

UB gets crack at flying soda can

By Rob Varnon
STAFF WRITER

OK, University of Bridgeport, here's your mission. Design and build a camera that can transmit video over large distances in real time. Oh, it has to fit into something the size of a soda can, and, by the way, the thing will be flying through the air at about 150 miles per hour.

"It's really cool," said UB Engineering School Dean Tarek Sobh, about the problem his school has been tasked as part of a \$2.4 million U.S. Army project.

The university is a member of The Applied Nanotechnology Consortium, which will build an unmanned aerial vehicle for the Army that is smaller than today's drones used in Afghanistan, Iraq, Pakistan, Yemen and elsewhere. The funding was part of the Defense Appropriations Bill that was signed into law in December. The project includes the University of Hartford, the Connecticut Center for Advanced Technology Inc., the University of Connecticut and four private-sector companies, including Kaman Precision Products. New Jersey-based Imperial Machine & Tool Co. also is involved in the project.

The Connecticut Center for Advanced Technology is leading the project and expects its Laser Applications Lab to play a pivotal role in the miniaturization of the technology, according to Natalie Real, the center's chief administrative officer. The center is a nonprofit organization that is focused on advancing technology as a way to foster economic growth in the state.

Sobh, who holds multiple degrees in engineering disciplines, was as excited about the challenges the program holds as he was about raising the profile of the university's research capabilities. He said the University of Bridgeport will have to create a miniature camera system and computer algorithms to allow operators of the unmanned aerial vehicle to see what the craft is flying near in real time. The idea is to eliminate the delay in transmission so the vehicle's operator can see exactly what the "soda can" can.

The project also will bring people of different disciplines together, which will create learning opportunities for students, Sobh said.

He also said he hopes this project can create a breakthrough technology.

"It's a very big step for us," Sobh said of the immediate impact on the university. UB has won grants from NASA and worked on some highly technical projects in the past, but this is a multi-year program that could lead to higher-end research, he said.

Sobh would not discuss the potential uses for the unmanned aerial vehicle because that's the Army's domain.

University of Hartford's College of Engineering Dean Lou Manzione has been working to secure the project for nearly a year and a half. Like Sobh, his enthusiasm for the project was readily evident as he talked about the engineering. The device needs to be small enough for a soldier to carry as many as two.

"It's a very aggressive size target," he said, pointing out the Predator, the military's work horse unmanned aerial vehicle, which is too big to fit in a two-car garage.

The "soda can" will function more like a cannonball, he said. It's only going to fly for about 40 seconds, he said. One idea is to drop the device into a tube and fire it into the air, he said, describing a process that would mimic how a mortar round is fired.

Manzione said the idea is to make the unmanned aerial vehicle as multi-functional as possible. In addition to providing imagery of landscape to let soldiers know what's over the next hill, it could land and provide audio information for troops. Such as Sobh, Manzione said the Army will decide what it wants the device to do, and the consortium's job is to try to pack it with as much functionality as possible.

Manzione said he expects the group will have an early prototype within a year and a half. He said some major hurdles are controlling costs, while making a highly durable and functional unmanned aerial vehicle. The Army looked at this technology before but found the price tag prohibitive, he said. Because soldiers will need two apiece and they are being launched over long distances, they devices need to be replaced often, which could create future opportunities for factories.

As Manzione said: "This is about economic development."