Projects initiated by IIT Bombay for COVID-19 mitigation (updated 06 04 20)

Areas of work:

A. Antiviral drug/molecule synthesis

1. **In-situ Gel for Rapid Capture and Inactivation of 2019-nCoV**
   PI: Prof Kiran Kondabagil, Department of Biosciences and Bioengineering
   CoPI: Prof Rinti Banerjee, Department of Biosciences and Bioengineering
   CoPI: Shamik Sen, Department of Biosciences and Bioengineering
   CoPI: Ashutosh Kumar, Department of Biosciences and Bioengineering
   Remarks: Project funded by DST, GoI

2. **Identification of global metabolite biomarkers in COVID-19 infected patients for targeted therapy**
   PI: Prof Sanjeeva Srivastava, Department of Biosciences and Bioengineering
   Collaborators: Dr. Om Shrivastav, Jaslok Hospital Dr. Jayanthi S. Shastri, (T N Medical College & Nair Hospital) Specialist at Kasturba, Nair & Jaslok Hospitals.
   Remarks: Project funded by DST, GoI

3. **Plasma Proteomic Analysis of COVID-19 patients to identify the potential biomarkers and therapeutic targets: A Pilot Study**
   PI: Prof Sanjeeva Srivastava, Department of Biosciences and Bioengineering
   Collaborators: Dr. Om Shrivastav, Jaslok Hospital Dr. Jayanthi S. Shastri, (T N Medical College & Nair Hospital) Specialist at Kasturba, Nair & Jaslok Hospitals.

B. Sanitization approaches

1. **Development of Incineration device for safe disposal of Masks/Gloves in Hospitals and Quarantine Centres**
   PIs:
   - Prof Sandeep Kumar, Department of Energy Science and Engineering,
   - Prof Sanjay Mahajani, Department of Chemical Engineering

2. **Technology for Portable / Wheeled UVC Germicidal Unit / station for Disinfection**
   PI: Prof Ambarish Kunwar, Department of Biosciences and Bioengineering
   CoPI: Prof Kiran Kondabagil, Department of Biosciences and Bioengineering
Product design:
- Prof. P Kumaresan, IDC School of Design
- Prof. Purba Joshi, IDC School of Design

3. Surface Spray for Decontamination and Antiviral Action
- Prof. Soumyo Mukherji, Dept. of Bioscience and Bioengineering
- Prof. Suparna Mukherji, Centre for Environmental Sciences and Engineering

4. Sanitisation solution for hands for Institute personnel
- Prof. Soumyo Mukherji, Dept. of Bioscience and Bioengineering

C. Medical Devices
1. Development of Low-cost ventilator
PIs:
- Prof. Ramesh Singh, Department of Mechanical Engineering
- Prof. Soham Mujumdar, Department of Mechanical Engineering
- Prof. Ankit Gupta, Department of Mechanical Engineering

D. Surveillance
1. Use of "SAFE" app for Quarantine Adherence, http://safe.cse.iitb.ac.in/
PIs:
- Prof. Bhaskaran Raman, Department of Computer Sciences and Engineering
- Prof. Kameswari Chebrolu, Department of Computer Sciences and Engineering

2. CORONTINE : Tracking and Tracing of Asymptotic Carriers During Pandemic
PIs:
- Prof. Ganesh Ramakrishnan, Department of Computer Science and Engineering
- Prof. Manjesh K Hanawal, IEOR
https://www.insightiitb.org/the-corontine-platform-institutes-innovations/

3. Privacy Preserving Contact Tracing
PI: Prof. Bhaskaran Raman, Department of Computer Sciences and Engineering
E. IT Solutions

1. World Wide Help: IT solution for user-friendly, cost effective and customized information access on any topic and in any domain with humans-in-the-loop.
   PI: Prof. Kameswari Chebrolu, Department of Computer Sciences and Engineering
   URL: https://www.facebook.com/permalink.php?id=301908303167310&story_fbid=3129807277044051
   https://www.insightiitb.org/world-wide-help-wwh-a-remote-assistance-platform/

2. Student led efforts
   COVID PPE Tracker: Platform to connect people willing to donate and people who require PPE
   https://www.insightiitb.org/covid-19-ppe-tracker-institutes-innovations/

F. Personal protection

1. Face masks for Institute personnel
   - Prof. R. Kumaresan, IDC School of Design
   - Prof. Purba Joshi, IDC School of Design
   - Prof. B.K. Chakravarthy, IDC School of Design
   https://www.insightiitb.org/diy-face-masks-institutes-innovations/