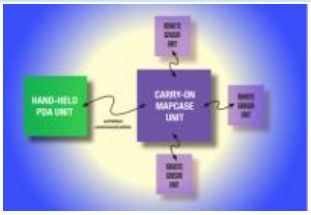
Rain Mountain Systems Incorporated
913 Anderson Street
Glasgow, VA 24555-2509

Point of Contact:
Duke, Eugene
540-258-9961
duke@rainmountainsystems.com



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Conceptual structure of the FT-PDA sysmtem components

Title

FT-PDA: Flight Test Personal Digital Assistant

SBIR Topic Number

AF05-320

Summary Report Type

Phase I Summary

Summation

RMSI proposes to build FT-PDA - a personal digital assistant (PDA) for flight test data collection, display, analysis, and report test generation in real time. Additionally, FT-PDA will provide maneuver quality assessment and make recommendations in real-time to fly more efficient test profiles including suggestions on re-flying, reordering, or modifying maneuvers. The FT-PDA system accommodates hardware that presses the limits of low resolution, sampling rate, and variable installations. Sensors may be low dynamic range, mounted temporarily, unaligned to aircraft axes, or even reside in a pilot's clothing. The accommodation of such sensor systems is mitigated with intelligent software, capable of learning, adapting to new environments, and performing dynamic calibrations. The packaging needs are inexpensive and modular enough for individual pilot or flight test engineer issue, hand carried to varied aircraft for sorties. FT-PDA also includes a modular design of both hardware and software components that allow easy upgrade as newer sensors, computer hardware, and software tools and techniques become available. The cockpit display shows data in formats ranging from raw data (strip charts) all the way to reduced, calibrated, and normalized graphs typically seen in final test reports. The FT-PDA software system is based on open source software and commercial-off-the-shelf (COTS) hardware.

Anticipated Benefits

The RMSI commercialization strategy consists of two parts. First, we identify potential applications of both the tools produced and the underlying technology. From these potential applications, we generalize the approaches used in the development of specific prototypes and try to maximize the breadth of the domain for which our software, systems, and technology is applicable. There are many DOD and government applications of this technology. The main users of such capabilities would be found in the Department of Defense, other government agencies (such as NASA), prime airframe contractors, general aviation flight testing, and general aviation use. RMSI expects that beyond the potential market for FT-PDA-like systems, the services based on FT-PDA extensions and customization could result in a significant amount of future business as well.

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