people, cost effectiveness, timeliness, and maximizing effectiveness in utilization of resources.

Simulations can be performed, for example, to (1) simultaneously analyze launches of reusable and expendable rockets and identify bottlenecks arising from competition for limited resources or (2) perform "what-if" scenario analyses to identify optimal scenarios prior to making large capital investments. SPACESIM includes an object-oriented discrete-event-simulation engine. (Dis-

crete-event simulation has been used to assess processes at modern seaports.) The simulation engine is built upon the Java programming language for maximum portability. Extensible Markup Language (XML) is used for storage of data to enable industry-standard interchange of data with other software. A graphical user interface facilitates creation of scenarios and analysis of data.

This program was written by Michael R. Nevins of Nevins Software, Inc. for Kennedy Space Center.

In accordance with Public Law 96-517, the contractor has elected to retain title to this invention. Inquiries concerning rights for its commercial use should be addressed to:
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⚡ Web-Based Real-Time Emergency Monitoring

Stennis Space Center, Mississippi

The Web-based Real-Time Asset Monitoring (RAM) module for emergency operations and facility management enables emergency personnel in federal agencies and local and state governments to monitor and analyze data in the event of a natural disaster or other crisis that threatens a large number of people and property. The software can manage many disparate sources of data within a facility, city, or county. It was developed on industry-standard Geo-Spatial software and is compliant with open GIS standards.

RAM View can function as a standalone system, or as an integrated plug-in module to Emergency Operations Center (EOC) software suites such as REACT (Real-time Emergency Action

Coordination Tool), thus ensuring the widest possible distribution among potential users. RAM has the ability to monitor various data sources, including streaming data. Many disparate systems are included in the initial suite of supported hardware systems, such as mobile GPS units, ambient measurements of temperature, moisture and chemical agents, flow meters, air quality, asset location, and meteorological conditions.

RAM View displays real-time data streams such as gauge heights from the U.S. Geological Survey gauging stations, flood crests from the National Weather Service, and meteorological data from numerous sources. Data points are clearly visible on the map in-

terface, and attributes as specified in the user requirements can be viewed and queried.

This program was written by Craig A. Harvey and Joel Lawhead of NVision Solutions, Inc. for Stennis Space Center.

In accordance with Public Law 96-517, the contractor has elected to retain title to this invention. Inquiries concerning rights for its commercial use should be addressed to:
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⚡ Real-Time Data Display

Marshall Space Flight Center, Alabama

RT-Display is a MATLAB-based data acquisition environment designed to use a variety of commercial off-the-shelf (COTS) hardware to digitize analog signals to a standard data format usable by other post-acquisition data analysis tools. This software presents the acquired data in real time using a variety of signal-processing algorithms. The acquired data is stored in a standard Operator Interactive Signal Processing Software (OISPS) data-formatted file.

RT-Display is primarily configured to use the Agilent VXI (or equivalent) data acquisition boards used in such systems as MIDDAS (Multi-channel Integrated Dynamic Data Acquisition Sys-

tem). The software is generalized and deployable in almost any testing environment, without limitations or proprietary configuration for a specific test program or project. With the Agilent hardware configured and in place, users can start the program and, in one step, immediately begin digitizing multiple channels of data. Once the acquisition is completed, data is converted into a common binary format that also can be translated to specific formats used by external analysis software, such as OISPS and PC-Signal (product of AI Signal Research Inc.).

RT-Display at the time of this reporting was certified on Agilent hardware capa-

ble of acquisition up to 196,608 samples per second. Data signals are presented to the user on-screen simultaneously for 16 channels. Each channel can be viewed individually, with a maximum capability of 160 signal channels (depending on hardware configuration). Current signal presentations include: time data, fast Fourier transforms (FFT), and power spectral density plots (PSD). Additional processing algorithms can be easily incorporated into this environment.

This program was written by Marc Pedings of Optical Sciences Corporation for Marshall Space Flight Center. Further information is contained in a TSP (see page 1). MFS-32325-1