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College of Business News

Georgia Southern University

Innovating for a cause: Georgia Southern University manufacturing 3D printed PPE for healthcare workers

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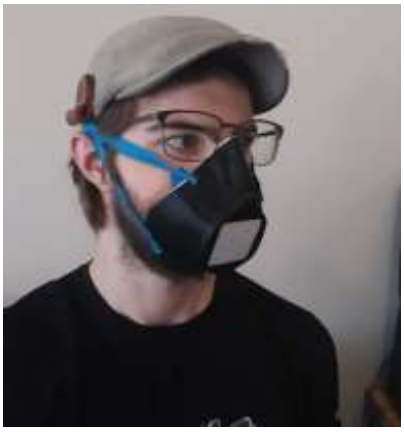


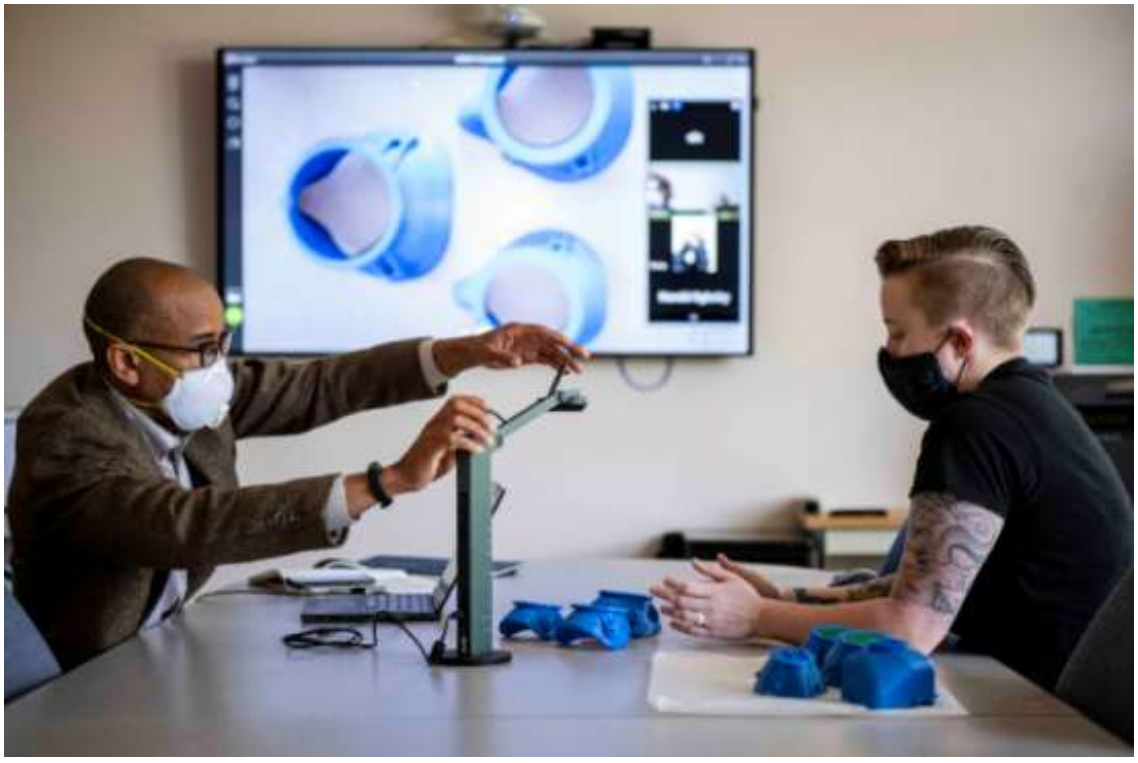
A 3D-printed Montana Mask

As the COVID-19 pandemic unfolded and healthcare organizations began experiencing shortages of personal protective equipment (PPE), faculty, staff and students at Georgia Southern University stepped up to fulfill a need.

Making use of the 3D printers on the Statesboro and Armstrong campuses, as well as at the FabLab at the Business Innovation Group's (BIG) downtown Statesboro location, the campus communities quickly began production of protective face shields and respirators.

"We can't afford to sit back and wait for things to happen," said Dominique Halaby, DPA, director of the BIG. "We have to make them happen. We have this responsibility to make a difference, to be a part of that front line, whether it's immediately in our community, our state or our respective area."

To date, the Department of Manufacturing Engineering has sent 200 3D-printed protective face shields with headbands to Augusta, Georgia, for healthcare workers at Augusta Medical Center, while the BIG has sent 100 face shields and 10 "Montana Masks," a 3D-printable respirator filtration mask that can be fitted to a healthcare provider's face and sanitized between uses, to Atlanta-area hospitals.



Wayne Johnson, Ph.D., professor of mechanical engineering, works with student Alicia Hawrylko to develop, test and donate 3D-printed respirators to St. Joseph's/Candler Hospital System.

The Department of Mechanical Engineering on the Armstrong Campus has also printed Montana Masks that will be delivered to workers in the St. Joseph's/Candler Hospital System (SJCHS) in Savannah, Georgia, while the Respiratory Therapy Program in the Waters College of Health Professions donated 10 ventilators to the Georgia Emergency Management Agency.

"I am unbelievably proud of our faculty, staff and students who have their own families to take care of, but are putting themselves on the line to help our medical professionals in this time of critical need," said Mohammad Davoud, Ph.D., dean of the Allen E. Paulson College of Engineering and Computing.

Doug Masini, Ph.D., prepares ventilators for donation.

Andrew Michaud, laboratory supervisor in the Department of Manufacturing, and Tara Drake, the department's administrative assistant, worked together to produce 3D-printed face shields with headbands for distribution.

"We are really glad to be able to help in any way we can," said Daniel Cox, Ph.D., chair of the Department of Manufacturing Engineering. "This is what engineers do – we see a problem, and we solve it."

Wayne Johnson, Ph.D., professor of mechanical engineering, believes providing these materials to the Savannah community during a time of critical need is reinforcing a longtime commitment to the region.

"The Armstrong Campus of Georgia Southern has a long history of working within the Savannah community, and during this pandemic, it was especially important for mechanical engineering faculty and students at the Armstrong Campus to step up during a time of great need," said Johnson. " Our work with SJCHS to develop, test and donate 3D-printed respirators may also lead to other research and development collaborations in the post-COVID-19 future."

In addition to benefiting area healthcare workers, Johnson believes this project is a great way for students to put their classroom skills into practice.

"It has provided our mechanical engineering student, Alicia Hawrylko, with a great opportunity to apply the skills she learned in our engineering courses to a real-world application in real-time," Johnson said.

Hawrylko initially approached Johnson looking for a way to use her engineering skills to give back. Not only did she help with the Montana Masks, she even worked with her partner to design custom cloth straps for the masks to enhance comfort for healthcare workers.

"I would not have originally thought working on a respirator for medical personnel is how I would be utilizing engineering," she said. "Having been a mechanic in the Air National Guard I had always assumed I would gravitate toward aerospace, but my time at the Armstrong Campus has taught me to rethink how I view engineering. I believe when students involve themselves in activities or projects within their selected degree programs, it benefits the entire school community. For me, it is a natural progression to also want to involve the community as a whole, in this instance working together with SJCHS to provide them the 3D-printed materials we are able to."

FabLab Coordinator Jim Walker prepares face shields and masks for shipment.

At BIG, FabLab Coordinator Jim Walker said they have masks and shields ready for local healthcare organizations should a need arise. Until then, they are working with the North Georgia Health System to distribute supplies there due to high demand.

“Bulloch County has been blessed to not have been hit with an enormous caseload, so there is not the need for additional PPE locally,” Walker said. “We are working with out-of-county hospitals, specifically, the Northeast Georgia Hospital System, which covers the city of Atlanta, to help with equipment shortages.”

He believes helping during a time of crisis is a moral obligation.

“Those with the power to act have the responsibility to act, and we have the ability to make a small difference with our production means,” he said. “As an innovation center, we are always striving to solve problems. We feel connected to the community and that we should give back in this time of crisis by using our resources to help solve the supply chain problems of PPE production and distribution.”

Halaby believes that making swift moves to use the available resources at the BIG and other areas of the university to fulfill a need are truly showing Georgia Southern’s innovative capabilities.

“This shows that great individuals and great ideas can come from anywhere,” he said. “I believe the common psyche is that we expect things to happen in Atlanta and kind of work their way down, but we’re showing that we have the ability, the skillset and the desire to have an impact anywhere in the world, even in a place as innovative as Atlanta.”

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