

Getting Serious About Wireless VR

Barely in existence for three years, Orlando-based Serious Simulations (Booth 2826) has quickly established itself as an innovative provider of wireless virtual reality (VR) display technology.

Allowing untethered human motion, the company's patented technologies in wireless VR displays provide a means to effectively use real weapons in simulators for small group training.

Already working closely with the US Army Research Laboratory, Serious Simulations recently announced two significant contracts which both demonstrate the versatility of the technology and which will be crucial in growing the business.



Christopher Chambers, founder and CEO of Serious Simulations, said the company had quickly grown since starting in 2014, with its wireless VR technology proving popular for infantry training, as expected, but also finding applications with first responders, professional sports and even the entertainment industry.

"The main thing that folks noticed is that we have complete freedom of motion for the individual and that's because we're completely wireless. All of our competitors in this area either have backpack computers or they are tethered to video cords or power cords – obviously that restricts your movement," Chambers told the *Show Daily*.

"So that's one thing that definitely sets us apart. We have invented some wireless video techniques to create our wireless head mounted display and helmet mounted display (HMD). And that's unique to us – we have

two patents on that. And we're bringing that into fruition and hopefully shortly thereafter with our newest version of wireless VR."

The company's solution focuses on being able to remove the physical tether without adding any additional latency. By pre-processing video at the computer, sending it across wirelessly and then processing it on the HMD, the system is able to "deliver pixels in microseconds".

The other aspect that has allowed Serious Simulations to quickly gain a foothold in the market is the fact trainees are allowed to use all their own equipment, including real weapons, in the simulator.

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"In the case of a Soldier or a law enforcement officer, they can take the weapon out of the arms room, bring it into the simulator, we quickly convert it... and we put on the data sensing weapon skin, which allows the instructor to monitor everything that's going on in the weapons as they would any other tethered weapon in lots of other simulators. But we do that wirelessly and unobtrusively on the real weapon not some fake toy weapon.

"That's really important now because weapons are highly individualized – with scopes and lasers, they get their own arrangements and they get used to that. They need to get used to the actual arrangement of their weapons so they can react quickly. So, we have enabled training on the real weapon."

On November 11 it was announced that Serious Simulations had contracted with an undisclosed prime contractor for a NATO-member army for the full suite of individual and small group training technologies, which is brand-named "ready2train".

The contract has potential to yield more than \$10 million over the next three to five years – not insignificant for the Veteran Owned Small Business.

"That will be delivered into Europe starting in December. We had already delivered one system back in the spring. That was the

existing ready2train system and while they evaluated that, we made modifications for their use and now we are delivering the next set of systems. It's a whole suite of tracking, wireless VR and the real weapon skins. And that's all working together for this group level training."

Other deliverables include custom data sensor kits for real and simulated weapons, custom wired to wireless conversion kits, custom wireless and wired head mounted displays, and integration of Serious Simulations' Inverse Kinematic software, which enables human motion tracking in Virtual Battlespace 3.

Beyond this contract, the company is dipping its toes into the world of wireless augmented reality (AR) after being awarded a research and development contract with Melbourne-based Aeronyde Corporation.

Serious Simulations will produce a new wireless AR headset as part of key control technology for unmanned and robotic aerial vehicles.

The company will use its current and soon-to-be-announced patented wireless video techniques for the design, with the first prototype expected to be ready by the end of the year.

Chambers believes with AR device adoption rates for military, commercial, and entertainment purposes generally predicted to far outpace the growth of VR devices, development of this wireless AR headset will help the company make a step into that market.

With the company also working on a wireless link that will support 90 frames a second and much higher resolution – an innovation Chambers said will be a "big shocker to the industry" – I/ITSEC gives Serious Simulations an opportunity to seek out partnerships to help deliver on its various commitments.

"We're going to be out looking for any companies that would like to work with us who are ready to train as a system or any of the components there of – we are a small business but we're eager to succeed however we can. And cooperation is a good way to do it.

"But there will be no big demos or anything like that because frankly my entire company is going to be back in the office trying to deliver on that European contract, which is due at the end of the week of I/ITSEC."