EXTENDED REALITY AND HUMANOID ROBOTICS: NEXTGEN ASSETS FOR REMOTE CB RESPONSE AND OPERATION

Integrated Multi-threat Headborne System (imhs) – Heads-up Display For Cbrn Information

Tim Lawton U.S. Army - DEVCOM Soldier Center

The DEVCOM Soldier Center Integrated Multi-threat Headborne System (IMHS) program is developing a headborne technology architecture enabling integration paths for current and future advancements focused on increasing Soldier situational awareness, power & energy, survivability and lethality in the Multi-Domain Operations (MDO) battlefield. IMHS prototypes will demonstrate the integration of ballistic, blunt impact, and respiratory protection with sensory enhancement technology including an Augmented Reality (AR) Heads Up Display (HUD) to visualize Android Tactical Assault Kit (ATAK) device data, active anti-fog, variable transmission lenses, and wireless communication. This effort integrates the IMHS technology architecture with a CBRN Respirator, the M50, for tactical use in chemical and biological defense applications.

This effort demonstrates a headborne system with a low Size, Weight, Power (SWAP) AR HUD integrated with a CBRN respirator to display data from an ATAK device in the Warfighter's field of view to visualize and contextualize CBRN contamination defense mission information in the operating environment. Some of the questions this work addresses are broadly relevant to other HUD/AR efforts. These include if a HUD can fit inside the M50 lens, if the HUD location with the mask is appropriate for the reported eye-relief and can the user choose which eye to use with the HUD. These questions were answered through collaboration with DEVCOM Chemical Biological Center Respiratory Protection Branch, trade studies and Soldier and user-group touchpoints.