

Build Against The Virus

Why “Build Against The Virus”?

The coronavirus COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge we have faced since World War Two. Since its emergence in Asia in 2019, the virus has spread to every continent (except Antarctica). There have been 190,000 deaths attributed to Covid in India since the start of the pandemic and the number keeps rising.

What is “Build Against The Virus”?

At ACM-W, we wish to work towards combating the deadly virus with the help of technology. We wish to host a virtual hackathon, “Build Against The Virus” that aims to provide some aid in this time of need.

The following examples prove how technology can be used:

1. **AI** has been used mainly to help detect whether people have coronavirus through the detection of visual signs of Covid-19 on images from computerized tomography (CT) lung scans; to monitor, in real-time, changes in body temperature through the use of wearable sensors; and to provide an open-source data platform to track the spread of the disease. AI applications can be used to disinfect patient rooms and scan approved drug databases for medicines that might also work against Covid-19.
2. **Blockchain** applications could monitor disease outbreaks over time by creating 'ledgers' that are both secure and updated hundreds of times per day. Additionally, using blockchain can improve diagnostic accuracy and treatment effectiveness, streamline the rapid isolation of clusters of cases, track drug supply chains and medical supplies, manage medical data and identify disease symptom patterns. In cases such as a virus outbreak, where high numbers of real-time incoming data are released, blockchain can reduce uncertainty, offer computational trust, and an automated platform for recording and exchanging consistent factual information between multiple parties.
3. **3D printing** companies are stepping in to make PPE for doctors and nurses on the front lines. So far, 3D printer manufacturers Carbon, Prusa Research, and Formlabs 3D Systems are producing face shields at a rapid pace. Around 7,500 masks have already been produced and a significant increase in production is expected. A spokesperson for Carbon told WKTV the company can produce 50,000 shields per week if necessary.

Technology can be used in many more ways!

Themes

1. **Health:** Address and scale a range of health initiatives, including preventative/hygiene behaviors (especially for at-risk countries and populations), supporting frontline health workers, scaling telemedicine, contact tracing/containment strategies, treatment, and diagnosis development.
2. **Vulnerable Populations:** Problems faced by the groups of people who are disproportionately affected by the various health, economic, and social issues related to the COVID outbreak around the world, such as those with underlying health conditions or a thin social safety net.

Examples Ideas

Theme Health

1. Wearable electronic devices can be developed which allow physiological signals to be continuously monitored and can be used in the early detection of asymptomatic and pre-symptomatic cases of COVID-19. This could help prevent the spread of the deadly virus.
2. The lack of reliable data has been one of the ongoing issues in the first stages of the world pandemic. Blockchain can be used to monitor donations and resources. Platforms like Shanzong in China track the origin of donations and guarantee every step until they reach their recipients.
3. Image processing techniques can be applied to detect if the waiting room area in hospitals is getting too occupied and can send alerts so as to maintain social distancing.

Theme Vulnerable Population

1. A large number of the world's population is unemployed due to the current situation. An app can be developed through which a recruiter can send in her/his preferences and based on that profiles and resumes of candidates who are hunting for jobs could be sent to the recruiter. This would prove to be an efficient solution to help unemployment.
2. A website can be developed which can connect daily wage vendors to their potential buyers. The local vendors could take pictures of the product and assuming that a vendor would not know how to type, she/he could send a voice note of the price which could be translated to text and uploaded to the site along with the pictures of the product. If it meets the needs of the buyer, she/he can use a delivery service to purchase the item.

Phases

Property	Initial stage	Phase I	Phase II	Finale
Team	Participants register teams of a minimum of 2 members and a maximum of 4 members with unique team names. Interdepartmental - Not allowed	All registered teams participate in phase 1.	Shortlisted teams pushed to phase 2.	Shortlisted teams (based on the count) pushed to the finals.
Schedule	Registrations close by 16th May, 9:00 PM.	9:00 AM, 17th May 9:00 AM, 20th May.	Submissions close by 22nd May, 5:00 PM.	6:00 PM, 22nd May to 7:00 PM, 22nd May.
Deliverable		Idea submission.	The working model with demo video or ppt submission. Optionally, a GitHub repo link can be submitted as well.	Demo video or ppt presentation to the judges.
Format of Deliverables		The idea should be presented in a pdf or doc format with a brief description - 300 words max.	Video (preferably mp4) and ppt in pptx or pdf format.	Presentation.
Judging & Evaluation		By the organizing committee, based on the evaluation criteria.	By the organizing committee, based on the evaluation criteria and submissions' quality and wholeness.	By the judging committee based on the presentation.
Shortlisted teams		TBD based on the number of registrations.	TBD based on the number of submissions.	Top 3 selected as the winners.

Results / confirmation	Confirmation sent by 16th May, 10:30 PM (approx).	Announced by 12:00 PM (approx).	Announced by 5:30 PM (approx).	Announced immediately.
Mode of conduction/ communication	Confirmation via email.	Communication via common WhatsApp group. Submissions via g-form.	Communication via common WhatsApp group. Submissions via g-form.	Google meet.

Perks of Participation

1. The top 3 finalists shall receive incentives. (1st prize Rs.2,000 , 2nd prize Rs.1,000) will be donated to a charity of their choice.
2. Digital certificates to everyone who participates in the hackathon.

Evaluation Criteria

Impact	Innovation	Implementation	Communication	Fits Theme	Future Plans
A1: Is the problem clear and relevant to the current situation?	B1: Is the solution new/different/creative?	C1: PoC/Prototype showcases feasibility and scalability.	D1: Diversity of the team.	E1: Does it fit the theme?	F1: Does the hack seem practical and viable?
A2: How large is the impact, will it benefit the maximum number of people?	B2: Is the solution a game-changer?	C2: Technical Complexity/Difficulty of Solution, degree of polish, thought, and effort.	D2: Persuasiveness of Presentation.		

Important Dates

- 16th May - 9:00 PM : Event registrations close.
- 17th May - 9:00 AM : Phase 01 begins.
- 20th May - 9:00 AM : Deadline to submit the idea.
- 20th May - 12:00 PM : Shortlisted teams announcement.
- 22nd May - 5:00 PM : Deadline to submit the phase 02 deliverables.
- 22nd May - 5:30 PM : Shortlisted teams announcement.
- 22nd May - 6:00 PM : Presentation with the judges.
- 22nd May - 7:00 PM : Final winners announcement.