



SBIR/STTR SUCCESS

The technology currently being developed by PhaseSpace for the U.S. Navy is set to make virtual and augmented reality affordable to the public



PHASESPACE, INC.

After nearly 20 years in the business of providing high-tech virtual and augmented reality training systems to the U.S. military, one might think PhaseSpace, Inc. has settled in its niche. However, a continued desire to push beyond its limits, coupled with subsequent Small Business Innovation Research (SBIR) funding, has helped to usher in the next generation of affordable augmented reality.

PHASE III SUCCESS

\$30 million in contracts with the Navy and commercial sales.

AGENCIES

DOD

SNAPSHOT

Founded in 1997, PhaseSpace leveraged DOD SBIR dollars to create virtual and augmented reality systems that are purchased by Google, Tesla, Disney, Boeing, Lockheed Martin, and the U.S. Army and Navy.

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“This technology that we are developing with Navy SBIR funding over the next two years, will be the technology used by everybody on the planet for affordable augmented reality,” says Tracy McSheery, President of PhaseSpace, Inc.

How does this apply to the real world? Let’s say a mechanic in California forgot how to fix a diesel engine. PhaseSpace’s software allows the user to superimpose the car’s manual on top of the actual engine, highlighting the bolts that need to be unscrewed or the parts that need to be replaced. It allows the user to play a video or tutorial while looking at the engine. Taking that one step further, PhaseSpace is developing what they call “collaborative” reality – now an image of an expert in New Jersey can pop up on the mechanic’s cell phone; the two users can compare pictures of the problem engine and can talk through the solution.

In the military sector, this advanced technology provides the same benefits. When a user is dealing with critical information, eyes need to be kept on the surroundings. An augmented reality device that superimposes images on the real-world scene is critical for improved training. The real evolution comes in using cell phones or tablets to display this information, eliminating the need for special, costly devices.

“The Navy is becoming more aware of the need to leverage commercial off the shelf technology,” explains McSheery. “They may want to share information across a large network of researchers. You plug in this device, that costs just hundreds of dollars into a smartphone. Now you’re leveraging the \$100 billion dollar cell phone industry. We are enabling the next generation of soldier to be able to do their job more effectively by leveraging off the shelf tools.”



PhaseSpace's Smoke VR system combines the virtual and augmented reality technology that was developed under the DOD SBIR program



PhaseSpace made a name for itself when it teamed up with the University of Southern California (USC) on a Small Business Technology Transfer (STTR) initiative and envisioned enhanced tracking capabilities as a technology that would improve virtual-reality training experiences for military personnel, providing evaluators with better data as they analyze troop actions in various scenarios.

PhaseSpace subsequently developed a technology where the individual's head, limbs, and weapons

could be tracked in real time and a virtual representation of the individual was rendered. To date, the company's tracking technology has generated over \$30 million in revenue, with the U.S. Navy being its largest research partner.

"The SBIR/STTR program is very advanced R&D money that is needed to take risky ideas and bring them to life," says McSheery. "With venture capitalists and angel investors, they want to see a working prototype. With SBIR, it's still just an idea. So the program is willing to reach much deeper into the future."

Today, PhaseSpace is bringing to fruition an STTR project from 2007, when the U.S. Department of Defense came to the company seeking an advanced Head Mounted Display. The Smoke VR System was PhaseSpace's answer to this need; combining excep-

tional quality optics with high resolution displays to create a virtual and augmented reality device that was completely new to the scene.

Under contract with the Office of Naval Research (ONR) and with the help of USC, the Smoke VR system is a high performance head mounted display allowing high quality virtual and augmented reality in a single device. It employs the company's patented high-resolution active market LED tracking system.

The Smoke VR project got a boost from PhaseSpace's previous work with ONR for its BlueShark project. Developed again with the help of USC, BlueShark leverages several techniques and technologies, including virtual and augmented reality, virtual humans, artificial intelligence, and human-computer interfaces to create a vision for what future workspaces and collaborations will look like.

The entertainment industry is also a key customer for PhaseSpace; the company's Impulse X2 Motion Capture System technology, which utilizes the same SBIR-funded technology, has been used in Hollywood on movies such as the Amazing Spiderman.

PhaseSpace employs a dozen people, mostly from UC Berkeley, with degrees in programming, engineering, and science. The company focuses on the affordable development of tools for training, sensing, and tracking that meet DoD needs, and that simultaneously have commercial potential.

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TRACY MCSHEERY
PRESIDENT

