



technology opportunity

Software Tool Quickly Plots Terabytes of Time History Data

Novel system has applications for aerospace, manufacturing, and scientific research industries



Innovators at NASA's Armstrong Flight Research Center have developed a general-purpose software tool that quickly and efficiently plots time history data. QuickPlot is a simple yet powerful utility that plots data from multiple runs and input files using various time-function parameters. The tool offers a flexible data interface that enables users to read data files in a variety of formats. Developed to plot flight test and simulation data, QuickPlot has potential applications for the manufacturing, aerospace, and scientific research industries. This stand-alone utility is part of a software suite that offers a low-cost alternative to expensive, multiple-component data processing and plotting systems.

Benefits

- **Fast:** Reads and plots data in a fraction of the time required for conventional data-plotting utilities
- **Powerful:** Plots large amounts of data and signals from multiple sources
- **Simple:** Offers a graphical user interface (GUI) for command input and data plotting
- **Customizable:** Features an overwriting ability that enables users to modify tasks, appearance, and signals using algebraic expressions
- **Economical:** Works without back-end processing systems, databases, or networks

Applications

- Flight testing and simulation projects
- Manufacturing processes
- Scientific research
- Earth climate modeling and simulation
- Retail transaction and delivery analysis
- Economic market modeling

Technology Details

Plotting large amounts of data can be time consuming and expensive. NASA Armstrong has developed a low-cost software tool that enables users to quickly and efficiently plot gigabytes to terabytes of data.

How It Works

QuickPlot is a general-purpose plotting tool developed to read and plot time history data files generated during flight testing and simulation projects. This stand-alone utility offers a flexible data interface that enables users to read data files in a variety of formats, including those developed using the MATLAB® software package. A user-friendly GUI allows users to input commands and plot data. Commands also can be scripted and read from an input script file. Users can plot data from multiple runs and multiple input files and manipulate data signals with algebraic expressions. The utility currently runs on UNIX® systems and Linux®-based computers.

QuickPlot works with two pre-processing tools (DthData and DthDiff) to read, write, plot, and validate various data types. Development is underway for a new version based on Java® software that combines all three utilities into a single GUI, operating on three tabs. The DthData and DthDiff tools also are available for license.

Why It Is Better

Aircraft test and simulation research projects generate large amounts of computer data, the overwhelming majority of which specify time-varying values, so-called time history data. Conventional pre-processing and plotting utilities are time consuming, expensive, and often require multiple component systems that include databases and network systems.

NASA Armstrong's QuickPlot is a stand-alone utility that quickly plots data from multiple runs and input files using various time-function customizable parameters. Because it reads various formats, including MATLAB, QuickPlot is a low-cost, fast alternative for users who may not have the resources or time for lengthy plotting exercises. The tool is useful for projects in the aerospace, manufacturing, communications, and scientific research industries.

Licensing and Partnering Opportunities

This technology is part of NASA's Technology Transfer Program, which ensures that technologies developed for missions in exploration and discovery are broadly available to the public, maximizing the benefit to the Nation. The QuickPlot General Purpose Plotting Tool technology (DRC-012-022) is available through a software usage agreement for commercial applications.

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UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds.

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For more information about this technology, please contact:

NASA's Armstrong Flight Research Center

Phone: (661) 276-3368

E-mail: DFRC-TTO@mail.nasa.gov

Web: www.nasa.gov/offices/ipp/centers/dfrc/