

Natick S&T Projects

Development of an embedded distributed sensor network in protective armor -

Investigation and application of advanced sensor technologies to develop an embedded, distributed sensor network capable of detecting damage to ceramic-based inserts used in personal ballistic protective armor.

Analysis of current front, rear, and side-SAPI plate placement - This study will establish a baseline of where the current front, rear and side SAPI plates are worn in the current OTV system, and will provide an analysis of USMC torso size and shape to determine the per-size range of adjustability theoretically available for the current front and rear SAPI plates.

Analysis to confirm conformity and coverage of current side-SAPI plate – Analysis of torso side curvature and surface are to improve side SAPI protection in support of research and development projects associated with the Family of Ballistic Protection Systems. This project will utilize three-dimensional surface human body scans and computer modeling to quantify variation in torso length and curvature of current SAPI side plates. Information will also be provided to aid in the design of an integrated side SAPI plate in the next generation OTV.

Ration preparation physical requirements data project – During Operation Iraqi Freedom the Marine Corps has been issued Utilized Group A-Ration (UGR-A) to provide subsistence support to personnel. The Marine Corp equipment was not designed or built to support these UGR-A's.

Evaluate blunt impact to the head from helmet suspension and padding systems (UVA) - Investigation of two modes of potential injuries is intended: 1) Injuries from direct blast on the head/brain transmitted across the helmet and subsequently across the intervening padding, suspension, or air gap into the head and brain. 2) Injuries from blunt impact of the helmet on the head accelerated by the blast impingement at high rate which is moderated by suspension/padding systems.

Lightweight Helmet (LWH) suspension systems (UVA) – Conduct performance evaluation and comparisons of USMC Light Weight Helmet (LWH) suspension system against other suspension systems. Evaluations will focus suspension response to high-rate (ballistic) stimuli. Develop drawing package and technical data for USMC LWH helmet suitable for use in solicitation future documents.

Flame Resistant Organization Gear (FROG) (Battelle)

Development of an extremely compact and lightweight sleeping bag – To reduce the weight and stowed cubic size of the current sleeping bag system.