Top 20 ideas from students & Project staffs of IITG for COVID-19 Challenge

Organized by IIT Guwahati jointly with IIT Guwahati Research Park

Crowd Control Using Drones (Mitigating risk by keeping local crowds and gatherings in check)

ANGANA BHATTACHARYA,
Research Scholar, Dept. of Physics

Proposes to increase the awareness of citizens about monetary schemes, via an 'App' designed by the team, so as to effectively release their economic pressure during COVID-19 pandemic.

Novel optical technique to characterize the RNA sequence of SARS-CoV-2

BIKRAM BARUTI,
Research Scholar, Dept. of EEE

Proposes to make an interference pattern based detection of the nucleotide variants of the viral RNA. This will help to detect region wise mutation of the viral genome, on a global scale, hence having many applications.

A traditional medicine approach for treatment of SARS-CoV-2

YOYA VASHI,
Project Staff, Dept. of BSBE

Idea based on developing anti-viral compounds from natural plant based products. Low cost, and fewer side effects are the expected benefits.

Compact and cost-effective ventilator design

MRIDUMONI PHUKON ,
Research Scholar, Dept. of HSS

To resolve the expected shortage of ventilators due to the COVID-19 pandemic, with an extended goal to make it low cost so as to reach out to the low and middle-income countries of the world.

Autonomous UVC Bot

PRATEEK MANOCHA,
B.Tech, Dept. of EEE

Proposes robot based solutions using high intensity Ultraviolet sources capable of automated disinfection of large areas.

Indoor Sanitization Robot - An autonomous wheeled robot with multiple disinfectant spray nozzles to sanitize indoor places

AMAN GOSWAMI,
B.Tech, Dept. of Mechanical Engg.

Proposes to develop an automatic robot capable of cleaning an disinfecting floors and walls, using disinfectant spray.

Study of cured covid patients

SONALI UTAGE,
B.Tech, Mechanical Engg.

Developing a machine learning based pattern recognition algorithm, to find useful data from cured cases of COVID-19.

Possible therapeutic targets of SARS-CoV-2 Infection Cycle

SHAMBHAVI PANDEY,
B.Tech, 3rd yr, Dept. of BSBE

Proposes different approaches based on interference with the critical steps of the virus host interaction.

A Combinatorial Approach to Screen Covid-19 Patient from Normal Flu or Cold

SUBRATA MONDAL,
Research Scholar, Dept. of Chemistry

Proposes a combination of analytical tests and computational methods to converge in on the real COVID-19 cases, circumventing the use of the standard COVID-19 detection kit, and thus reducing the economic burden.

Rapid diagnosis of positive COVID-19 patient via RT-LAMP technique

GUNDAPPA SAHA,
Research Scholar, Dept. of BSBE

Developing a RT-LAMP based test kit for virus detection, capable of being produced in an urgent basis, relieving the dependence on foreign countries.

Eco-friendly Accessories to Prevent COVID-19 Impact on Mother Earth

ABHISHEK SINGH,
Research Scholar, Centre for the Environment

Proposes to address the non-recyclable material and wastes overload associated with the management of the COVID-19 pandemic, by developing equivalent bio-degradable plastic alternatives.

One-step cost-effective fabrication of the highly efficient electrochemical sensor for instant detection of COVID-19

SUPRIYA DAS,
Research Scholar, Dept. of Chemistry

Proposes a paper based sensing approach with mobile interfacing, capable of breath as well as saliva testing, intending to bring down cost and testing time, and increase efficiency.

Immuno-booster Drug Dosage Form for Quarantine and Isolated COVID-19 Patients

VIVEK PRAKASH,
Research Scholar, Dept. of BSBE

Proposes an exploratory approach for finding out the immuno-boosting constituents from Ayurvedic drugs and natural products., to resist SARS-CoV.

Economic assistance to the citizens

VEDIKA KULKARNI,
B.Tech, Dept. of CSE

Proposes to increase the awareness of citizens about monetary schemes, via an 'App' designed by the team, so as to effectively release their economic pressure during COVID-19 pandemic.

The approach of inhibiting the endosomal acidification to accomplish anti-viral effects

KAMAL SHOKEEN,
Research Scholar, Dept. of BSBE

Proposes a method based on increasing the pH inside endosomes, so as to disrupt critical SARS-CoV viral pathways.

Rapidly Manufacturable Emergency Ventilator for COVID-19 and related respiratory pandemics

JOSEPH THARION,
Sr. Project Engineer, NECBH

Proposes a basic design of a ventilator which can be assembled and set to go with local resources, so as to cope up with urgent scale ups needed during respiratory pandemics.

Repurposing of FDA approved drug for targeting NEDD8 activating enzyme (NAE) of ubiquitination pathways to combat SARS-CoV-2 infection

KEDAR SHARMA,
Research Fellow, Dept. of BSBE

Proposes a virtual screening based approach for evaluating various FDA approved drugs for activity against a specific viral enzyme, validation by computer analysis and evaluation by cell culture studies.

Detection of SARS-CoV-2 using Ultrasensitive Magnetic nanoparticle DNA probe-based PCR assay

SUDHIR MORLA,
Research Scholar, Dept. of BSBE

Proposes a Sandwich assay involving both gold and magnetic nanoparticles for signal amplification, followed by PCR based detection, which is more sensitive than conventional ELISA & PCR.

Detachable Door Handle Sanitizer System

VISHWAS MISHRA,
B.Tech, Dept. of BSBE

Proposes a gravity assisted self-replenishing sanitizer unit based on a special detachable foam covering on door handles.

Smart N95 mask with nano-protection & enhanced ventilation

SOMNATH CHANDA,
Research Scholar, Centre for the Environment

Proposes to address the shortcomings of the N95 mask by incorporating Activated charcoal adsorbant.