

Topic: N131-077

AnthroTronix, Inc.

Motion-induced User Symptomatology Toolkit for Evaluating Readiness (MUSTER) Phase II

PASS MUSTER is a Smart Phone-based modular system (i.e. applications) for assessing cognitive and physical health indicators in operational environments. PASS MUSTER utilizes DANA™, a Neurocognitive Assessment Tool (NCAT), which employs both cognitive and psychological test batteries. PASS MUSTER serves as a "Brain Thermometer" that can be used to assist in making "Fit-for-Duty" and "Return-to-Duty" decisions for Warfighters experiencing operational performance issues. PASS MUSTER is compatible with COTS sensors and subjective measures to assess operational readiness symptomatology. DANA is sensitive to changes in cognitive efficiency from any cause, and has been successfully used in six extreme environments, including Afghanistan. AnthroTronix's goal is for DANA, as the first component of PASS MUSTER, to be forward deployed to provide cognitive and psychological assessment capabilities where they currently do not exist. AnthroTronix develops innovative technologies in neuroscience, applied physiological monitoring, human-machine interaction, simulation, and training.

Technology Category Alignment:

None

None

None

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<http://www.anthrotronix.com>

SYSCOM: ONR

Contract: N00014-14-C-0308

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N00014-14-C-0308

Department of the Navy SBIR/STTR Transition Program

STATEMENT A. Approved for public release; distribution is unlimited. ONR

Approval # 43-1256-16

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Motion-induced User Symptomatology Toolkit for Evaluating Readiness (MUSTER) Phase II

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WHO

SYSCOM: ONR

Sponsoring Program: Performance Shaping Functions for Environmental Stressors

Transition Target: Combat Casualty Care/Military Operational Medicine

TPOC:

Dr. Amy Bolton
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Other transition opportunities:

Navy Corpsmen, Medical Officers and other Clinicians
US Army Medical Materiel Agency
Commercial transition opportunities in:

- Pharmaceutical Research - To Indicate change in cognitive performance during drug trials
- Health and Wellness - Tool for self-tracking and annual health visits to track changes in cognitive performance over time
- Industrial/Commercial: Tool to determine if employees are qualified for duty



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WHAT

Operational Need and Improvement: Sailors and Marines may experience performance degradation, including motion sickness, fatigue and stress, due to shipboard environmental conditions.

PASS MUSTER is a Smart Phone-based modular system (i.e. applications) for assessing a variety of cognitive and physical health indicators in operational environments.

Specifications Required: Portable/deployable

Assess cognitive performance over time

Detect changes in cognitive performance due to any cause

Technology Developed: PASS MUSTER utilizes DANA™, a Neurocognitive Assessment Tool (NCAT), running as an application on Android and iOS mobile devices. Employs both cognitive and psychological test batteries.

Serves as a "Brain Thermometer" that can be used to assist in making critical "Fit-for-Duty" and "Return-to-Duty" decisions for Warfighters experiencing operational performance issues.

PASS MUSTER is compatible with COTS sensors and subjective measures to assess operational readiness symptomatology.

Warfighter Value: Assists in early detection of cognitive processing issues due to any cause, including motion sickness, Sopte syndrome, stress, deployment-related exhaustion, and concussion. Easily deployed in operational settings, since it runs as a mobile application on a smart phone. Supports personalized assessment. Results based on an individual's cognitive performance and can be compared to baseline results.

WHEN

Contract Number: N00014-14-C-0308 **Ending on:** March 31, 2016

| Milestone | Risk Level | Measure of Success | Ending TRL | Date |
|--|------------|---|-----------------------------------|---------------|
| System component (DANA) used in fatigue study with NSWC-PC aboard USS Independence | N/A | Performance on Simple Reaction Time test better on mission days than non-mission days | Component: TRL-7 System: TRL-5 | May 2015 |
| Additional system components (EEG/ECG) used in medical motion study at NSWC-PC | N/A | Higher EEG-based workload for surgeons versus techs in simulated motion conditions | Component: TRL-6 System: TRL-5 | November 2015 |
| Full system testing and validation in relevant environment | Low | Reliable data collected across all system component measures | System: TRL-6 | August 2016 |
| Full system testing and validation in operational | Med | Reliable data collected across all | System: TRL-7 | May 2017 |

HOW

Projected Business Model: The DANA component of PASS MUSTER is TRL-7, and can be transitioned near-term, providing a transition path for additional components of PASS MUSTER. AnthroTronix can provide DANA to the Department of Navy pre-loaded on a dedicated Android or iOS Mobile device, or as a mobile application only, to be downloaded onto mobile devices already deployed in the fleet. AnthroTronix would also provide on-going technical support and software updates for DANA, as well as other components of PASS MUSTER.

Company Objectives: AnthroTronix focuses on working with the Department of Defense to research and develop innovative technologies in the areas of: neuroscience and applied physiological monitoring, advanced human machine interfaces, simulation, and training.

Potential Commercial Applications: AnthroTronix is actively pursuing commercial applications in:

- Pharmaceutical Research - To Indicate change in cognitive performance during drug trials
- Health and Wellness - Tool for self-tracking and annual health visits to track changes in cognitive performance over time
- Industrial/Commercial: Tool to determine if employees are qualified for duty

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