



WSTIAC Success Story

FTPE – FAST TINT PROTECTIVE EYEWEAR

[<http://wstiac.alionsciece.com>]

Customer:	Office of Naval Research (ONR), Naval Special Warfare Command (NSWC)
Challenge:	SEAL and Special Warfare Combatant-craft Crewmen (SWCC) are required to use protective ballistic eyewear in a variety of lighting scenarios. Current equipment requires warfighters to manually change their fix-tint ballistic lenses in response to varying light conditions. However, during combat when time is limited and changing lenses is impractical, operational personnel often opt to simply remove their ballistic eyewear. This often occurs during the most critical points in battle. Worse yet, some warfighters rely on non-ballistically protected commercial off the shelf (COTS) items. Both scenarios can significantly affect the warfighter by compromising visual acuity, when moving from light to dark spaces and increasing the chance of eye injury due to the removal of the eye protection.
Approach:	WSTIAC provided core science and technology research to develop a liquid crystal display (LCD) fast tinting lens that automatically senses and changes its tint based on lighting conditions. WSTIAC aided in establishing an organic manufacturing capability to produce sheets of liquid crystals between two clear plastics for lens development and production. WSTIAC then built the first prototypes, performed environmental testing, conducted research and analysis to determine

	specifications for user requirements, and also conducted early user assessments.
Value:	WSTIAC's work allowed NSWC to connect with the proper researchers quickly, providing for rapid prototyping; which accelerated the delivery of a useful device. Operators may now choose between an automatic or manual mode and select one of four different color shades at the push of a button. As compared to a general COTS transition lens change taking three to five minutes, the transition between shades of the FTPE occurs at the speed of 1/10th of a second. The lens transition and durability make them an essential tool for the warfighter. NSWC has confirmed that this will save millions in research and development (R&D) dollars.

WSTIAC is operated by Alion Science & Technology under contract SP0700-99-D-0301