

Case Study



On-Demand, Custom Manufacturing to Protect Bus Drivers at Seattle Children's



Due to the COVID-19 virus, the healthcare system has borne a disproportionately large share of this disruption and has had to change its protocols and standard operating procedures on the fly as providers seek solutions to address new requirements for safety.

At Seattle Children's, efforts began promptly to address the implications for faculty and staff using the shared shuttle program; and GoProto (now UPTIVE) and Function Foundry were brought in to help.

The Bus Stops Here

Recognized as one of the nation's top pediatric hospitals, Seattle Children's has been providing quality health care and services for over 100 years, and its faculty and staff are key to serving the health care needs of the region's children.

With one of the earliest US COVID-19 outbreaks occurring near, Seattle Children's promptly examined its shared shuttle program, which transports a significant percentage of its workforce to and from work.

They quickly decided to install a protective barrier as a shield for the shuttle bus drivers and their riders, so the Seattle Children's Innovation team set to work, utilizing both in-house engineering and private-sector partners to develop a solution.

Function Foundry prototyped the design concept using cardboard cutouts and then did some proof-of-concept plastic inserts. Drew wanted the design to be durable and to look as though it belonged in the shuttle bus, and GoProto saw an opportunity to utilize 3D printing to not only accelerate the process but also produce parts that were robust and aesthetically pleasing.



Stuck in Traffic

Because of the recent dramatic increase in demand for parts to produce personal protective equipment (PPE), there is a bottleneck in the supply chain as many people rush to seek solutions. As a result, the supply chain for sheeting, clamps, fasteners, vibration abatement material, and other raw materials has been severely stressed.

"This pandemic has created a bit of a traffic jam where everyone is doing custom applications, and they are turning to the same vendors for parts and materials. So, ordering specialty off-the-shelf hardware could have required a longer lead-time than simply 3D printing the exact parts we'd need."

-Drew Fletcher, Function Foundry

And, although the project could have been completed using clamps and "off-the-shelf" components, in theory, he felt that using 3D printed parts would likely not only be cost-competitive but perhaps more cost-effective.

As a result, Function Foundry was able to design and GoProto was able to print and deliver custom parts with a shorter lead-time, and at a lower cost, than traditional channels.



A Process Built for Speed

By using GoProto's HP Multi-Jet Fusion printers, parts produced by Function Foundry could be combined with 3D printed parts to provide rigidity and shock absorption.

"MJF was the ideal fit for this project because of the durability of the parts and the unique requirement of dealing with vibration. For the project scope, nothing on the market could compete in terms of price, speed, and reliability."

-Jason Woodrow GoProto

The entire process from design to finished prototype was approximately ten days. This allowed Function Foundry to complete the installation in an additional two-week time frame. By utilizing the advantages of 3D printing design, and 3D printing on GoProto's HP Multi-Jet Fusion printers, the process and approach allowed Function Foundry to do a crafted high-end approach that blended form with function.



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