

Department of the Navy SBIR/STTR Transition Program

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ONR Approval #43-8752-21

Topic # N193-A03-3

Data Enabled Photogrammetry

Virtualitics

WHO

SYSCOM: ONR

Sponsoring Program: ONR 34

Transition Target: SOCOM: PM-ISS in PEO SR

TPOC:

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Other transition opportunities:

USMC: PM Intelligence Systems (PMM-160), PFM Command Element Systems, Marine Corps Systems Command; commercial shipping, energy, disaster recovery, urban planning, and telecommunications industries

Notes: Virtualitics is an advanced AI-driven data analytics and 3D/VR visualization company, based on over 11 years of research at the California Institute of Technology (Caltech) and the NASA Jet Propulsion Laboratory (JPL), with a suite of existing commercial data analytic and visualization products. Virtualitics is composed of world-class researchers who are currently working closely with analysts and researchers at numerous government agencies such as the National Institutes of Health (NIH), US Special Operations Command (SOCOM), Office of Naval Research (ONR), and Air Force Global Strike Command (AFGSC) to transform their digital technologies.

Virtualitics has previously been awarded a Phase III contract from AFGSC for VIP software licenses and AI integration services. Similarly, VIP is slated to be a FY22 program of record within Program Executive Office Special Reconnaissance at SOCOM. Furthermore, Virtualitics' predictive maintenance solutions are under evaluation for transition to Air Force PEO Bombers.

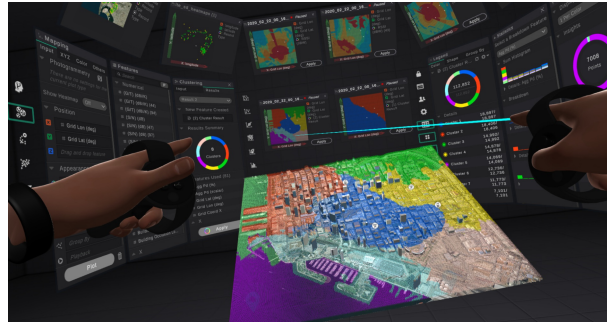


Image courtesy of Virtualitics, Inc.

WHAT

Operational Need and Improvement: Management of Naval Special Warfare and Marine units' signatures and exploiting the enemy's electronic signatures is critical to success against peer and near-peer adversaries. AI-enabled analysis and 3D + VR visualization of electronic emissions facilitates the planning and operations of missions which involve understanding Marine's ability to detect and exploit hostile signatures and to minimize their vulnerability to detection.

Specifications Required: Standard business or gaming laptop with 8GB+ of RAM and CPU Intel i5-8250U or greater.

Technology Developed: Virtualitics developed new capabilities and adaptation of Virtualitics' commercial software to enable users to analyze, visualize, and exploit electronic emissions and Radio Frequency (RF) signatures. Virtualitics developed a production-quality module to load 3D geo-rectified photogrammetry assets for visualization and overlay of ML data analytic routines. In addition, Virtualitics developed and deployed a Tactical AI-Driven Geospatial Data Insights module which allows users to select geospatial regions and automatically computes trends/anomalies for contained data. Virtualitics also developed an Electronic Warfare-Mission Insights Tool which automates data analytics and generates relevant visualizations around RF signature mission planning workflows. Virtualitics was contracted to provide licenses and training of our commercial software platform, VIP, for ONR, USMC, and NSW users.

Warfighter Value: Special operations forces can rapidly analyze and visualize SIGINT, EW, and RF Spectrum data in advance of executing missions (e.g. pre-mission planning) and post-mission (process, exploit, and disseminate). This significantly reduces time to plan and debrief on missions, enabling quicker turnaround time for operators. This also enables operators to achieve more effective and realistic mission planning, execution, and training by creating the ability to conduct advanced analysis in desktop and in a collaborative, immersive Virtual Reality environment.

WHEN

Contract Number: N68335-20-F-0544 **Ending on:** August 10, 2021

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Tactical Geospatial Insights Module	Med	End-users will confirm the models generate relevant predictions.	7	1st QTR FY21
Custom Mission Insights Module	Med	End-users confirm the utility of the plots and visualizations generated.	7	2nd QTR FY21
Photogrammetry Asset Pipeline	Low	End-users confirm the utility of prototype of photogrammetry asset management system.	7	2nd QTR FY21
Photogrammetry Real-Time Collab & VR	Low	End-users confirm the ability to use real-time collaboration through SVO for all new features.	7	3rd QTR FY21

HOW

Projected Business Model: Virtualitics plans to directly sell the technology developed in this project to the government. Virtualitics' business model consists of license sales of our core commercial software product VIP and custom builds of Virtualitics Predict. Our approach to selling software is augmented by also selling services. The Virtualitics SaaS capabilities include custom configuration of Predict and VIP, which include data consultations and tailored AI models, R&D services for commercial and government customers, and solution implementation support which includes documentation and training.

Company Objectives: Virtualitics was founded in 2016 to help commercial and government organizations better understand and visualize their data to make data-driven decisions. To better understand the overall market and how Virtualitics can continue to grow, Virtualitics currently employs a market research and solutions engineering team. This team is responsible for analyzing the current market space, developing go-to-market strategies, and applying that research to our product development initiatives. Our solutions engineers are directly involved in developing relationships with new and potential clients and are responsible for evangelizing our products and showing new users how to apply our products to their specific use cases. Virtualitics also holds four patents for its proprietary technology.

Potential Commercial Applications: Due to our past successful experience, Virtualitics has focused on specific target verticals within federal agencies including predictive modeling and maintenance, sensor data, and test and evaluation efforts. In addition, Virtualitics' commercial client base is composed of enterprises located in the US and other allied nations with big data challenges. Early traction with banking, automotive, manufacturing, and healthcare institutions indicates these verticals are particularly ready for the Virtualitics technology suite because of the massive amounts of data and large budgets for data analytics available in these verticals. Additionally, there is a nexus for the commercial shipping, energy, disaster recovery, urban planning, and telecommunications sectors with regards to how 3D photogrammetry can be applied in the private sector.

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