AVIsor

Adaptive Visualization of Safe Optimized Routes

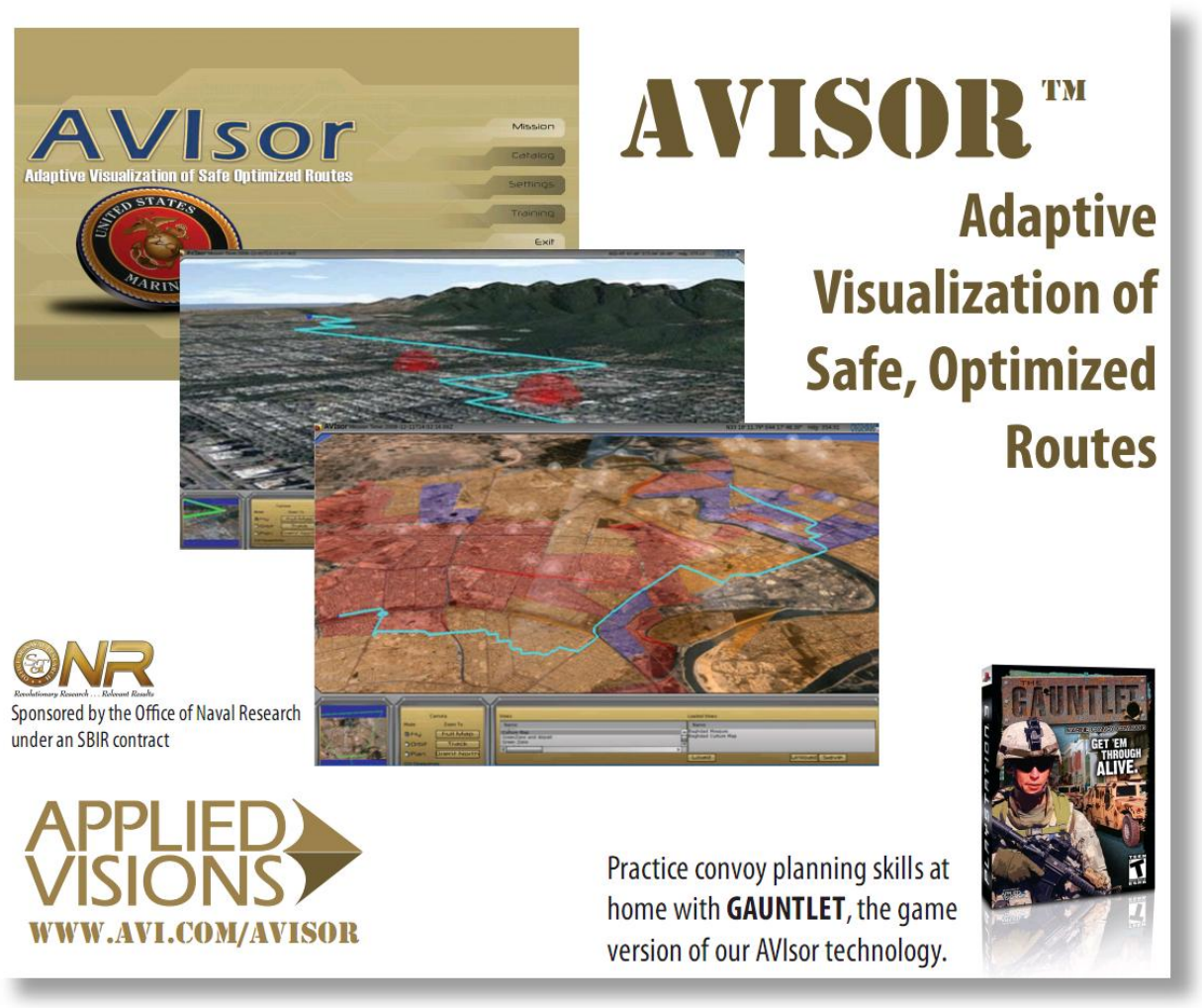
Help Convoys Get Through Safely

Getting from point A to point B in any crowded urban environment is challenging. To do so in an unfamiliar hostile battle space while taking multiple factors into account is fraught with risk. Yet this is precisely the task facing military convoy route planners. Planners must take into account relatively static knowledge, such as convoy vehicle physical capabilities, terrains, roads and population density, and also dynamic information including local civilian behavior, damaged infrastructure, and weather that can occur prior to and during plan execution.

Complex risk factors complicate the planning process. Few experts may understand the impact of cultural and social mores. Second, route planning has to be performed despite 'gaps' in intelligence, including missing information and varying reliability and accuracy due to the source. Third, route planning in hostile territory usually involves weighing options against costs.

TECHNOLOGY DESCRIPTION

AVI is developing an *Adaptive Visualization of Safe Optimized Routes (AVIsor)* based on advanced artificial intelligence, terrain reasoning, and visualization technology adapted from the computer gaming market. AVIsor will provide route planners with an unprecedented level of situational awareness, identifying routes and concomitant planning factors in 3D along with accurate National Geospatial Agency (NGA) derived terrain and feature data.



AVIsor provides an intuitive and interactive 3D visual environment using computer game technology to help convoy planning and allow real-time re-planning based on unfolding events.

AVIsor Features and Functions

AVIsor is a decision support tool that gives route planners a tactical advantage in the movement of convoys through complex urban environments. Topographic, satellite, road, and human terrain data are each represented in georeferenced 3D to improve route selection.

AVIsor presents a full real-time 360-degree view of the battlespace, providing situational awareness far superior to that currently available. It reduces the time to identify alternative routes, and to weigh costs and risks among those alternatives. During mission planning AVIsor can be used to help coordinate logistics operations by taking into account load time, vehicle weights, convoy queues, and depot locations.

Enhanced situational awareness Move the 3D viewpoint anywhere in the theater, select waypoints, and rapidly consider route origin and destination alternatives. Route planners can rapidly switch from one locale to another based upon unfolding battlefield events, such as IAD reports, weather.

More informed route selection Uses sophisticated game-base AI/path finding to calculate and display information needed to optimize route safety and provide feasible contingency routes for a given mission.

What-if support for mission planning AVIsor allows "what if games" using time-distance calculations, travel constraints such as day/night, road type, exclusion areas, choke points, and desired arrival times.

Minimize Fog of War Data filtering enables users to minimize clutter to view and analyze battlefield elements by geography, cultural influence areas, political cost factors, predicted traversal time, travel priorities, and terrain type.

Uses real-world data Calculates optimized safe routes using human terrain data such as that provided by U.S. Army's Human Terrain Systems group. E.g., forecast sundown traffic surges during Ramadan in predominantly Muslim regions.

Faster training AVIsor is built with computer gaming technology. Its look and feel is second nature to today's generation of warfighters; they get hands-on right away and learn quickly. Effectiveness is further enhanced by also providing a training version – *Gauntlet* -- using the same "serious games" technology framework.

Affordability AVIsor makes maximum use of open-source software tools, including the Delta3D gaming engine and OpenSceneGraph libraries. AVIsor runs on standard commercial-grade laptops and PC's.

Flexible data interface Can be easily adapted to various data feeds including the Joint Command, Control and Collaboration Interface Exchange Data Model (JC3IEDM), Cursor on Target (CoT) and Service Oriented Architectures such as NCES.

High-quality NGA products AVIsor displays a full 3D view from NGA-derived terrain and feature data. Standard map/road data uses same sources as Google Earth and ESRI.

About Applied Visions, Inc.

Applied Visions provides software engineering, product development, and research services for government and commercial customers. AVI specializes in visual solutions to complex defense, national security, information security, infrastructure protection, financial and business problems. AVI serves the Navy, Air Force, Army, DARPA, DHS, the intelligence community, and prominent technology, financial, and Fortune 1000 firms.

For More Information on AVIsor:
AVIsor@avi.com
1-631-754-4920