Aerial Firefighters Adopt Virtual Reality Flight Simulators for Training

Bridger Aerospace & Pretoria Engineering create a virtual aerial firefighting environment to train pilots for flying in wildfire conditions

BOZEMAN, MT, UNITED STATES, July 22, 2022 /EINPresswire.com/ -- Bridger Aerospace Group, LLC (Bridger) has partnered with Pretoria Engineering (Pretoria) to develop a virtual reality aerial firefighting training program. Aerial Firefighting pilots are required to fly in complex environments; however, replicating training for those conditions is impossible outside of flying on a fire. Bridger will offer its pilots a virtual training environment to better prepare for flight in challenging wildfire conditions and terrain.

Founded in 1994, Pretoria specializes in custom aircraft simulator design. In 2019, Pretoria launched its flagship project, "Sim Your Plane." The program links a virtual reality headset and customized sensor kits to flight controls, converting personal aircraft into realistic flight simulators.

"Pretoria is a great partner for Bridger. Like us, they are a young, ambitious company trying to elevate the future of aviation training," said Rob Dewar, VP of Flight Operations at Bridger Aerospace.

Bridger Aerospace Logo

Amphibious Capabilities of the Bridger Aerospace CL-415EAF Super Scooper Simulated in X-Plane 12

Bridger Aerospace CL-415EAF Super Scooper Simulating a Water Drop in X-Plane 12

Pretoria is creating digital versions of Bridger's fleet, allowing pilots to train in a realistic environment. They are designing the plug-in for X-Plane 12 that will integrate Bridger's aircraft and the ability to fly aerial firefighting missions. "Once it is released, X-Plane 12 will be the most realistic [flight simulator](#) engine ever made," said Dewar. "We are working directly with the developers of X-Plane as alpha testers, fine-tuning the physics and control of the aircraft on the water."

The unconventional mission requirements and weather features associated with aerial firefighting create various challenges when attempting to simulate realistic flight characteristics. To design the most accurate environment, Pretoria is working directly with Bridger pilots to replicate flight characteristics in the aerial firefighting mission.

Bridger and Pretoria will use a mixed reality environment with pass-through technology to integrate the flight environment and the physical world. "With mixed reality technology, crews can merge their real world with their virtual world," said Dewar. "For example, when pilots need to make a note on their kneeboard, they can see their hands, pen, notebook, and handwritten notes through the VR headset. Traditional VR hardware doesn't offer this real-world integration, making mixed reality a game changer for aviation training."

With its multi-user capability, Bridger's portable training simulators will allow pilots across the globe to interact virtually and train together. Simulator capabilities will enable individuals in separate locations to pilot and co-pilot the same aircraft virtually. Pilots can also re-fly previous missions or train for current wildfires, replicating the fire landscape and behavior.

The multiplayer plug-in will allow crews to practice communication protocols from home using a portable training station. With a Bridger instructor, two or more individuals can train in the same environment simultaneously. The technology can handle both local and online multiplayer, and any number of aircraft and crew positions can be added to the training environment.

Pretoria is designing the wildfire landscape with adjustable features such as fire size, wind direction, speed of growth, intensity, and smoke behavior. Customizable fire scenarios will portray real-life conditions, and the instructor can manipulate wildfires for training purposes.

"Our fire model uses the same formula that the United States Forest Service (USFS) uses to predict how fires will spread," said Dewar. "We can use real-world historical information to design an incident or create custom fires. Additionally, we can use past data and several custom variables to predict how a fire will spread."

Instead of using the traditional classroom or sandbox instruction, Bridger is building a new, innovative approach to training aerial firefighters. This new method will be a critical advancement for the industry. By offering virtual teaching methods for aerial firefighting, pilots will be immersed in a wildfire environment that will help prepare them to fly safer and more effectively.

Bridger Aerospace is an aerial firefighting company based in Belgrade, Montana. The company invests in technologies providing critical fire data to support front-line firefighters and offers a complete solution for aerial wildland firefighting with its Air Attack, Super Scooper, and UAV aircraft. The company is committed to improving collaborations, strategies, and technologies to protect human life, property, and habitat. Bridger Aerospace serves federal, state, and municipal government entities and other public and private organizations and clients.

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