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Dayananda Sagar University designs face shields for medical professionals

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With the onset of COVID-19 and its uncontrollable spread, we need quick solutions to all possible hurdles to effectively fight the pandemic. While the demand for masks escalate rapidly, countries across the globe grapple to meet the requirement. Also, ensuring safety and protection of healthcare professionals is a priority. Management of the Dayananda Sagar University posed this challenge to the academicians in the University to come out with quickly implementable solutions, making use of the available resources.

Experts at the AUTODESK Design and Innovation Centre, Innovation Labs at DSU have come up with a Face Shield which is an important part of the Personal Protective Equipment needed by the healthcare professionals. It involves two components (a) Support with quick attach-detach attachment points to rest on the forehead of user and (b) Transparent film which protects the face of the user from viral load.

Based on the design, several units have been 3-D printed by the DSU team and released to Doctors for evaluation. After some iterations involving evaluation, design and manufacture, it is proposed to transfer the technology for mass-production to achieve cost affordability by common users. Typical pictures are shown below.

The Face shield has been manufactured using FDM (Fused Deposition Modelling), a 3D printing process that uses a filament of a thermoplastic material. It uses Polylactic Acid (PLA) as a filament material and 120 Micron Overhead Projector Film as a shield which is swappable for fitting new film after use. The product is developed by Mr. Vinayaka K, Manager, Autodesk Design and Innovation Centre, DSU; Dr. Suryanarayana, Professor - Aerospace Engineering, DSU and Ajay P, Student - Automobile Engineering, DSCE. The first product was launched on 28th March and utility started on 31st March.

“The Face Shield has been primarily developed for the medical professionals who face the greatest risk and are more vulnerable to catching the respiratory infections akin to the coronavirus. The aim is to give them extra coverage and protection. As there are lot of people who are in close proximity with the patients, the requirement of such safeguards is large. We already have multiple orders for the product and are continuously searching out for ways to enable mass production amidst limited access to resources and technology.” says Vinayaka K , Dayananda Sagar University. He added “We are willing to take approval from Indian Council of Medical Research (ICMR), Bangalore.”