools

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