

Rugged Touchscreen Button with Positive Indication Feedback

PROBLEM - Existing MR/AR solutions do not support positive feedback upon activating controls.

SOLUTION - VRR's Wearable Augmented Reality Controls with Haptic Feedback (WARC-H) provides MR solutions that do support positive Haptic feedback upon activating controls.



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SYSCOM: Naval Air Systems Command (NAVAIR)
www.navair.navy.mil

Program Sponsor: NAVAL AIR WARFARE CTR.
AIRCRAFT DIV. LK

Other Potential Programs: PMA-251
augment or replace Landing Signal Officer Display System (LSODS) and/or PriFly displays and processes; Marine Corps Systems Command (MCSC) Amphibious Vehicles crew and passengers (& USV); OSD/Combat Capabilities Development Command Soldier Center (CCDC-SC) Control of Drones Unmanned Aircraft System (UAS) & Unmanned Ground Vehicles (UGVs) and Swarms; Office of Naval Research (ONR)/United States Marine Corps (USMC) Joint Fires Observer (JFO)/Joint Terminal Attack Controller (JTAC) Call-For-Fire/Close-Air-Support; Army Integrated Visual Augmentation System (IVAS)

Current TRL: 5

Projected TRL: 7 / Q1 2025

Keywords: Mixed Reality, Augmented Reality, Haptic, Touchscreen, Ruggedization, Positive Indication Feedback, Reconfigurable, Information Systems

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THE CHALLENGE

Mixed/Augmented Reality controls and displays appearing attached to the warfighter, providing intuitive tactile/haptic feedback and proprioception benefits.

THE INNOVATION

'You are the Controller' where intuitive semi-transparent Mixed/Augmented Reality controls and displays appear attached to the warfighters' own bodies. Warfighters actually 'feel' their own fingers and touch their own limbs versus typical 'stabbing in the air' Augmented-Reality controls. VRR's Wearable Augmented Reality Controls with Haptic feedback (WARC-H) enables WARC-H Controls and Displays to become fused to warfighters themselves. Warfighters are free to move about; no longer tied to specific legacy displays or physical locations. Mixed/Augmented-Reality HMDs coupled with WARC-H enables a vast range of evolutions for transitions to LSODS, USN/USMC, other services, Lockheed Martin, and dual use civilian applications.

THE NAVY BENEFIT

Very large-scale Navy cost savings are projected based upon WARC-H enabling the elimination of many legacy custom displays and/or software mitigation of the needs for hardware updates. WARC-H has accomplished functional elimination of the legacy LSODS with our full MR/AR-HMD mode; and also provides our Hybrid mode where the existing legacy LSODS is still used normally as a synchronized 'cutout inset' into the rest of warfighters' Mixed/Augmented Reality enhanced world viewing and controls via WARC-H. As an example of successful risk mitigation, WARC-H includes fusion of 2D maps to 3D worlds that have been scientifically validated by our university partners to enhance situational awareness with faster (3X to 5X faster) and better (94.9% to 99% accurate) decision making along with reducing warfighters' cognitive workload. Competitive advantages include four related utility patents granted, and nine pending applications.

THE FUTURE

VRR is ultimately looking for additional defense customers to sponsor further customizations and evolutions of WARC-H to fulfill each DoD customers' current and emerging requirements. VRR dual-use civilian transitions include Microsoft and continued civilian licensing.