Ternion Uses New FLAMES Unreal Engine Option to Add UAV Vehicle Generation to USAF AOC-WS Embedded Training Simulation

Ternion has enhanced its Command-and-Control Weapon System Part Task Trainer, a training simulation based on its FLAMES Simulation Framework.

HUNTSVILLE, AL, USA, November 14, 2023 /EINPresswire.com/ -- Ternion Corporation has enhanced its Command-and-Control Weapon System Part Task Trainer (C2WSPTT), a training simulation based on Ternion's FLAMES Simulation Framework that is embedded in the U.S. Air Force Air Operations Center – Weapon System (AOC-WS). The C2WSPTT simulates air operations realistically and directly exchanges tactical data with other AOC-WS systems to allow operators to perform as they would in wartime and "train as they fight."

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> *Brad Spearing, Ternion president and FLAMES product manager*

"By using the new FLAMES Unreal Engine Option, future versions of the C2WSPTT will be able to generate a simulated unmanned aerial vehicle (UAV) video stream of realistic environments and damage effects," said Brad Spearing, Ternion president and FLAMES product manager. "Since Unreal Engine can create a video stream that can be displayed in a web browser, just like a real UAV video stream, no additional hardware or software in the AOC is required, which reduces cost and increases versatility. These new capabilities of the C2WSPTT can provide an even more realistic training experience for AOC operators to improve their operational readiness."

The C2WSPTT provides the AOC-WS with an embedded modeling and simulation capability that allows AOC units to conduct in-garrison training without the need for outside agency support. The C2WSPTT is also used by the 505th Training Squadron to provide formal training of AOC operators, by the 46th Test Squadron to test AOC-WS systems, by the Air Force Research Laboratories and other organizations to perform analysis, and in US Army Warfighter and other training exercises.

The low cost, versatility, and over 20-year success of the C2WSPTT can be attributed to the use of

Ternion's commercial off-the-shelf (COTS) FLAMES Simulation Framework. Ternion has employed numerous FLAMES capabilities in the C2WSPTT, including support for simulating thousands of entities in real time on a single computer, automatic scenario creation, interactive scenario control, checkpoint/restart, human behavior modeling, C4ISR modeling, DIS and HLA interfaces, and interfaces to live systems such as the systems in the AOC-WS. Ternion is currently enhancing the C2WSPTT to exploit one of the recent additions to FLAMES – the direct integration of Epic Game's Unreal Engine, a leading 3D content and game development platform.

This is a drone simulation created as a training simulation based on Ternion's FLAMES Simulation Framework that is embedded in the U.S. Air Force Air Operations Center – Weapon System (AOC-WS).

During wartime operations, AOCs frequently display video streams generated by a simulated unmanned aerial vehicle (UAV). Such video streams are used to support activities such as gathering intelligence, surveillance, target acquisition, and battle damage assessment (BDA). These video streams are usually displayed in web browsers.

"Currently, the in-garrison training capability provided by the C2WSPTT does not support the generation of simulated UAV video streams," Spearing said. "Ternion is working to change that. The integration of Unreal Engine into FLAMES will allow future versions of the C2WSPTT to generate a simulated UAV video stream during in-garrison AOC training events and during other training exercises."

This new capability of the C2WSPTT to generate a realistic UAV video stream of actual training scenario activity can allow for an even more realistic training experience for AOC operators. FLAMES and Unreal Engine support this new capability in the following ways:

- Unreal Engine is outstanding in its ability to generate and render realistic 3D worlds and vehicles which allows the generation of a realistic scene in the UAV video stream.

- Unreal Engine can render realistic visual effects, including smoke and explosions, which are essential to allow UAV video to support battle damage assessment.

- Unreal Engine is directly integrated into FLAMES (and hence the C2WSPTT). Therefore, the UAV

video stream displays what is actually happening in the simulation.

• Unreal Engine has a built-in ability to stream video to a web browser. This allows the video stream to be generated from the same computer on which the C2WSPTT is executing. Therefore, no additional hardware is required in the AOC to generate the video stream or to display it, and no new software needs to be added to the AOC-WS (other than the enhanced C2SWPTT).

A working prototype of an enhanced C2WSPTT will be on display in Ternion's Booth #2220 at the Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), the world's largest modeling, simulation, and training event, from November 27 to December 1 in Orlando, Florida.

About Ternion Corporation
Ternion Corporation is the developer of FLAMES and an expert in developing custom, FLAMES-based simulations for government and commercial organizations worldwide. FLAMES is a family of commercial off-the-shelf (COTS) software products that provide a framework for developing custom constructive and virtual simulations and interfaces between live, virtual, and constructive (LVC) simulations. For more information on FLAMES, visit flamesframework.com. For more information on Ternion's projects, visit ternion.com.

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