

# The Augusta Chronicle

## Augusta entrepreneurs build a better protective mask for health care, first responders

By Tom Corwin

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Eric Parker, Founder & President of the Clubhouse, holds one of the 3D printed masks being des... ▲

Trying to help local health care workers with a shortage of protective equipment, enterprising minds at the Clubhouse used feedback to construct a better mask that they are now seeking to get approved by the FDA.

"To me this is the best demonstration of how entrepreneurship is supposed to work," Parker, the president of the Clubhou.se technology incubator, said as he stood in its office inside the Georgia Cyber Center.

The new kind of protective mask "started with customer discovery," he said. "We had doctors reaching out to us wanting us to help fix this and willing to give us all the feedback about what works and what doesn't work. This was entirely done with the end user working with us in the process."

The Augusta mask began with the Montana Mask, a 3D-printed reusable plastic mask first conceived of by Montana doctors looking to address the crucial shortage of protective masks during the COVID-19 pandemic. The Augusta design is so different and more refined that the Clubhou.se has submitted it to the Food and Drug Administration for approval.

In the meantime, health care workers and first responders can use it under an emergency use authorization the FDA issued last month.

The makers of the Montana Mask made it an open-source design that anyone can download and use a 3D printer to make, but users in Augusta approached the Clubhou.se about making tweaks to it, Parker said.

"The initial feedback was the Montana Mask didn't have enough airflow, and they liked the original design we had of this but it was too heavy," he said. "So we worked to reduce the amount of weight."

There have been other tweaks as well, such as making the elastic strap easier to attach and adding grips to a part that is unscrewed to put in the disposable filter to make it easier to put on and take off, Parker said. The mask he held is actually version six of the design.

"Because the mask manufacturing is being done with 3D printing, every time we deliver masks into the field we ask them for feedback and we update the files so that essentially every day we can have a new version that we send out to the community," Parker said.

Because the mask is reusable, at the end of a shift, users can toss the filter, launder the elastic strap and wipe down the mask thoroughly using an alcohol wipe or spray, he

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"What we are encouraging them to do is to label their individual masks so they know it is theirs," he said. "From that point on, all they have to do is change out the cartridges and disinfect the mask part."

The silicon gasket, which Parker is currently manufacturing on his dining room table, also helps provide a tight seal. They have put the mask through a fit and filtration test where a plastic bag is placed over a subject wearing the mask and aerosol sucrose is sprayed in. The subjects performed tasks and spoke and none tasted the sugar during the test, showing a good seal, Parker said. They also documented the vital signs of someone doing physical activity to show it did not impair function, he said.

"We've worn these for a full day and not had any problems with that," Parker said.

The filter is made of three sheets sandwiched together and is made of the same materials as the N95 protective face masks, he said. Currently it is being cut and heat-fused by hand, but Parker watched as associates Joy Barr and Latasha Louis attempted to use the incubator's laser cutter to automate that process. The first try ended with the material catching fire and setting off a mad scramble to douse it with a bottle of water.

"So the first test didn't work so well," Parker said, laughing.

Having to scale up production at some point is something he has to think about. At \$35, they already have orders for 1,000 masks, which could mean making 7,000 filters a week, Parker said. By June, that could be 70,000 filters a week, he said.

The Clubhou.se is partnering with Valor Station, a nonprofit for recovering first responders, and 10% of the mask proceeds go to them, Parker said.

What was going to be called the Augusta Mask will now be called the Valor Mask in their honor, he said.

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