

## Unmanned Aircraft System (UAS) Training Simulator Delivered to JPEO-CBRND by ForgeFX Simulations and MRIGlobal

UAS simulator gives JPEO-CBRND the ability to deploy simulation-based training to operators to master the controls and process involved in operating a UAV.

SAN FRANCISCO, CA, USA, September 19, 2023 /EINPresswire.com/ -- This interactive 3D virtual training simulator is designed to instruct CBRND personnel in the remote operation of an Unmanned Aircraft System (UAS) from within a Nuclear Biological **Chemical Reconnaissance Vehicle** (NBCRV). Working directly with subject matter experts (SMEs) from the DoD and Teledyne FLIR, ForgeFX created digital replicas of their physical and virtual products, reproducing all the functions the physical objects perform. This simulator, running on a standard tablet computer, gives the **IPEO-CBRND** the ability to widely deploy simulationbased training to operators, who can master the complex controls and processes involved in operating a UAV and all of the onboard sensors it carries.



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Unmanned Aerial System Training Simulator Flight Control Overview Screen

The simulator recreates a CBRND reconnaissance mission featuring an NBCRV equipped with a sensor suite array and two pods, each containing a UAS. The UAS in the simulator is an R80D Skyraider drone carrying a MUVETM B330 Continuous Biological Detector and Collector payload, both manufactured by Teledyne FLIR. The Skyraider is launched from the NBCRV and directed

into an area suspected to be contaminated by airborne substances. Operated by means of the ATAK application running on a tablet computer inside the NBCRV, the drone's sensor payload helps the CBRND personnel triangulate on the position, speed, and contents of airborne contamination.

The <u>unmanned aerial system tele-</u> <u>operation training simulator</u> includes four guided lessons and an unguided reconnaissance mission in which the techniques learned in the lessons are



UAV Training Simulator Night Vision Training

put to the test and the trainee's performance is evaluated. Each lesson is methodical and interactive, simultaneously introducing the trainee to the placement and purpose of the controls while prompting them to perform the actions of the tasks. In this fashion the trainee is learning "on the job" with a skilled instructor.

The first lesson introduces two main aspects of the user interface: the controls for operating the two UAS pods to prepare for launch, and the components for deploying and controlling the B330 sensor payload. Instructions include directing the user how to interpret atmospheric conditions which can potentially halt the mission, and how to read the B330 sensor status and collection results. After activating the B330, the user is guided to activate the pod camera and open the pod. The pod camera video feed is shown in an inset window, and the user is instructed to look for obstacles that might impede the launch. Finally, the user learns about advanced features of the B330 collector, including the direction to only turn on the collector when the UAS is at height, and what kind of readings to look for when collecting samples from an aerosol cloud.

At the mission's conclusion, trainees receive a detailed performance report, grading them on total mission time, total flight time, sample collection time, number of collisions, and distance traveled. Medals—ranging from gold to participation—are awarded based on performance, along with a percentage score. A link to a detailed report itemizes any errors that the trainee had made, such as failure to reset the baseline of the B330 sensor or failure to employ the forward camera before sending the UAS to a waypoint.

With operator performance and expertise mission-critical factors in these types of CBRN surveillance missions, the real-time user performance analysis system likewise becomes a keystone component of the training simulator. By evaluating the trainee's performance metrics, the system not only charts the user's progress but also identifies specific areas for improvement, which results in actionable insights. Whether it's adjusting flight patterns, understanding sensor readings, or maneuvering to avoid collisions, the feedback is tailored to guide and uplift each

user's proficiency. Performance analysis also helps to make the training more engaging. By providing real-time feedback and tracking the user's progress, performance reports can create a sense of challenge and accomplishment. This can help to keep the user motivated and involved in the training. By intertwining state-of-the-art simulation with robust performance analysis, ForgeFX ensures that users of the Tele-Op Simulator are not just trained but are continually challenged and engaged, pushing the boundaries of their potential with every mission.

Learn more about this unmanned aerial system training simulator: <u>https://forgefx.com/simulation-projects/unmanned-vehicle-tele-operation-training-simulator/</u>

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