

# Information

## **DARPA Successfully Completes 3D Holographic Display Technology Demonstration Program**

March 24, 2011

Many of today's conflicts occur in urban settings, making the ability to visualize conditions in urban areas increasingly important to commanders and mission planners. The Defense Advanced Research Projects Agency (DARPA) recently completed a five-year program called Urban Photonic Sandtable Display (UPSD) that creates a real-time, color, 360-degree 3D holographic display to assist battle planners. Without having to wear 3D goggles or glasses, a team of planners can view a large-format, interactive 3D display. Until now, two-dimensional, high-resolution flat panel color displays and 3D static monochrome images have been the most advanced visual planning tools available.

UPSD assists team-based mission planning, visualization and interpretation of complex 3D data such as intelligence and medical imagery. It permits simultaneous viewing for up to 20 participants and is interactive, allowing the image to be frozen, rotated and zoomed up to the resolution limit of the data. The holographic display enables full visual depth capability up to 12 inches. The technology also enables realistic two-dimensional printouts of the 3D imagery that front line troops can take with them on missions.

UPSD is based on full-parallax technology, which enables each 3D holographic object to project the correct amount of light that the original object possessed in each direction, for full 360-degree viewing. Current 3D displays lack full-parallax and only provide 3D viewing from certain angles with typically only three to four inches of visual depth.

Presently UPSD is a scalable display platform that can be expanded from a six-inch diagonal size up to a six-foot diagonal, in both monochrome and color formats.

UPSD is part of DARPA's broader efforts in 3D technology research. DARPA recently demonstrated a wide-area 3D LIDAR (Light Detection and Ranging) mapping capability under DARPA's High Altitude LIDAR Operations Experiment (HALOE). HALOE is providing forces in Afghanistan with unprecedented access to high-resolution 3D data, collected at rates orders of magnitude faster and from much longer ranges than conventional methods. UPSD's 3D display can support the rapid exploitation of this data for detailed mission planning in rugged, mountainous and complex urban terrain.

DARPA is initially transitioning the UPSD technology to an Air Force research center and two Army research centers to apply the technology to critical applications where the 3D holographic display will provide a unique benefit.

Zebra Imaging of Austin, Texas, was awarded the initial contract in 2005 and has researched and developed the technology.

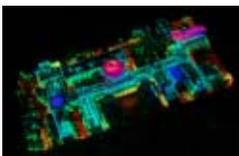
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## Media Queries

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## Image



DARPA's Urban Photonic Sandtable Display (UPSD) creates color, real-time, 3D holographic displays with up to 12 inches of visual depth. The technology enables 360-degree viewing by a team of 20 people without 3D glasses or goggles. This image is an example of the two-dimensional representation warfighters could use in the field once planning is complete. The various colors represent the altitudes of each building segment.