

A Third Major Improvement to the Integrated Visual Augmentation System

To improve IVAS via a visual alert system for rapid targeting and increased Soldier lethality

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2023 /EINPresswire.com/ -- A West

Texan once said "rapid and accurate targeting has been key to defeating

your enemy. Consider a dual, an arranged engagement in combat, in West Texas back in the 1800s when Texas was fighting for and won its independence. The quicker draw and more accurate aim wins."

The same is true for an infantry Soldier. Rapid and accurate engagement yields increased lethality. To be successful in close combat environments, a Soldier must be able to (1) identify the target quickly and (2) characterize it accurately.

A set of challenges are present in close combat environments. Your enemy is not going to be out in the open. He will be hiding his best and will be hard to spot. Even if you find your enemy, it is easy to lose track of where he went. And, when you have visual on your target, it can be hard to accurately characterize it. All of these are real challenges faced by the Soldier.

The human eye fovea is a small spot on the back of the eye with a high visual acuity spanning an angular field of view of approximately 5 degrees. Away from the fovea, the visual acuity is not nearly as sharp. Away from the fovea, the human eye can pick up motion, but picking up on subtle details is tricky. So, how then can the Soldier achieve rapid identification and accurate characterization?

In this press release, [TPMI](#) releases a third major improvement to the Integrated Visual Augmentation System ([IVAS](#)), which is a military version of the HoloLens 2 system. The IVAS is a 3D head display unit worn by the Soldier, which provides tactical mixed reality to improve situational awareness for Soldiers in combat.

A technology called Automatic Target Recognition (ATR) is an algorithm to recognize targets from data from sensors. US Patent [11,093,051](#) discloses a method to place a digital object at the

(12) **United States Patent**
Douglas et al.

(10) Patent No.: US 11,093,051 B2
(45) Date of Patent: Aug. 17, 2021

(54) METHOD AND APPARATUS FOR A HEAD
DISPLAY UNIT WITH A MOVABLE HIGH
RESOLUTION FIELD OF VIEW

(52) U.S. CL.
CPC G06F 3/0346 (2013.01); A61B 5/067
(2013.01); G06F 3/03545 (2013.01); G06F
3/04815 (2013.01); G06F 3/04845 (2013.01)

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location of the target and utilize a corresponding movable high resolution field of view. The digital object will draw the Soldiers attention providing rapid identification and the corresponding movable high resolution field of view will be positioned over the target allowing for accurate characterization.

This advancement in the '051 patent will allow portions of the displayed image, which are of "non-interest" to be low resolution. And, importantly portions of the displayed image, which are "of interest" (i.e., the target) to be high resolution. The Soldier's eyes will therefore not only be drawn to the target by the digital object, but the Soldier's high resolution foveal field of view will be matched to the high resolution portion of the image. Since a high resolution zone within the displayed image is matched to the Soldier's fovea, this technology will achieve precision viewing of small, difficult-to-spot targets.

Simply put, to maximize Soldier lethality, this technological advancement must be put into the IVAS. TPMI aims to work with the US Army's Program Executive Office Soldier in any way possible to integrate this advancement to improve the IVAS system.

About the author: Dr. Robert Douglas is a West Point graduate who: fought as an Infantryman in Vietnam with US units and a Vietnam recon company; worked in a combat development agency; studied nuclear war in the Joint Chiefs of Staff; patrolled in the desert for the UN in the Middle East with Russian war planners; and developed a system to assist Air Force space exercises. After leaving the service he spent over three decades in the defense industry rising from manager to vice president working programs ranging from sensors and missiles for Air Force aircraft to rubbing shoulders with Army scientists; to Army helicopters and combat vehicles as well as rapid target acquisition (RTA), night vision goggles and helmets sights.

Dr. Robert Douglas

TPMI, LLC

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