

Topic: N171-009

Midé Technology Corporation

Touchstone - Rugged Touchscreen Button with Positive Indication Feedback

NAVAIR seeks to replace the current Landing Signal Officer Display System (LSODS) monitor and physical button design with a ruggedized touchscreen featuring a reconfigurable physical button-like haptic response. This project aims to create a LSODS haptic overlay touchscreen with tactile/haptic feedback built in that can be integrated to upgrade legacy systems and future rugged touchscreen designs. These haptic touchscreens will provide a simplified user interface, provide a method for users to verify they are hovering over an actual software button and to trust that their entries will be made whether they are distracted or wearing gloves. Suitable for integration into rugged screens used by the DOD and Industry, the software will allow designers to easily assign and manipulate haptic feel for user interface (UI) buttons/widgets to create truly scalable and customizable systems.

Technology Category Alignment:

Electronics Integration

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SYSCOM: NAVAIR

Contract: N68335-18-C-0516

Room: FST at SeaAirSpace

Department of the Navy SBIR/STTR Transition Program

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NAVAIR 2019-766

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WHO

SYSCOM: NAVAIR

Sponsoring Program: NAWCAD
Lakehurst

Transition Target: Landing Signal
Officer Display System (LSODS) -
Aircraft Carrier

TPOC:
(732)323-7310

Other transition opportunities:
Midé's ruggedized touchscreens with
button like haptic response and
scalable/customizable haptic software
Application Programming Interface
(API) could be useful in many DOD
and commercial applications.



Midé Demo - Touchstone Haptic Feedback Demo Console

WHAT

Operational Need and Improvement: The operational gap/need identified in the solicitation is to give the LSO improved user experience with the LSODS. Currently, the LSODS has no touchscreen technology. Similar to an ATM, the onscreen buttons are commanded by physical buttons on the sides of the consoles. The physical buttons provide adequate feel/response for the rough carrier deck application, but are not very customizable. The goal is to provide a touchscreen implementation so that on-screen buttons could be software controllable and definable, but also provide the button-like feel of traditional mechanical buttons.

Specifications Required: Environmentally hardy ruggedized haptic touchscreen. 15" monitor and 19" monitor configurations, scalable/customizable software implementations.

Technology Developed: A novel haptic touchscreen with a large amount of response to mimic the feel of real physical buttons. A software API to configure on screen buttons/widgets with custom haptic effects.

Warfighter Value: The overlay could be used to add haptic feedback to legacy, or be built into future rugged touchscreen designs. On the carrier deck, adding these haptic touchscreens will provide a simplified user interface, improved situational awareness, touchscreen technology, provide a method for the user to verify they are hovering over an actual software button, and will allow the user to trust that their entries are made due to the improved haptic feedback, whether they are distracted, not looking, or wearing gloves.

WHEN

Contract Number: N68335-18-C-0516 **Ending on:** July 24, 2020

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Prototype Development	Med	Completed Console Design	5	March 2020
Haptic API/Software Development	Low	Demo capability with basic user interface (UI)	5	February 2020
Operational Evaluations (LSODS)	Med	Positive feedback from users	5	June 2020

HOW

Projected Business Model: Midé sells piezo elements and sensor packages to the DOD and industry. Our business model will be to develop the Touchstone system in-house, but during development seek to partner with companies that specialize in rugged touchscreens.

Company Objectives: Midé is an engineering company with great success working for the Navy in R&D and product development. Midé seeks to transition smart systems like Touchstone to the fleet, and explore commercial avenues for growth building from that success.

Potential Commercial Applications: Broad rugged computer applications, particularly industrial settings.

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