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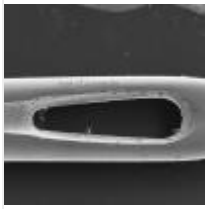

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STUDENTS 3D PRINTING A UAV DEVICE FOR THE LA COUNTY FIRE DEPARTMENT


by Todd Halterman

December 18, 2014

Raul Castrellon and Lawrence Goo aren't your typical high school students.

The pair of Palos Verdes on the Net students spent the bulk of their time over the summer not at the beach or the couch, but rather designing a 3D printed search and rescue "grappler" made to fit under a quadcopter.

Their prototype – scheduled to be delivered to the Los Angeles County Fire Department in June 2015 – features a claw-like structure made to open and close in the manner of the toy-grabbing machines seen in bowling alleys and arcades.

The pair took that idea and rethought the concept to come up with a design which suited a search and rescue device. It needed to carry a walkie-talkie, cell phone, medical supplies or even water to a person in need of emergency services, so Castrellon, president of the robotics team at Palos Verdes High School, and Goo, a junior at Peninsula High School, custom-designed the parts to make it happen.

"Most of the time, we can't even find a part to fit our needs, so we had to design it with a CAD program and then use 3D printing," Castrellon says. "To get it prototyped by a company would blow through our budget."

The work was supported by the LA County Fire Chief, and they call the result the Youth Design and 3D Print Search and Rescue UAV. The project was sponsored by MatterHackers and Airwolf 3D. They also found inspiration and direction from aerospace and electronics engineer, Ted Vegvari, the president and executive director of PVNet.

"We need a lot of money for parts, printing and testing," Vegvari says. "This is not cheap. We'd like to raise about $8,000 by February to complete the project and present it to the LA County Fire Department in June."

Thomas Ewald, the Assistant Interim Chief for the County of Los Angeles Fire Department, is also on board to help develop the prototype for his department's use.

His recommendation to Castrellon and Goo? Make the UAV device "rugged and reliable, simple to use and easily integrated" into operations.

"I look forward to working with the students in the months ahead to give them feedback as they move forward," Ewald says. "Innovations such as this have the potential to save lives and reduce property loss."

The team has already created a full-color, accurate scale model of the most active landslide area in the U.S to lend a hand to the local public works department. The landslide model was created using GIS Remote Sensing UAVs and given as a gift to the City of Rancho Palos Verdes.

"We're hoping that the fire department will actually use this," said Vegvari. "But, even if they don't use this actual model, we are designing it with the hope that it will be good enough to be used for what it's intended to do. More

important, we want to create something to build on – something which will gain momentum for other kids to pursue. We want to build awareness that youth can contribute and get involved with community emergency operations."
As for the students, Castrellon is on track to study mechanical engineering at Cal Poly Obispo next fall.

"I'll be the first person in my family to go to college," said Castrellon. "Both my parents came from Mexico, and didn't attend high school. My brothers went to high school, but I'll be the first one going to college.

If you need more information about the project or want to donate funds to help it be completed, contact Ted Vegvari by visiting www.pvnet.com.