



Virtual World Using Video Game Technology for Real-World Training



China Lake, CA (Naval Air Warfare Center) -- Technology similar to that used for making video games is used to create virtual worlds--accurate representations of real places. At a Navy virtual prototype facility, a soldier can sit in a life-size model of a Humvee and "drive" through different parts of a virtual but reality-based environment. This technology can be used to train military personnel for difficult missions. The technology can also portray real-time information in a realistic virtual environment to help military personnel respond to threats in real time. This approach can save lives and money.

"It's like a very large video game. It's almost a real-time strategy game except that it's the real world."

Stephen Miller, electrical engineer

Framework	Standards
Middle School	<ul style="list-style-type: none"> STL - 2.N ➤ Systems thinking involves how parts relate. STL - 3.E ➤ Systems may be applied to other settings. STL - 17.H ➤ Communication systems transfer information from human to machine and machine to human. STL - 17.J ➤ Messages are designed.

Content Illustrated

- Coordinating and integrating many kinds or sources of data and information.



Content



Earth & Space Science

- Exact locations (latitude and longitude) as well as topography are represented precisely in the virtual prototypes.

Technology

- A soldier can sit in a life-size model of a Humvee and “drive” through different parts of a virtual environment using a computer. Realistic representations of environments are included so that virtual missions (e.g., in Baghdad) can be run.
- The virtual prototype facility creates simulated environments, much as in a video game. Events can be simulated, like a real-time strategy game, except that all events (such as fires), things (ships and trucks, for example), and places represent real ones. The display is very large and projected on several screens.
- There are interchangeable consoles. The Humvee dashboard and steering wheel can be physically replaced with a replica of a plane’s cockpit.
- The simulation is supported by a large database that has information about the real location. The latitude and longitude depicted by the simulation corresponds to real buildings and roads in that actual location. During a demonstration event, fires, smoke, atmospheric conditions, and people walking can be added.
- UAVs are small unmanned aerial vehicles that send real-world visual and other information to the virtual prototype facility.
- The Internet can provide easy-to-access tools for creating video games at home.

Engineering

- Real data are used with actual conditions and effects to train soldiers.
- Engineers are working on ways to bring real-time information from UAVs to the virtual environment so that operators can respond to threats in real time.

Math

- Coordinates.

Guiding Questions

To think about as you watch:

- What real-time data could be used to make the virtual facility and programs more useful?

Suggested Activities

- Research how video games are made. Investigate programs that help you create your own video game.
- Identify what elements should be included in a game to make it feel real.

➤ *Virtual World* can be found online at www.ndep.us/Virtual-World. Visit www.ndep.us/LabTV for a list of process skills modeled in webisodes.

Keywords

Humvee
latitude
longitude
unmanned aerial vehicle (UAV)
virtual prototype
video game
technology