



tech briefs

Westinghouse Savannah River Company

The next generation of process control

OmniVu™ Process Control System

at a glance

Presents plant operating data in a virtual reality world

Can lead to reduced energy usage

Can result in longer equipment service life

Should be attractive to next-generation plant operators

Market to grow 5 percent annually to \$57 billion in 2006

U.S. Patent 6,289,299 may be seminal

European patent pending

for more information

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OmniVu™ is a trademark
of Westinghouse Savannah River Company.

The patented OmniVu process control system enables plant operators, managers, engineers, technicians, and other personnel to view the dynamics of a real-time process within an interactive virtual reality world. Linkages among interdependent operating parameters are displayed. Parameters may be quickly changed to optimize operating system efficiency in real time.

Virtual reality opens up possibilities

Virtual reality is widely used in the gaming industry. Other uses include warfare simulation, submarine training, surgical simulation as well as actual neurosurgery, dissections, architectural modeling, treatment of mental illnesses, and "virtual heritage" (for the preservation of monuments and historic sites).

Current process control systems are two-dimensional

Many entrenched suppliers provide process control automation systems including Rockwell Automation, Honeywell, ABB, Intellution, GE Fanuc, National Instruments, and SAS. The use of interactive virtual reality to implement process control is not an option provided by currently available systems.

Market growth projected

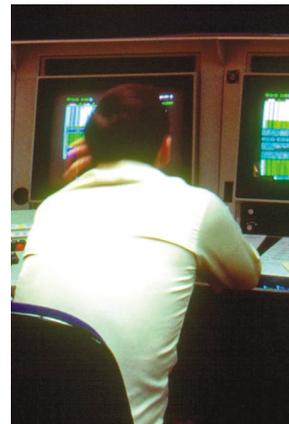
According to a new ARC Advisory Group study, the global market for automation products and services for process industries, over \$44 billion in 2001, is expected to grow at the compounded annual growth rate of just over five percent over the next five years, reaching close to \$57 billion in 2006.

This growth will be largely driven by a burgeoning demand for improved plant operation software and related services. Industries such as refining and petrochemicals are trying to get more out of existing plant assets by purchasing more advanced forms of automation.

A focus on reducing energy usage and extending the life of plant equipment should open a window of opportunity for the OmniVu system.

Enables better, quicker decisions

The new OmniVu process control system is very user friendly. The user receives and reacts to information in an interactive three dimensional space — similar to the way we receive and react to stimuli in the world around us. This enables the user to make better decisions and to react faster to real-time changing plant conditions.



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OmniVu™ Process Control System

Icons show real-time changes

Within the OmniVu virtual reality world, the characteristics of icons change to reflect real-time changes in the operating plant data. The size, shape, texture, and/or color of each icon will change to show process dynamics. For example, color changing from blue to red can indicate increasing temperature.

X-ray vision offers unique views

The icons are linked to show the interdependence among related operating variables. The user can navigate around and through the icons to see different perspectives of the effects of the changing plant conditions.

In a unique aspect of the patented OmniVu system, the user can see what is happening inside a piece of equipment. For example, the operator can "see" uneven heating patterns within a melter.

Like peeling the onion skin

The user can drill down, by clicking on the icons, to see progressively more detailed information through a series of multidimensional virtual reality worlds. The user also can quickly access process-related information such as equipment maintenance records, procedures, training records, or drawings and diagrams.

Operational limits define alarms

By interacting with the icons in the OmniVu virtual reality world, the user can effect changes to the process. The user can set minimum and maximum limits for changes in variables, such that an alarm or other predetermined action will initiate when the changing variables approach the specified limits. The system will prompt the user to correct any variable approaching its specified limit by presenting the user with graphical icons with which the user can interact to effect a change in a dependent variable. For example, if pressure is too high, system will prompt user to lower temperature.

Stage of development

The OmniVu process control system is in a rudimentary stage of development. A prototype has been developed using actual operating data from a bushing melter.

Patent may be seminal

U.S. Patent 6,289,299 has been issued for the OmniVu system. This patent may become a seminal patent. Seminal patents form the basis for all future developments within a particular area of technology. They can be both enabling and blocking.

A patent application also has been filed with the European Patent Office.

Partnering opportunity

Westinghouse Savannah River Company (WSRC) is seeking companies interested in partnering to develop commercial applications for the OmniVu process control system. Partnerships may be in the form of cooperative research and development agreements or licensing agreements.

Technology transfer

WSRC is the managing contractor of the Savannah River Site for the U.S. Department of Energy. WSRC scientists and researchers develop technologies designed to improve environmental quality, support international nonproliferation, dispose of legacy wastes, and provide clean energy sources. WSRC is responsible for transferring technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

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