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'Nova, Adaptive Digital nab Air Force pact

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A Conshohocken company and Villanova University have won a contract to develop a new type of communications system for the Air Force. Adaptive Digital Technologies, Inc. and Villanova's Center for Advanced Communications were awarded the contract by the Air Force Office of Scientific Research. The Phase One Small Business Technology Transfer contract is for $100,000. It gives Adaptive Digital and Villanova nine months to say how the type of system the Air Force wants can be built.


Kurtz

"We are doing a lot of research to narrow down how we propose to meet the Air Force's requirement and also study the feasibility of implementing something practically using today's technology", said Scott Kurtz, Adaptive Digital's vice president of engineering.

If the Air Force likes what they come up with, Adaptive Digital and Villanova can compete for a Phase Two Small Business Technology Transfer Contract. That would be worth $1 million and would require them to come up with a working prototype of the system.

The Air Force wants to develop a method for reliably transmitting video signals from unmanned aircraft to personnel engaged in urban warfare.

That's tricky because such signals normally would take up a lot of bandwidth and the Air Force wants them to be transmitted in a way that they don't. Also, cleanly transmitting the signals to multiple locations is difficult because buildings get in the way.

To get around those problems, Adaptive Digital and Villanova propose a system that uses two cutting-edge technologies: multiple input, multiple output, or MIMO, and space-time coding.

Using multiple output antennas and multiple input antennas and space-time coding makes it possible to increase the amount of data that can be transmitted reliably over a given frequency range.

Essentially, the technologies increase the likelihood that any data sent will get through at a faster rate and in a recognizable form. That makes it possible to send data at a faster rate, which increases the amount of data that can be sent.


McCarthy

Moeness Amin, the director of the Center for Advanced Communications, first came up with the idea of bidding the contract. Small Business Technology Transfer contracts must be awarded to university-company teams, so he asked Adaptive Digital if it wanted to bid with the center. He knew of the company in part because it's president, Brian McCarthy, is an adjunct professor at Villanova.

McCarthy said that although the center has the theoretical knowledge necessary to build the type of system the Air Force wants, Adaptive Digital knows how to apply he knowledge.

The contract could lead to bigger things for Adaptive Digital, which employs 11, if the technology can be used in other types of systems.

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