



For Immediate Release

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Media Release

West Ashley High students doing their part to support healthcare community

West Ashley High School

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Robotics Team members using 3D printer to create masks

Charleston, SC – Students at West Ashley High School (WAHS) are taking homework to a new level while they are e-Learning from home. Several students on the WAHS Robotics Team, led by Mechatronics teacher Nick Holmes, are helping give back to the community by assisting healthcare professionals in the fight against the coronavirus.

The project began at MUSC, led by doctors Mike Yost, Joshua Kim, and Walter Renne, who developed the Self-Assembly Filtration for Emergencies (S.A.F.E.) Cartridge System over the course of a few days. This item can be produced by anyone with a 3D printer.

“These masks can be used by medical professionals on the front lines who don’t have gear to protect themselves and by the older generation if they go to the grocery store,” explained Renne.

The group from MUSC quickly realized that they needed help printing masks since one mask takes four to five hours to print and roughly an hour to put together. They were designed to be printed on inexpensive printers so that schools, businesses, and families with printers could jump in and help out.

“The main thing that is important is for everyone to follow the instructions specifically as written,” said Renne.

The high school’s Parent Teacher Student Organization (PTSO) president Beth Traynham learned of the project through Renne’s social media account and asked if the high school could help.

After he said yes, Traynham reached out to Principal Ryan Cumback, who quickly jumped at the chance and informed Holmes about the opportunity. Holmes sent a message to his Robotics Team asking if anyone had 3D printers at home and were able to help.

"I think it is really incredible during these difficult times that our students have the ability and the resources necessary to provide much needed assistance to those on the front lines," said Cumback. "We have so many smart, talented students who are using the tools at their disposal to give back."

Emily Taylor and brothers Brandon and Nathan Gillner were eager to help print pieces of the masks from home. Nathan helps with the logistics and the files that are posted to the group's website to create the 3D renderings that the printer uses to produce each mask.

"It is rewarding to know that I can help be a part of the solution and make it easier for other people to do their part as well," said Nathan. "It is an incredible feeling to know that I am helping to make this possible."

Brandon is one of two students printing smaller parts to go with each mask and is responsible for producing the valve covers.

"I became involved with this project because I am a part of the Robotics Team," said Brandon. "It feels really good that a hobby I got into for fun is allowing me the ability to potentially help save lives."

Taylor, who is producing parts that go inside of the filtration piece of the mask, is doing the other piece printed from home. The pieces are very tiny and incredibly detailed, almost the size of a dime.

"I am happy to know this project is helping our community," said Taylor. "It feels amazing to help others including the hard-working nurses who are putting their health on the line to keep us safe."

While the smaller components are being produced by students, the high school's printers are busy producing the face mask itself. Holmes recently moved the printers to his house to help increase the amount of masks that can be produced in one day.

When the project began, it took Holmes and his students roughly eight hours to print all of the pieces for one complete mask. After a little trial and error they have been able to fit multiple masks on the print bed at one time which allows for eight masks to be made every ten hours. The goal is for them to be able to make one every hour which would allow them to eventually make up to 24 in one day.

When asked if they planned to stop anytime soon, Holmes replied, "Nope. We will keep printing until the need is no longer there."

Once all of the pieces are printed, Traynham assembles the masks before they are delivered to the VA hospital and several other local dentists and doctors' offices.

According to Holmes, the response to this project has been tremendous. He is receiving messages from students in robotics programs across the country after information of their involvement was posted to Facebook. As soon as the plans were shared, groups reached out to let him know they were going to produce as many as possible.

"I think it's great to see that we were able to complete a community project despite being socially isolated," said Holmes. "The bonus piece to all of this is that the masks are going to help people in need."

Equally impressed with the response to this project were representatives from MUSC.

"These types of collaborations are unprecedented where the community can come together to help out," said Renne. "It gives us a huge leg up to help make sure everyone has the ability to protect themselves."

Further stressing the mask's importance, Renne wants everyone to understand how incredibly important social distancing is during this time. Everyone should stay at home unless they have to go somewhere like the doctor's office or grocery store. If they do leave the house, masks like this provide much better protection than a cloth or anything other homemade device.

Anyone with a 3D printer at home who would like to help produce masks should visit the [WAHS Robotics Team's Website](#) for more information.

For more information, please contact WAHS Public Relations Coordinator Donnie Newton at (843) 852-2516.

Photo Captions

West Ashley HS 3D Masks PR 040120 (01)

Senior Nathan Gillner is eager to volunteer as one of the students needed to help print the masks. His role in the process is rendering the 3D model to make a graphic and to ensure there are no errors with the file before it goes to print.

West Ashley HS 3D Masks PR 040120 (02)

Sophomore Brandon Gillner is one of two students responsible for printing some of the smaller pieces that go into each mask. Once the finished parts come off the printer each has to be checked and cleaned before they are cleared to be used as part of a mask.

West Ashley HS 3D Masks PR 040120 (03)

Another part of the printing process is making sure that your machine is in working order and has enough supplies to complete each job. Between print jobs sophomore Emily Taylor removes the used filament to replace it with a new spool. Taylor also uses this break to clean the nozzle to ensure the pieces can be printed as precisely as possible.

West Ashley HS 3D Masks PR 040120 (04)

"I think it's great to see that we were able to complete a community project despite being socially isolated," said Holmes. "The bonus piece to all of this is that the masks are going to help people in need." Charleston Charter Math & Science is one of the local schools working with Holmes and his students to print masks for those in need.

West Ashley HS 3D Masks PR 040120 (05)

Even though the plans are out there, MUSC is continuing to change and update the specs as improvements are made. The latest update to the masks allows them to use Roomba filters that can be used for up to four months.

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About the Charleston County School District

Charleston County School District (CCSD) is the second largest school system in South Carolina representing a unique blend of urban, suburban, and rural schools that span 1,000 square miles along the coast. CCSD serves more than 50,000 students in 86 schools and specialized programs. With approximately 6,100 employees district-wide, CCSD is the fourth largest employer in the region.

CCSD offers a diverse, expanding portfolio of options and specialized programs, delivered through neighborhood, charter, magnet, IB (international baccalaureate), and Montessori schools, and is divided into three Learning Communities. Options include specialized programs in science, engineering and mathematics; liberal arts; music and other creative and performing arts; career and technical preparation programs; and military and other public service enterprises.