

Topic: A03-070

Monterey Technologies, Inc.

Merging Sensor and Stored Terrain Database Data for Rotorcraft Poor Visibility Weather Operations

VIPER CVW is a multi-aircraft planning application which allows users to rapidly sketch a mission-specific course of action, resulting in a rich visualization of the plan flow within a geographic context. Plan elements are in digital form to enable sharing with stakeholders and transfer to aircraft mission load and portable media. VIPER is nearly complete with test and certification activities for deployment as a federated application on the Navy Joint Mission Planning System (JMPS-M). Monterey Technologies, Inc. (MTI) specializes in Human Factors Engineering and Human-Systems Integration. Our approach to mission planning uses a minimum necessary toolset to sketch complex plans, with room for toolset expansion over time. MTI is looking to expand VIPER CVW to support dynamic multi-vehicle planning across a range of warfighting domains.

Technology Category Alignment:

None

None

None

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SYSCOM: NAVAIR

Contract: N68335-14-C-0385

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N68335-14-C-0385

Department of the Navy SBIR/STTR Transition Program

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WHO

SYSCOM: NAVAIR

Sponsoring Program: Strike Planning and Execution Systems Program Office (PMA-281)

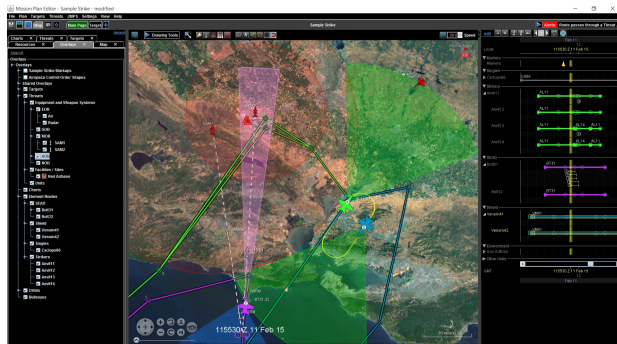
Transition Target: Visual Planning, Execution and Review-Carrier Air Wing (ViPER-CVW) System

TPOC:
(301)757-6179

Other transition opportunities:

- Navy Strike Group Multi-Ship/Aircraft Planning System
- Joint Mission Planning System (JMPS-AF) Program Office
- Multi-vehicle ISR Planning
- NSMWDC; Aegis Program Office
- Integrated Air and Missile Defense Planning

Notes: Screenshot showing strike routing, aircraft sensor coverage, and tactical planning picture.



ViPER-CVW, Copyright, 2015, Monterey Technologies, Inc.

WHAT

Operational Need and Improvement: Current mission planning processes are labor and time intensive, complicated, and require considerable training/proficiency. Nearly every aircraft requires a validated, digital mission plan prior to execution of an airborne mission. However, much of the planning data still must be manually entered by the aircrew in multiple applications. New innovative human factors workflows, visualizations, and improved data handling algorithms are needed to establish expedited mission planning processes, without redundant manual data entry and other unnecessary interactions. Joint Task Force integration of naval assets require an integrated planning environment that facilitates rapid assimilation of task constraints to produce comprehensive, well-reviewed tactical plans.

Specifications Required: Requisite human factor engineering are employed to: evaluate intuitive human-computer interactions and visualization techniques; create optimal mission planning data entry and upload processes; and establish a highly adaptive planning framework.

Technology Developed: ViPER-CVW aids Carrier Air Wing personnel in the creation and coordination of integrated multi-element strike plans. ViPER-CVW allows planning data, such as target coordinates, to traverse the "Sensor-to-Shooter" pathway in digital format. ViPER-CVW provides tools to rapidly visualize actions of large multi-aircraft packages in space, time, and relation with planning constraints. ViPER's stand-alone java-based application can be deployed in a variety of operating environments. The ViPER-CVW variant is integrated as a JMPS federated application facilitating the exchange of planning data, charts, threats, airspaces, and flight routes.

Warfighter Value: ViPER, designed from a perspective which looks at planning components that underlie all naval planning echelons, employs the simplest available method for sketching and visualizing planning components in a common temporal and spatial context. Since, planning data is captured in a digital format, the development of physical planning products is automated, providing time and tools for mission rehearsal, analysis, re-planning, and optimization. ViPER transitions JMPS from an aircraft data loading to a tactical planning capability.

WHEN

Contract Number: N68335-14-C-0385 **Ending on:** September 10, 2016

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Integration with JMPS build	Low	ViPER CVW Certified for inclusion in JMPS MPE	8	June 2015
ViPER-CVW Authority to Operate	Low	ATO certification letter received	8	December 2015
Operational Assessment and Release of ViPER CVW	Low	ViPER-CVW effectively used in fleet operations	9	March 2016
Software update with upgraded UI and additional mission tools	Med	Software update passes engineering and operational testing	9	September 2016

HOW

Projected Business Model: Monterey Technologies, Inc. (MTI) will continue to act as the prime contractor for development and integration of ViPER-CVW software. Additional task analysis, requirements derivation, and feature design is required to fully exploit the benefits of ViPER in addition to software code maintenance and production. MTI will continue to work closely with JMPS component developers, subcontractors, and prime contractors to develop new capabilities and integrate Viper-CVW functionality into additional JMPS MPE tools.

Company Objectives: Although, ViPER-CVW is well-known in the naval carrier aviation community, its capabilities are easily tailored to support the broader aviation community, Carrier Strike Group, Joint Task Force, and tactical multi-asset planning mission planning activities. MTI is interested in transitioning ViPER-based mission planning technology to additional Navy, Air Force, and MDA mission planning activities. A version of ViPER, the submarine Mission Planning Application (MPA) is currently targeted for integration into the submarine combat system.

Potential Commercial Applications: Potential target markets for ViPER's multi-vehicle planning environment include many commercial planning activities, such as "delivery drone route planning", currently being explored by Amazon. Logistics and shipping companies can leverage MTI's ViPER-like mission planning functionality to support planning, re-planning and the synchronization of enroute and scheduled delivery planning requirements.

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