Northrop Grumman and Applied Minds

Touch-Screen Mapping for Intel and Defense

Problem

Ability to quickly make decisions within a group environment to reach consensus for a course of action.

Goals

- Integrate large amounts of data.
- Analyze data in a group environment.
- Make decisions quickly.

Results

- View data in a 3D perspective.
- Manipulate data interactively.
- Integrate large and varied datasets.

"The Touch Table is revolutionizing the way geography and mapping are used in mission-critical situations. The Touch Table restores the ease of using a paper map, with all the benefits of GIS."

Sean Love, Northrop Grumman Mission Systems

Overview

As one of the world's foremost systems integrators, Northrop Grumman is known for its ability to master the largest, most complex systems challenges for its clients in the defense and intelligence industries. When a member of the United States intelligence community needed to find an innovative solution for command and intelligence systems, Northrop Grumman contacted its strategic partner, Applied Minds, Inc. Applied Minds is a research and development company led by Danny Hillis, the inventor of the "Thinking Machine," the first scalable computer. Together, the two companies took on the challenge to provide an innovative solution to the defense and intelligence industries for enabling quicker, better decisions.

The Challenge

Those in charge of making decisions in the face of an imminent threat are always looking for better ways to organize, display, and analyze data including raster and satellite images, cadastral layers, building footprints, and trackable assets such as emergency response vehicles. Historically, geographic information system (GIS) technology has provided a common framework for many types of data by linking it to a common location. The old adage "Better information leads to better decisions" is true for GIS. A GIS is not just an automated decision-making system but a tool to query, analyze, and map data in support of the decision-making process.

Northrop Grumman and Applied Minds' client needed an easy way for commanders to view and analyze integrated spatial data as well as reach consensus on a plan of action quickly. Mission commanders needed mapping and GIS analysis made as intuitive as possible for their mission-critical applications, going beyond the traditional data viewing and analysis in existing GIS applications.

Learn more about ArcGIS 3D Analyst featuring ArcGlobe at **www.esri.com/3danalyst**.

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Touch-Screen Mapping for Intel and Defense

ESRI Software Used

ArcGIS Engine
ArcGIS 3D Analyst featuring ArcGlobe

Hardware

Two PC workstations
Two plasma displays
LCD projector (1600 x 1200 resolution)
Matte, white powder-coated,
   1/2-inch thick, aluminum surface
Touch Table support: 3″ x 3″ black
   powder-coated steel tubing

For More Information

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The Solution

Applied Minds, Inc., in collaboration with Northrop Grumman, created the Touch Table for ESRI's ArcGIS® 3D Analyst™ ArcGlobe™ application. ArcGlobe was chosen since it is the only software of its kind that allows users to see, manipulate, and analyze the earth in a global to local 3D perspective. The Touch Table is a horizontally mounted, large-format, touch-enabled display that is driven by a 1600 x 1200 LCD projector.

The Touch Table is revolutionizing the way geographic data is viewed, manipulated, and analyzed. Instead of viewing data at eye level on a screen, users look down at the table, as if viewing the world from space. Users interact with data on the table through an intuitive touch-sensitive interface to ESRI's ArcGlobe instead of through a menu system that could become cumbersome for those not familiar with the software. For the first time, the Touch Table provides real-time collaborative GIS through an intuitive natural interface.

This product takes the touch screen to a whole new level by giving everyone access to the data. Interacting with the Touch Table is much like working with a paper map. Users manipulate objects to provide collaborative input for decision making. A computer interprets the location of the hand movements on the table surface and updates the projected map image in real time. Users can perform single-touch data source queries or history recalls, turn data and group layers on and off, zoom to predefined locations, set data classification levels, and lock the screen display. Since no one person controls a mouse or digitizer, anyone using ArcGlobe on the Touch Table can manipulate the data simply by touching the table.

Having this data available by touching the screen is invaluable to Northrop Grumman and Applied Minds' clients. Historical perspectives of data are easily shown by manipulating the transparency of current data layers that are draped over older versions of data layers. Anyone from high-level commanders to data analysts have access to the same information with little training needed, since there are only a few commands to learn instead of a comprehensive menu system. For the first time, the Touch Table offers real collaborative problem-solving and decision-making support.

Results

Northrop Grumman and Applied Minds' clients have been very impressed with the Touch Table for ArcGlobe. "The Touch Table is revolutionizing the way geography and mapping are used in mission-critical situations," says Sean Love, Northrop Grumman Mission Systems. "It facilitates viewing and manipulation of complex data so strategists can concentrate on the mission, rather than on how to manipulate the display. The Touch Table restores the ease of using a paper map, with all the benefits of GIS." The possibilities for the Touch Table are endless for city, county, regional, and national leaders looking for an easy-to-use, collaborative analysis and spatial decision-making tool for defense and intelligence. A smaller version of the Touch Table, as well as the capability for real-time collaboration across networked tables, is in development. The Touch Table will allow multiple sites to view and work with data regardless of where they are located. Display changes made at one table will be immediately reflected on all other networked tables, depending on available bandwidth. The Touch Table will finally allow all interested individuals and groups to work together in an innovative digital sandbox.

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Information Technology

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