SOCOM254-003: Aviation Goggle Mount

ADDITIONAL INFORMATION
N/A

TECHNOLOGY AREAS:
Air Platform | Human Systems | Materials

MODERNIZATION PRIORITIES:
Human-Machine Interfaces

KEYWORDS:
Aviation; Goggle Mount; Night Vision Goggle; NVG; Mount

OBJECTIVE:
The objective of this topic is to research and develop an innovative Aviation Goggle Mount capability that will be employed on various aviator helmets with various night vision goggle systems (i.e. AN/AVS-6 and Wide Field of View Aviation Goggles (WFOVAG) and shall interface with an Aviation Night Vision Imaging System (ANVIS) mount that is used by Special Operations Forces.

DESCRIPTION:
The Aviation Goggle Mount (AGM) feasibility study shall address all viable system design options that add features in the mount (i.e., Fore/Aft adjustment, tilt, internal battery, etc…) vs. what is currently fielded and is a ~30-year-old legacy mount. The current Aviation mount is plastic with loose tolerances. USSOCOM wishes to explore options for an improved stow position on the helmet. Position one (1) is in front of the eye and "on", position two (2) is "up" with a low profile and close to the helmet. Position 2 is a stow position on the helmet that provides a solution to the interference that currently exists between the goggles and cockpit-related equipment. Aside from reducing the goggle profile, increased goggle stability and reduced neck torque to the Pilot. Neck torque especially when wearing the Wide Field of View Aviation Goggle (WFOVAG) presents greater force. The primary focus of this feasibility study shall revolve around said night vision goggles. Offeror shall consider the following functionality: 1. Accommodation of power cables running from the battery pack to the goggle (via LEMO connector). 2. Position 2 shall maintain the integrity of the goggles on the helmet as the goggles must stay affixed to the helmet mount with a tight tolerance and also have break-away functionality in case of an accident 3. Consider usage of combined materials to reduce weight and not compromise strength. 4. Low Profile Mount solution must interface with an ANVIS style goggle mount. 5. In Position 2, goggles shall be in a "standby' state. 6. Provide estimate of potential increase (or decrease) in mount weight when showing trade study options. 7. Assess if the Aviation Goggle Mount can be retrofitted to an existing goggle with minor modifications. 8. Provide conceptual designs and drawings. 9. Mount shall be designed so as to not compromise the ballistic integrity of the helmet. 11. The mount must be conformal to currently fielded USSOCOM aviator helmets.

PHASE I:
Conduct a feasibility study to assess what is in the art of the possible that satisfies the requirements specified in the above paragraphs entitled "Objective" and "Description."
This USSOCOM Phase I SBIR effort aims to conduct and document the results of a thorough feasibility study ("Technology Readiness Level 3") to investigate what is in the art of the possible within the given trade space that will satisfy a needed technology. The feasibility study should explore all options that meet or exceed the minimum performance parameters specified in this write-up. It should also address the risks and potential payoffs of the innovative technology options that are investigated and recommend the option that best achieves the objective of this technology pursuit. The funds obligated on the resulting Phase I SBIR contracts are to be used to conduct a thorough feasibility study using scientific experiments and laboratory studies as necessary. During Phase I feasibility studies, operational prototypes will not be developed with USSOCOM SBIR funds. Operational prototypes developed with other than SBIR funds that are provided at the end of Phase I feasibility studies will not be considered in deciding what firm(s) will be selected for Phase II.

PHASE II:

Develop, install, and demonstrate a prototype system that is the most feasible solution during the Phase I feasibility study on an Aviation Goggle Mount.

PHASE III DUAL USE APPLICATIONS:

This system could be used in a broad range of military applications across all USSOCOM components, other government agencies, and federal law enforcement.

REFERENCES:

1. "Neck Torque Study Induced by Head-Borne Visual Augmentation Systems (VAS) in Ground-Based Applications", The Johns Hopkins University Applied Physics Lab, NSTD-09-1057, Version V1.2 dated 1 April 2010: http://www.dtic.mil/dtic/tr/fulltext/u2/a519127.pdf

TOPIC POINT OF CONTACT (TPOC):

None