

A 23rd Major Improvement to the Integrated Visual Augmentation System

To provide the Soldier instant knowledge of "how does this part connect to that part?"

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/EINPresswire.com/ -- According to Fortune Business Insights, the global 3D printing market size was valued at \$18 billion in 2022. It is projected to grow to \$106 billion by 2030. The US Army is well known for adopting the latest technology to increase its military might.

(12) **United States Patent** **Douglas**

(54) **OPTIMIZING ANALYSIS OF A 3D PRINTED OBJECT THROUGH INTEGRATION OF GEO-REGISTERED VIRTUAL OBJECTS**

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LTG (ret.) Aundre Piggee, former Army's Deputy Chief of Staff, explained that 3D printing "enables our Soldiers to explore and implement creative solutions to problems we can only imagine, but they live with on a daily basis". He also said, "We wanted to give them flexibility and the power to innovate." There are a number of advantages of 3D printing. It can help fill in gaps during delays in the supply chain. It is also useful in constructing customized parts.

In an 18 August article, [TPMI](#) discussed a scenario where a Soldier is faced with setting up an MK-47 Striker 40 mm automatic grenade launcher equipped with a fire-control system. Some military equipment can look like a jigsaw puzzle.

The first question, "how am I supposed to hold this thing?", commonly enters the mind of the Soldier. The article discussed the '674 patent wherein a 3D virtual hand to be displayed on an upgraded [IVAS](#) system could help the Soldier learn hands-on tasks, which could yield safer and more effective operations.

A second question is "how does this part connect to that part?" How is Part #1 positioned with respect to Part #2? How is Part #1 aligned with Part #2? What are their orientations? Confusion and frustration can easily amount.

TPMI, a relentless innovator in 3D Technology, has patented technology to boost the IVAS

capabilities with respect to 3D printing technology. In US Patent 11,090,873, TPMI has developed technology to optimize analysis of a 3D printed object through integration of geo-registered virtual objects. Using TPMI's '873 patented technology, the Soldier can hold tangible 3D printed Part #1 in his hand and see through an Augmented Reality Headset a virtual object corresponding to Part #2 registered to the tangible Part #1. No matter what the orientation is of tangible Part #1, the virtual object corresponding to Part #2 will be correctly aligned. This allows instant understanding of position and orientation alignment.

Thus, TPMI's '674 and '873 patented technology can work together for Soldier building complex military equipment. '674 answers the question "how am I supposed to hold this thing?". '873 answers the question "how does this part connect to that part?" The US Army is scheduled to receive 120,000 Integrated Visual Augmentation Systems (IVAS) systems. The '674 and '873 patented technologies would enable a major use case for the IVAS. Not only with these technologies help with the iterative process of developing complex parts, but these technologies will also help with training Soldiers and testing these parts in the field. When these technologies are integrated into the IVAS, they will improve efficiency, safety, and lethality of the US Army.

If the 120,000 IVAS systems are upgraded with the '674 and '873 patented technologies, Soldiers could have immediate skilled interaction with complex military equipment, even equipment the Soldier has never seen before and never worked on before. TPMI aims to work with [PEO Soldier](#) to integrate this novel technology into the IVAS.

About the author: Dr. Robert Douglas is one of the few known retired Infantrymen who have 80+ USPTO awarded patents. This was the 23rd patent discussed in this series of articles that is relevant toward improving the military/ IVAS. More to come.

Dr. Robert Douglas

TPMI

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