GeomaticTechnologies

Geomatic Technologies AIMS Mapping & Inspection Solutions

Geomatic Technologies photogrammetric mapping and visualization system

Above: A diesel locomotive fitted with the AIMS digital mapping system.

Right: A screen shot of the AIMS digital mapping system.

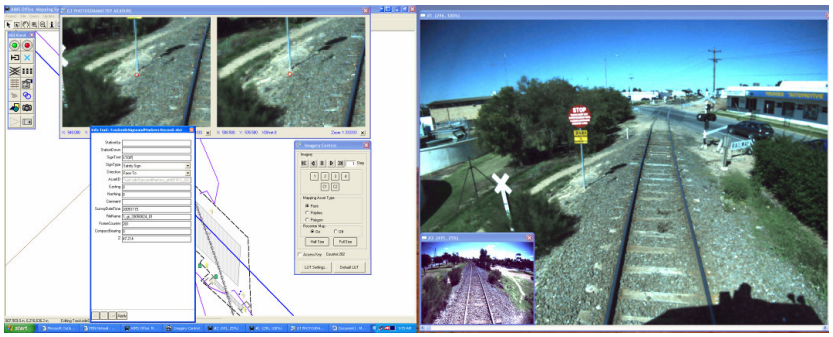
Geomatic Technologies (GT) Asset Inspection Mapping Systems (**AIMS**), represent a leading edge solution to the demands made by Rail, Power and Road Utilities for high speed field data collection. Linear infrastructure networks are particularly well suited to mapping "at speed" from utility vehicles equipped with positioning devices and professional digital camera and computer equipment.

AIMS applications are currently deployed on track vehicles operated by several Australian Rail agencies.

AIMS offers utilities a rapid, cost effective, high value solution to the requirements of large scale asset mapping audits and inspections.

assets are able to be photographed and coordinated from digital camera equipment mobilized on utility track vehicles. A post-processing operation links the digital images to track centreline nodes such that assets can be captured with all manner of chainage and coordinate information.

Project specific attribution forms are configured to prompt users to fully describe the asset once it has been coordinated and the results are stored in a database for easy import into client asset management and geographic information systems. When configured for inspection work cameras are orientated to the rail head and 4-foot environment.



The positioning equipment mobilized with AIMS typically comprises of GPS and inertial systems including running distance encoders and heave/pitch/roll sensors to supplement the capture of track centreline and geometry data through areas of poor GPS reception. Up to 9 digital cameras have been installed on a single AIMS application.

The principles of stereo-photogrammetry are employed in a post-processing routine to compute the coordinates of assets visible in successive image frames. Track centreline and curvature data is generated through a Kalman filter process that integrates all positioning sensors.

Assets associated with rail and road networks are in the vast majority located in close proximity to the network itself (unlike a power utility's assets for example that are distributed throughout their customer network). Due to this track proximity, rail

AIMS is also capable of the following:

- Merging of multiple spatial data capture formats (GPS, videos systems, inertial systems, laser ranging, attribute information) into a single collective environment.
- Configuration and customization for handheld devices (PDA's, mobiles).
- Installation and management of these environments on any platform (rail, airborne, handheld, vehicle).
- Cross referencing to existing mileage database.

Above: An operator is mapping using the mobile version of the AIMS software.

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