



National Institute of Technology Karnataka, Surathkal fights COVID-19

Hand Sanitizers developed and distributed for free

Dr. Arun M. Isloor, Professor and Head, Department of Chemistry, National Institute of Technology Karnataka (NITK), Surathkal along with two research scholars Syed Ibrahim and Harsha have started production of hand sanitizers as part of NITK's community and social service activity. The first batch of 390 bottles (each about 70 ml) was released and distributed on Wednesday.

Following the pandemic COVID-19 outbreak, there has been a sudden rise in the demand for hand sanitizers and non-availability in stores has led to illegal manufacture of adulterated sanitizers, said Arun M. Isloor. He added "Since we had the required raw material in our lab, we decided to begin production quickly. We have followed the World Health Organisation's (WHO) guidelines and the sanitizers produced contain more than 70 % isopropyl alcohol, 20 % distilled water and 2% hydrogen peroxide. We have used glycerol to moisturize the skin and added jasmine fragrance".



Picture 1: Batch release by Prof. Umamaheshwar Rao, Director, NITK Surathkal & Mrs. Neeraja Rao



Picture 2: Handing over the Hand Sanitizer by Prof. Arun M. Isloor at Surathkal Police Station

The first batch of the consignment was released by Prof. Umamaheshwar Rao, Director, NITK Surathkal and his wife Mrs. Neeraja Rao. Sanitizers were distributed to security personnel of NITK

Surathkal and staff of State Bank of India and the dispensary inside the premises. The team also distributed the bottles to staff of Surathkal Police Station. The project is supported by Deans Prof. M. S. Bhat, Prof. Sripathi Acharya, Registrar Mr. Ravindranath and Deputy Registrar Mr. Ram Mohan. The second phase of distribution to City Police, Staff of the Deputy Commissioner's office and media personnel was held on Thursday.



Picture 3: Hand Sanitizer bottle released by NITK



Picture 4: Handing over to Security Personnel

With the sudden rise in the demand for hand sanitizers the price of isopropyl alcohol has also shot up. Prof. Arun said “I have approached the industry for raw materials. Due to the lockdown, its availability is getting delayed. In case the district administration can arrange for the raw materials, we are willing to scale up the production and distribute these sanitizers to all the front line health workers and non-health workers who are working round the clock to curb the spread of coronavirus and treat COVID-19 patients”. He further added that in case of sufficient availability of raw materials, plans are to extend this free distribution to all the outstation vehicles entering into Mangalore via NITK Surathkal.

3D printed Ventilator Components, Mask N95 filters, Face Shields

Prof. K. V. Gangadharan and Dr. Pruthviraj U., Centre for System Design (CSD) at National Institute of Technology Karnataka, (NITK) Surathkal has been working with the State and National Team to double the capacity of Ventilator availability through 3D printed components for Circuit splitter and flow regulator for Devices for Multiple patient lung ventilation. The design has been completed and the first level of test has been conducted at 10 different hospitals in different states. Presently, 3D printers available at NITK Surathkal are not sufficient to give the kind of accuracy we require for Medical devices. Thanks to Mr. Rajiv Bajaj, Managing Director, M/s Stratasys who readily agreed to provide two industry grade 3D printers capable of working 24x7 and consumables for this purpose for 3 months and Mr. Rudramani, Vice President and Center Head, DellEMC, Bangalore Design Center and NITK 89 Batch Alumni who coordinated the logistics.



Picture 5: Ventilator split and face masks



Picture 6: Experiments with ventilator split circuit

Besides, the team at CSD is also 3D printing sterilisable bio-safe face shields and N95 masks which are needed for front line medical staff, municipality employees, Police and Security Staff. It has been planned to print 1000 masks, given the current global shortage of supplies. OHP sheets needed for the face shields have been provided by Rao Xerox from the College Library. Moreover, 100 laser cut face shields will be made ready within three days for NITK security personnel.



Picture 7: 3D printed face mask



Picture 8: 3D printed face mask



Picture 9: 3D printed N95 mask



Picture 10: 3D printed N95



Picture 11: Laser cut face shield



Picture 12: Ventilator splits