COVID-19 Relief

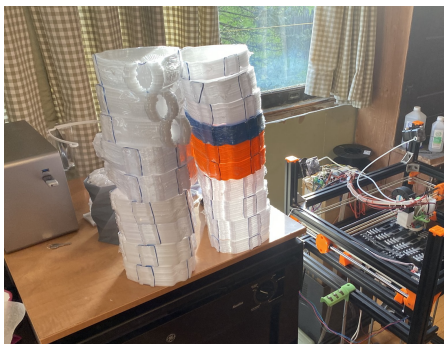
3DCaresNJ

Problem: During the start of the pandemic (March 2020), I saw the shortage of PPE after hearing news about The World Health Organization (WHO) sending a warning about "...severe and mounting disruption to the global supply of personal protective equipment (PPE) – caused by rising demand, panic buying, hoarding, and misuse – is putting lives at risk from the new coronavirus and other infectious diseases." Due to the issue our country was facing, I took initiative and joined my like-minded friends to create PPE from our 3D printers.

Solution: Due to the shortage of PPE, my friends and I started a small organization called 3DCaresNJ, which would help local organizations acquire face shields and ear savers created using our 3D printers. To start our work, we first reached out to every filament manufacturer in the U.S. and finally heard back from Toner Plastics based in Massachusetts. Thanks to a discount, were able to supply filament to everyone on our team so we can start printing without running out of filament. After receiving filament, we started 3D printing frames for face shields and used hole punchers to create transparent visors using acetate sheets. Roughly 200 were donated to SEWA International, a non-profit organization dedicated to increasing civic engagement in the U.S. to volunteer and promote volunteering, by the beginning of May. Next up were ear guards to protect cartilage from the surgical masks that nurses are required to wear for most, if not all, of their 12-hour shifts. By early May, we also printed over 1,000 ear guards, which we personally delivered to Cooper University Hospital in Camden.

Recognition: Throughout our efforts, we donated over 7000+ pieces of PPE to local organizations and hospitals. We also received recognition from NJ.com and the Trenton Times Newspaper for our efforts [Link]. Received Recognition from SEWA International [Link]

Images:



BunnyPAPR

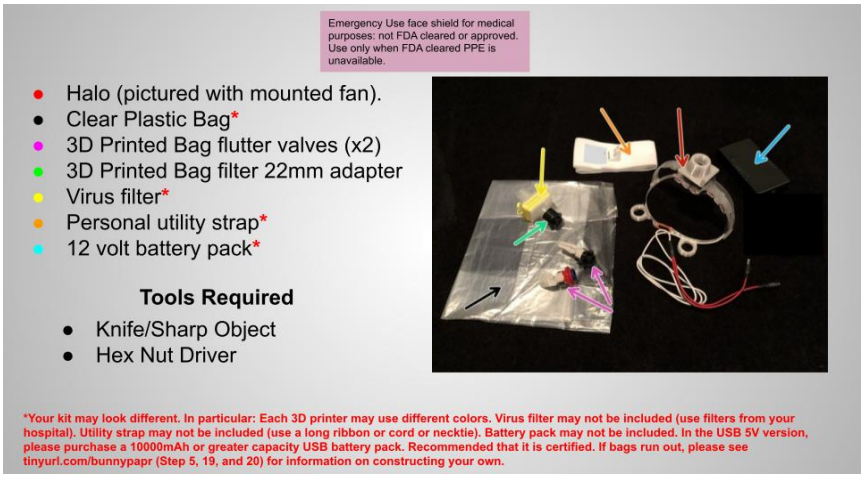
Problem: During the start of the pandemic (March 2020), I saw the shortage of ventilators after hearing news about The New England Journal of Medicine sending a warning about how “No matter which estimate we use, there are not enough ventilators for patients with Covid-19 in the upcoming months.” Due to the issue our country was facing, I took initiative and joined an organization called BunnyPAPR started by Professor Howard Chong of Cornell University, that aimed to create powered air purifying respirators for hospitals and labs.

Solution: Due to the shortage of PPE, I joined BunnyPAPR as the South Asia Communications Liaison, Guide Creator, and PAPR Prototype Builder.

As the South Asia Communications Liaison, I had to contact a BunnyPAPR team in India to compare the progress of our efforts and to start planning international testing of BunnyPAPR. I mostly communicated through applications like Discord and SLACK.

As the Guide Creator, I created the instructional guides that labs and hospitals would use when assembling their PAPR kits. In this guide, I put images that would easily allow the user to assemble the different components of the PAPR like the halo, outside visor, etc. I also created a QR code that offered a 24/7 chat bot that would answer any questions related to assembly.

As the PAPR Prototype Builder, I created some of the first versions of the PAPRs so that they could be shipped off to testing locations. This job required me to use my 3D printer to print components like the halo and headband. I also bought laptop fans, viral filters, battery packs, and utility straps. I then assembled the kit using the instructional guide I created and sent the devices off to the testing locations.



Recognition: Syntegra Grand Prize at UCSF COVID-19 Medical Hackathon, 2nd place in the JCRMRG Community Health Hackathon 2020

Images: