Software

Ensemble Eclipse: A Process for Prefab Development Environment for the Ensemble Project

This software simplifies the process of having to set up an Eclipse IDE programming environment for the members of the cross-NASA center project, Ensemble. It achieves this by assembling all the necessary add-ons and custom tools/preferences.

This software is unique in that it allows developers in the Ensemble Project (approximately 20 to 40 at any time) across multiple NASA centers to set up a development environment almost instantly and work on Ensemble software. The software automatically has the source code repositories and other vital information and settings included.

The Eclipse IDE is an open-source development framework. The NASA (Ensemble-specific) version of the software includes Ensemble-specific plug-ins as well as settings for the Ensemble project. This software saves developers the time and hassle of setting up a programming environment, making sure that everything is set up in the correct manner for Ensemble development.

Existing software (i.e., standard Eclipse) requires an intensive setup process that is both time-consuming and error prone. This software is built once by a single user and tested, allowing other developers to simply download and use the software.

This work was done by Michael N. Wallick, David S. Mittman, and Khawaja S. Shams of Caltech; and Andrew G. Bachmann and Melissa Ludowise of NASA Ames Research Center for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov.

This software is available for commercial licensing. Please contact Dan Broderick at Daniel.F.Broderick@jpl.nasa.gov. Refer to NPO-47677.

ISS Live!

International Space Station Live! (ISSLive!) is a Web application that uses a proprietary commercial technology called Lightstreamer to push data across the Internet using the standard http port (port 80). ISSLive! uses the push technology to display real-time telemetry and mission timeline data from the space station in any common Web browser or Internet-enabled mobile device.

ISSLive! is designed to fill a unique niche in the education and outreach areas by providing access to real-time space station data without a physical presence in the mission control center. The technology conforms to Internet standards, supports the throughput needed for real-time space station data, and is flexible enough to work on a large number of Internet-enabled devices.

ISSLive! consists of two custom components: (1) a series of data adapters that resides server-side in the mission control center at Johnson Space Center, and (2) a set of public html that renders the data pushed from the data adapters. A third component, the Lightstreamer server, is commercially available from a third party and acts as an intermediary between custom components (1) and (2). Lightstreamer also provides proprietary software libraries that are required to use the custom components.

At the time of this reporting, this is the first usage of Web-based, push streaming technology in the aerospace industry.

This work was done by Jennifer Price and Philip Harris of Johnson Space Center; Bruce Hochstetler, Mark Guerra, and Israel Mendez of Tietronix Software, Inc.; and Matthew Healy and Ahmed Khan of the United Space Alliance. For further information, contact the JSC Innovation Partnerships Office at (281) 483-3809. MSC-25253-1

Space Operations Learning Center (SOLC) iPhone/iPad Application

This iPhone application, Space Junk Sammy, is intended to be an educational application designed for Apple iPhones and iPads. This new concept educates kids in an innovative way about how orbital debris affects space missions.

Orbital debris is becoming a very significant concern for NASA and all Earth-orbiting space missions. Spacecraft in low-Earth orbit are in constant danger of being potentially damaged or destroyed by debris. High-profile spacecraft such as the International Space Station (ISS) and Hubble Space Telescope are dealing with orbital debris on a regular basis. Other basic educational concepts that are portrayed are low-Earth orbits, satellites, ISS, attitude control, and other facts that can be presented in between-level popup screens.

The Orbital Debris Cleanup game is relatively simple from the user's technical standpoint. It is a 2D game where the user's avatar is a satellite buddy, named Sammy, in orbit around Earth. Sammy is controlled by the user with the device's gyroscope as well as touchscreen controls. It has equipment used for taking care of the space debris objects on the screen. Sammy also has a claw, a laser deflector, and hydrazine rockets to grab or push the debris objects into a higher orbit or into a lower orbit to burn up in the Earth's atmosphere.

The user interface shows Sammy and space debris objects constantly moving from left to right, where Sammy is trying to "catch" the debris objects before they move off the right side of the screen. Everything will be in constant motion to increase fun and add to the realism of orbiting the Earth. The satellite buddy is used to clean up the space debris and protect other satellites. Later levels will include a laser deflector and hydrazine rockets instead of a robotic claw to push the orbital debris into a higher orbit and out of the path of other satellites.

This work was done by Daniel Binebrink, Heng Kuok, Malinda Hammond, and Scott Hull of Goddard Space Flight Center. Further information is contained in a TSP (see page 1). GSC-16612-1

Software to Compare NPP HDF5 Data Files

This software was developed for the NPOESS (National Polar-orbiting Operational Environmental Satellite System) Preparatory Project (NPP) Science Data Segment. The purpose of this software is to compare HDF5 (Hierarchical Data Format) files specific to NPP and report whether the HDF5 files are identical. If the HDF5 files are different, users have the option of printing out the list of differences in the HDF5 data files.

The user provides paths to two directories containing a list of HDF5 files to compare. The tool would select matching HDF5 file names from the two directories and run the comparison on each file.

The user can also select from three levels of detail. Level 0 is the basic level, which simply states whether the files