



**Assembly required**  
Isaac Swift ['17] and Sabrina Nuth ['18] met after school on Monday to put together the new Deltaprinter unit. According to Swift, the printer will be used to help the new 3D Printing Club attempt more ambitious projects—such as a 2-meter-wingspan glider that can be shot into the stratosphere.  
**MICHAEL PATTERSON** | staff photographer

# Technology takeover

## Robotic presence expands with new Deltaprinter, 3D printing opportunities, aerial drone films

By | Jack Kieffaber

What's in the box?" was the question Robotics teacher Deb Goudy posed to the community over Schoology in late September with a picture of a nondescript shipping package.

The answer was a \$500 Deltaprinter, a new 3D replicator delivered to the Robotics Department by its creators at the State University of New York.

Though the school purchased a Makerbot 2 replicator in 2013, there's a special circumstance behind this purchase: students will conduct the first Deltaprinter assembly in a school setting and film it for use as a national marketing device for the company.

Though Goudy has become involved in negotiating with SUNY to pay for the machine and coordinate the video, the concept emerged from an idea of Isaac Swift's ['17], who became interested in 3D printing after his father, a neurosurgeon, used the technology to replicate human organs for transplants.

"I'm pretty involved in the 3D printer world, so I heard about the Delta printer and that it was made initially to be used in high school classrooms as a cheap way to introduce 3D printing," Swift said. "So I thought it would be cool to get one, and it wound up having more of an impact on the program than I ever expected."

At Swift's prompting, Goudy contacted Shai Schechter, a student at SUNY who helped design the printer. Goudy quickly realized this wasn't going to be just another equipment upgrade.

"Schechter and his team had a project to build a relatively inexpensive 3D printer to use in the classroom at SUNY," Goudy said. "Once they realized it was possible, their goal became to create one that schools all across the United States could afford so that students could start learning about 3D printing. I just called him to talk about the price logistics, and wound up discussing how we could share a video of us putting the printer together as a demonstration for them to use."

Swift used his connections as a member of the Robotics Team and founder and president of the new 3D Printing Club to assemble a team to build the device. He began with experienced Robotics students.

"The video is to prove that a high school can get it and put it together and effectively use it and that we can use it around school—whether it is in the Art Department with AP sculpture or with Robotics or even in Biology," Swift said. "It shows how the computer can be used for new educational purposes all around the school."

The printer isn't just cheaper—it's more effective. While Maker-

bot models run on a rectangular Cartesian grid, the Deltaprinter isn't bound to X and Y grids. So, the nozzle can move freely to different parts of the object it's creating, while the Makerbot has to travel in a rise-then-run pattern. This gives the Deltaprinter a significant speed advantage, which can help make 3D printing more accessible to students.

Though Goudy is excited about the prospect of letting her department be

showcased on the national level, that's not the only reason for acquiring the new printer. Having two units on campus will further cement 3D printing in the Upper School curriculum.

"Already Mr. Larson's AP sculpture

classes have to create a 3D modeled project," Goudy said. "We're trying to make the 3D medium intersect with as many different areas as possible—even, say, natural science. We're talking with Dr. Boberg about having a Friday morning group that does a natural study of the quarry and conceivably have kids study and identify a particular bird that lives out there, think about what is a safe nesting area for them, and then print some 3D models of nests

and test them."

Swift and two robot team members—Duke Trammel ['17] and Sabrina Nuth ['18]—completed the printer on Tuesday, and enlisted Cal Etcheverry ['17] to direct the video. Swift said that he hopes it will give Robotics a larger presence on campus—but that's not the only piece of machinery turning heads on campus.

Enter the Phantom III Professional Drone, piloted by Tate Hakert ['17]. He got his first drone for Christmas two years ago, and has developed a passion for flying them ever since.

"The Phantom III is my second drone, and I've had it for three months," he said. "I heard that ESD wanted to use drones to get shots of campus and I told them I had one, so I wanted to help out."

The Communications Department took Hakert up on his offer, and asked him to start by shooting aerial footage at the Homecoming pep rally.

"That was my debut," he said. "Communications told me to keep it secret and to wait until everyone showed up to take the drone out. Most people seemed surprised when they saw it. It was really fun to see everyone's face and make a video."

The first drone sighting created a stir on campus. The interest in aerial footage from both the ESD community and Dallas as a whole has landed Hakert numerous jobs in videography.

"Having a drone has gotten me interested in making films," he said. "I've been asked by a few people—parents included—to teach them how to fly drones,

and since then, I've gotten offers to shoot footage of restaurants, homes for real estate and other videos just from the attention I've gotten for my Phantom III."

Hakert is open to the idea of following in Swift's footsteps by turning his passion into a club.

"Drones are becoming cheaper and more accepted, but you still need some experience before you fly," he said. "I think there should be a drone club just like there's a Robotics at some point so that we could teach people how to fly."

This activity is meant to get Robot technology into the mainstream.

"These machines are taking over campus," she said. "It's exciting, and we want to get as many people interested as we can."

**Droning on**  
Tate Hakert ['17] "catches" his Phantom III professional drone after a flying session. He was first asked to fly the drone at the Homecoming pep rally, and used the attention garnered by that debut to expand to professional film work.  
**MICHAEL PATTERSON** | staff photographer



I want 3D printing to move out of this room and become something students in many different areas use to create something and try something new."

— Deb Goudy,  
Robotics teacher

