

SPECIAL  
ISSUE

# INDIA Forbes

SALUTE TO THE **ULTIMATE 120** WITH THE POWER OF CHANGE

in association with  
**oppo**

## INNOVATORS IN COVID TIMES

*In the first of four special issues,  
Forbes India profiles 31 entrepreneurs  
who are disruptively innovating to create  
solutions to tackle the Covid-19 pandemic*

(From left)  
**Gautham Pasupuleti**,  
CEO and managing  
director, Biodesign  
Innovation Labs

**Prashant Warier**,  
Co-founder, Qure.AI

**Jayakrishnan T.**,  
founder, Asimov  
Robotics

SPECIAL  
ISSUE

# INDIA Forbes

SALUTE TO THE **ULTIMATE 120** WITH THE POWER OF CHANGE

in association with  
**oppo**

## INNOVATORS IN COVID TIMES

*In the first of four special issues, Forbes India profiles 31 entrepreneurs who are disruptively innovating to create solutions to tackle the Covid-19 pandemic*

**Akshay Singhal**, founder and CEO, Log9



**Nupur Agarwal**, founder, Kiwi Kisan Window



**Shardul Sheth**, founder, AgroStar



**Anand Virmani**, cofounder, Nao Spirits



**Ashish Jhina**, Co-founder, Jumbotail



**Sanjeev Aggarwal**, MD & **Vaishali Aggarwal**, technical director, Scott Edil

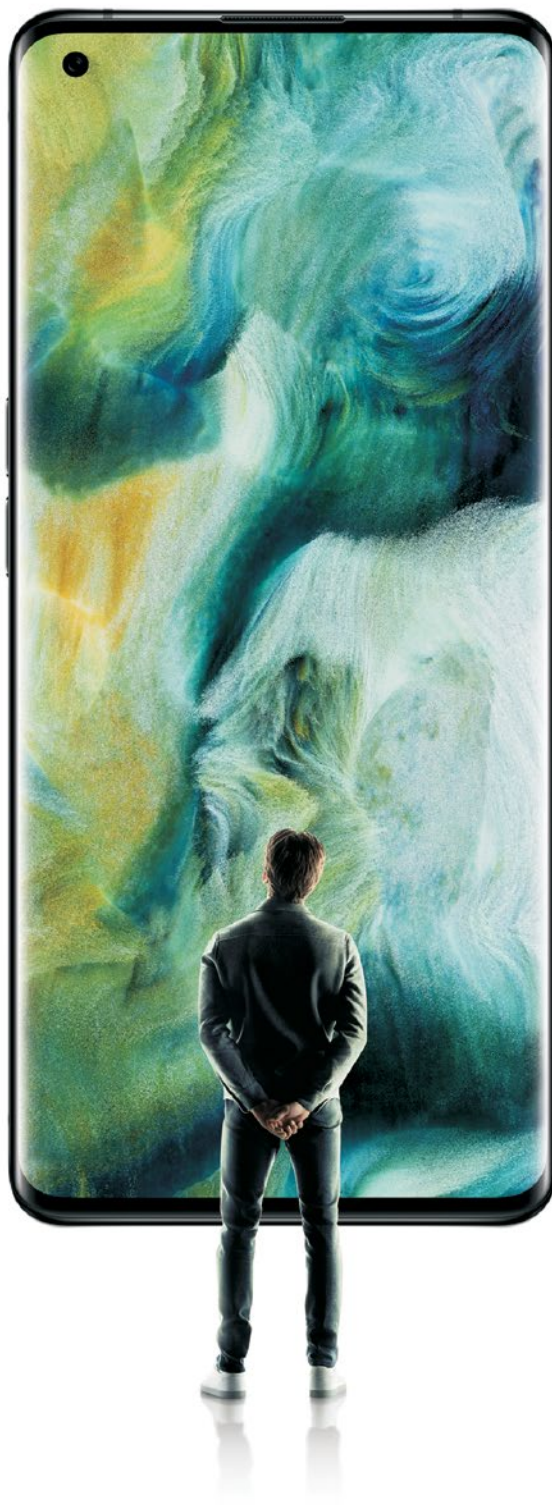


Shot on OPPO Find X2 Pro



oppo

OPPO Find X2 Series | 5G  
UNCOVER THE ULTIMATE



Letter From The Editor

# Saluting the Covid-19 Changemakers

In a crisis, be aware of the danger, but recognise the opportunity,” said John F Kennedy, the 35th president of the United States. Kennedy was no stranger to crunch situations, from the Cuban Missile Crisis to standing up for African Americans.

Covid-19, for its part, is a crisis that few imagined would blow up to be so big. That it is a global crisis, and a humanitarian one as millions lose their livelihoods and hundreds of thousands their lives, calls for action and leadership of the highest order. And therein lies the opportunity—for a few good women and men to step forward and ease the burden of the rest.

These are the health care providers who put their lives on the line to get those infected on the road to recovery; those who are making the protective equipment to keep these

frontline workers safe; those supplying oxygen and making ventilators to offer patients a critical lifeline. Then there are those who save lives by ensuring that people who have lost it all do not go hungry and homeless; there are those who provide us with those essential services from food, groceries, medicines, transport, banking and information technology services; then there are those who are ensuring that livelihoods go on as well, by developing technologies that enable work from home, and by making office and shop floor spaces safe and secure for workers to get the machines humming again. And let’s not forget those in the laboratories, who are working overtime to develop medicines that hasten the recovery process as well as a vaccine that will serve as a preventive to the pandemic.

That’s the opportunity to take the lead in doing

good in a crisis; to do good via creative destruction and disruption. For many, it involves unlearning the past and starting afresh, and spotting opportunities that never existed pre-Covid, even as they bid adieu to old ones.

Such disruption calls for innovation; for endurance; for performance against the odds, and for the well-known and celebrated to use their fame to make a difference.

We at *Forbes India*, in association with OPPO, have decided to honour the not-so-obvious heroes of Covid-19 on the basis of their contribution across these four pillars. This is *Forbes India’s* Salute to the Ultimate 120 with the Power of Change.

The current Special Issue, the first of four, is focussed on Innovation during the pandemic, and is packed with the initiatives of 31 creators in myriad fields, from medical

equipment and screening and testing to e-learning and e-grocery. The cover features Gautham Pasupuleti, CEO & MD of Biodesign Innovation Labs, which is building affordable ventilators; Prashant Warier, CEO & co-founder of Qure.ai, which has come with a technology solution that can quickly detect lung abnormalities in Covid-19 patients; and Jayakrishnan T, founder & CEO of Asimov Robotics, which has developed the Karmi-bot that provides food and medicines to patients in Covid-19 isolation wards. And there are many more inspiring stories of entrepreneurs who have tweaked their existing business models to create solutions tailored to tackle the pandemic.

We will follow this up with three more issues pegged on Endurance, Performance and Style. That’s our tribute to the Heroes of Covid-19. ✨

STORIES TO LOOK OUT FOR



▲ (From left) Gautham Pasupuleti is building affordable ventilators and wants to make the devices accessible to all; Prashant Warier’s technology solution can detect lung abnormalities in Covid-19 patients



**Brian Carvalho**  
Editor, *Forbes India*

[BRIAN.CARVALHO@NW18.COM](mailto:brian.carvalho@nw18.com)

Best,  
*Brian Carvalho*

oppo

Forbes<sup>INDIA</sup>

presents

ULTIMATE 120

in association with

OPPO Find X2 Series



## OPPO Find X2 Series Salute to the Ultimate 120 Warriors

Breaking through the shackles of the limitations of a smartphone, OPPO Find X2 Series makes exploration a way of life.

OPPO in collaboration with Forbes India salutes the COVID-19 change-makers. On behalf of everyone whose lives have been impacted by these warriors, OPPO acknowledges their altruistic work with an OPPO Find X2 Pro Premium Limited Box.

It is our endeavour to offer the ultimate experience to people, let them uncover endless possibilities with OPPO's Find X2 Pro and eventually Uncover the Ultimate.





Jayakrishnan T

## ON THE COVER

### 12/ Bot an Idea

At Asimov Robotics, Jayakrishnan T has designed a robot to minimise exposure of health workers to Covid patients

### 14/ X-Ray of Hope

Prashant Warier's technology solution at Qure.ai can help Covid-19 patients with lung abnormalities

### 16/ Breathing Easy

Biodesign Innovation CEO Gautham Pasupuleti is building affordable ventilators for critically-ill Covid patients



Gautham Pasupuleti

### 18/ Delivering the Goods

Sagar Daryani delivered groceries and essentials along with food to avoid layoffs at Wow! Momo

### Breath Of Life

Vishwaprasad Alva of Skanray plans to boost ventilator production to 30,000 units

### 19/ Advance Test

Rahul Pathri's Docturnal has an app to pre-screen people for the coronavirus

### Finding a Voice

At Innaumation, Dr Vishal Rao is customising masks for people suffering from throat cancer

### 20/ Trucking On

Kapil Bharti and team have kept Delhi very nimble to navigate the crisis and supply essentials

### Doorstep Delivery

Ashish Jhina's Jumbotail built a robust supply chain to provide household essentials

### 21/ Seeds of Change

Despite the lockdown, Shardul Sheth of Agrostar helped farmers with sowing for the kharif season

### 22/ Design for the Future

Suhani Mohan and Karthik Mehta of Saral Designs adapted sanitary napkin machines to make masks

### The Silent Monitor

Atul Rai of Staqu Technologies repurposed its AI warden to track employees in hospitals, warehouses and restaurants

### 23/ Face-Saver

Preetham Daniel of Harkness Screens pivoted to 3D printing face shields, PVC aprons and curtains for doctors



Suhani Mohan and Kartik Mehta, founders, Saral Designs

# FIND X FIND MORE

From the beginning, 'EXPLORATION'

is the DNA routed in OPPO.

Be extraordinary, continue to want

to explore the ultimate

Find X series provide users with the

ultimate product experience.

Explore the ultimate with youth who

are unwilling to be ordinary.



**FINDER** | 2012  
World's Thinnest Smartphone



**FIND 5** | 2012  
First 1080P Screen Smartphone



**FIND 7** | 2014  
First Smartphone equipped  
VOOC Flash Charge



**FIND X** | 2018  
World's First Stealth Camera &  
Panoramic Display



**FIND X2** | 2020  
The perfect screen of 2020



Akshay Singhal

## 23 / Chamber of Safety

Akshay Singhal's Log 9 Materials has built a disinfection product for PPEs and public spaces

## 24 / Farm to Table

Thirukumaran Nagarajan's Ninjakart took fresh produce from farmers to people's doorsteps

## Helping Farmers & Buyers

With Krishihub, Jyotiska Khasnabish linked farmers and agri players to reduce wastage



Nupur Agarwal

## 25 / Lending a Hand

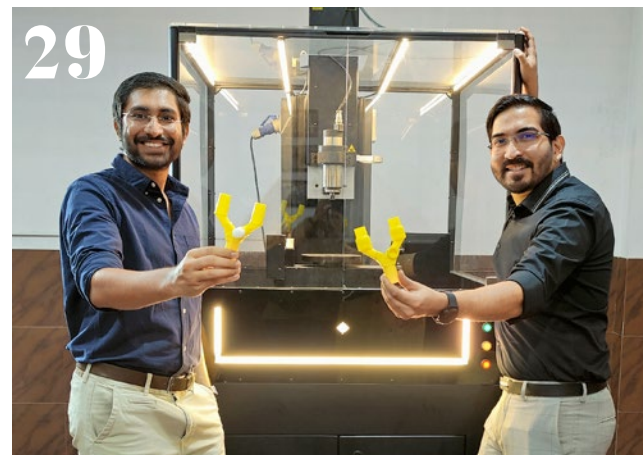
Nupur Agarwal of KKW provided farmers with seeds and fertilisers

## 26 / Message In a Satchet

CK Ranganathan's CavinKare made affordable sanitiser sachets

## Hands On Approach

VLCC's Jayant Khosla launched sanitisers made with premium-quality alcohol during the pandemic



Kaushik Mudda (left) and Navin Jain of Ethereal Medicines

## 27 / Class Act

Madhav Chavan's Pratham helps rural India with e-learning

## 28 / Feeding the Needy

Varun Tuli opened up his kitchens to cook for migrants

## 29 / Breathing New Life

Ethereal Machines uses 3D printing to augment ventilator capacity

## 30 / The Corona Shield

Guruprasad Rao's Imaginarium's circuit splitters help multiple patients use the same ventilator

## 31 / Hygiene Check

Reckitt Benckiser, led by Pankaj Duhan, distributed soaps, masks and disinfectant products

## The Switch

Angad Singh Thakur pivoted to manufacturing sanitisers



Scott Edil's Vaishali and Sanjeev Aggarwal

## 32 / Extend a Helping Hand

Rushabh Shah made sanitisers and fed the needy

## Tonic for the Troubled

Anand Virmani of Greater Than provided jobs on commission basis

## 33 / Sanitiser Pivot

Vaishali and Sanjeev Aggarwal scaled up sanitiser production at Scott Edil to meet demand surge

## 34 / Bagging This

Aryata Bhansali's Aryata Industries made bags for storing grains

## Mask Matters

Himanshu Aggarwal of Suman Traders made PPE and masks

## 35 / Talking Health

Dr Aparna Hegde, in-charge of a Covid-19 hospital ward, also helps the vulnerable through her NGO

### WE VALUE YOUR FEEDBACK:

Write to us at: [forbes.india@nw18.com](mailto:forbes.india@nw18.com)

• **Read us online at:** [www.forbesindia.com](http://www.forbesindia.com)

• **On the cover 2:** Photographs Shot on OPPO Find X2 Pro

• **Cover 1:** Photographs: Gautham Pasupuleti by Nishant

Ratnakar for Forbes India; Jayakrishnan T by Arjun Suresh

• **Digital Imaging (cover 1) by:** Sushil Mhatre

**Subscriber Service:** To subscribe, change address or enquire about other customer services, please contact: FORBES INDIA, Subscription Cell, C/o Network18 Media & Investments Limited, Empire Complex, 414, Senapati Bapat Marg, Lower Parel, Mumbai - 400013. **Tel:** 022 4001 9816 / 9782. **Fax:** 022-24910804 (Mon - Friday: 10 am - 6 pm) **SMS FORBES** to 51818 **Email:** [subscribe@forbesindiamagazine.com](mailto:subscribe@forbesindiamagazine.com), **To subscribe,** visit [www.forbesindia.com/subscription/](http://www.forbesindia.com/subscription/) **To advertise,** visit [www.forbesindia.com/advertise/](http://www.forbesindia.com/advertise/)

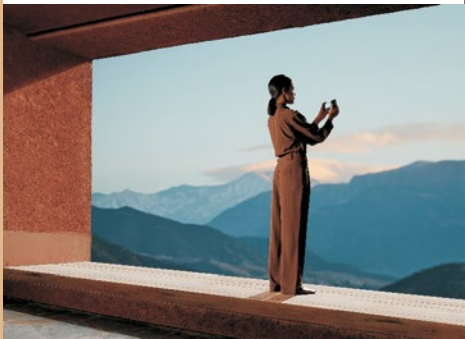


oppo



FIND  
YOUR  
ULTIMATE  
STYLE

OPPO  
Find X2  
Series



# Forbes <sup>INDIA</sup>

**Managing Director & Group Editor-in-Chief:**

Rahul Joshi

**Editor, Forbes India:** Brian Carvalho

**Chief Creative Director:** Anjan Das

**Editor (Technology):**

Harichandan Arakali

**Senior Editor:** Samar Srivastava

**Associate Editors:** Monica Bathija, Salil Panchal

**Senior Assistant Editor:** Rajiv Singh

**Assistant Editors:**

Pankti Mehta Kadakia, Pooja Sarkar

**Special Correspondent:**

Manu Balachandran

**Senior Correspondent:**

Varsha Meghani

**Editor-Desk:** Kunal Purandare

**Deputy Editor-Desk:**

Jasodhara Banerjee, Kathakali Chanda

**Senior Sub-Editor:** Divya J Shekhar

**Senior Assistant Editor**

**(Events/Social Media):** Ruchika Shah

**Senior Sub-Editor:** Namrata Sahoo

**Sub-Editor:** Naini Thaker,

Naandika Tripathi

**Junior Sub Editor:** Pranit Sarada

**Deputy Managers:** Bhagwan Patil,

Aditi Satam

**Creative Director:**

Benu Joshi Routh

**Deputy Creative Director:**

Sachin Dagwale

**Associate Creative Directors:**

Sameer Pawar, Pradeep Belhe

**Principal Designer:**

Pandharinath Pawar

**Chief Illustrator:**

Chaitanya Dinesh Surpur

**Chief Production Manager-Digital**

**Imaging & Print:** Sushil Mhatre

**Production Manager:** Mithun Anare

**Photography Editor:** Mexy Xavier

**Chief Photographer:** Amit Verma

**Consulting Editor (Photo):**

Madhu Kapparath

**Senior Photographer:** Aditi Tailang

**Junior Photography Editor:**

Prakash Rasal

**Intern:**

Mansvini Kaushik

**COO:** Preeti Sahn

**FORBES INDIA ADVERTISING SALES**

**General Manager:**

North and East: Girish Sharma

West and South: Brijesh Singh

Mona Parate, Maulik Thaker, Abhishek Shah, Arijeet Sengupta, Kanwaldeep Singh, Atishay Singh, Divya Bhatia, Dilshad Ahmed Khan, Janki Modi, Daksha Solanki, Mitu Midha, Riti Menghani, Anil Bhatia, Priyanka Nalavade, Supriya Sahoo, Sheshagiri Raj

**SOLUTIONS**

**COO-Business News Cluster:**

Smriti Mehra

Abhinav Gupta, D Bhattacharjee, Monica Ghose, Pratika Barua, Shehzaad Kapadia, Janardhanan Menon, Teby Sebastian, Zarrar Don

**FOCUS MARKETING**

**Senior Vice President:**

Sidharth Saini

Chayya Jadhav, Siddhi Patel

**BRAND MARKETING**

**Vice President:**

Suma Nair

Jitendra Gujar

**SUBSCRIPTION & CIRCULATION**

**General Manager:**

Subhadra Bose

Kaushal Pillai, Vinod Parab

**ADVERTISING OPERATIONS**

**Senior VP & Head-Business Planning**

**& Strategy:**

Chaitali Karia

Smita Suvarna, Krishna Gupta,

Ajinkya Tambe

**Compliance**

Ratnesh Rukhariyar

**Legal and Corporate Affairs**

Gautam Dubey

**Accounts and Finance**

Ketan Ravesia

Dr Pratik Sangoi

**FORBES MEDIA LLC**

**Chairman & Editor-in-Chief:**

Steve Forbes

**Chief Executive Officer:**

Michael Federle

**Chief Content Officer:**

Randall Lane

**CEO, Forbes Asia:**

William Adamopoulos

**Editor, Forbes Asia:**

Justin Doebele

**Senior Vice President, Forbes Asia:**

Tina Wee

*Views & opinions expressed in this magazine are not necessarily those of Network18 Media & Investments Limited, its publisher and/or editors. We (at Network18 Media & Investments Limited) do our best to verify the information published, but do not take any responsibility for the absolute accuracy of the information. Network18 Media & Investments Limited does not accept responsibility for any investment or other decision taken by readers on the basis of information provided herein.*

"FORBES INDIA is published by Network18 Media & Investments Limited under a license agreement with Forbes IP (HK) Ltd."

"FORBES" is a trademark used under license from FORBES IP (HK) Limited".

©2009 Network18 Media & Investments Limited • ©2009 FORBES LLC, as to material published in the U.S. Edition of FORBES. All Rights Reserved.

©2009 FORBES LLC, as to material published in the edition of FORBES ASIA. All Rights Reserved.

Forbes India is published fortnightly.

Copying for other than personal use or internal reference or of articles or columns not owned by FORBES INDIA without written permission of Forbes India is expressly prohibited.

Editorial Office: Mumbai - Network18 Media & Investments Limited, Ground Floor, Empire Complex, 414, Senapati Bapat Marg, Lower Parel, Mumbai 400013, Maharashtra.

Tel:+91-22-66667777, Fax: +91-22-24910804. National Capital Region - Network18 Media & Investments Limited, Tower A and B, Express Trade Tower, Plot No 15-16, Sector 16A, Gautam Buddha Nagar, Noida 201301, Uttar Pradesh. Tel: 0120-434 1818.

Bengaluru - Network18 Media & Investments Limited, 121, The Estate, Dickenson Road, Bengaluru 560042, Karnataka. Tel: 080-4064 9191 Gurugram - Network18 Media & Investments Limited, U and I, VRL, SCO 83, City Centre, Sector 29, Gurugram 122001, Haryana. Tel: 012-4480 3100

Subscriber Service: To subscribe, change address or enquire about other customer services, please contact: FORBES INDIA, Subscription Cell, Network18 Media & Investments Limited, Ground Floor, Empire Complex, 414, Senapati Bapat Marg, Lower Parel, Mumbai 400013.

Tel: 022 4001 9816 / 9783.

Fax- 022-24910804 (Mon -Friday:

10 am - 6 pm) SMS FORBES to 51818

Email: subscribe@forbesindiamagazine.com,

To subscribe or advertise,

visit [www.forbesindia.com](http://www.forbesindia.com)

Forbes India is printed & published by Brian Carvalho on behalf of Network18 Media & Investments Limited & Printed at Print House India Pvt. Ltd. 847/2. T.T.C. MIDC, Rabale, Navi Mumbai - 400701 & Published at Empire Complex, 1<sup>st</sup> Floor, 414, Senapati Bapat Marg, Lower Parel, Mumbai - 400 013.

Editor: Brian Carvalho

Network **18**

# FOR THE ULTIMATE EXPLORER IN YOU

Saluting the ultimate finder, the ultimate evolver—OPPO Find X2 Pro matches steps with the one who thrives to make persistent breakthroughs and pursues their ultimate objectives



—Eddie Redmayne

Eddie Redmayne made a maverick move to rid of his smartphone in 2016, wanting to live in the moment.

However, upon finding the OPPO Find X2, he has found a new role for his phone. From reciting lines and learning accents via voice notes to watching videos of character studies using the ultra performance of the 10-Bit graphics and crystal clear screen, Eddie's Find X2 has become a companion along his journey of self-transformation.

It is this dedication to his roles that sets Eddie apart. His parts often require him to play a character almost entirely unlike himself, striving to reach perfection rather than mere imitation.

The lights, cameras, screen and backgrounds of Eddie's phone provides him with a miniature film set to get into character.



—Alex Honnold

Professional Rock Climber Alex Honnold is at the top of his game. Risking everything by dropping out of the University of California - Berkeley, he's lived in his vans to pursue his bouldering dreams. His ascent to the top was rapid, the apex of his career being reached when he became the only person to free solo El Capitan in 2018, a 3000 feet rock formation. Most recently the star of Academy Award winning documentary Free Solo, his breathless pursuit for higher heights matches OPPO Find X2's quest for perfection.

Alex Honnold defies science and defines the impossible. Climbing since of the age of five, Alex has never believed that he is naturally gifted. Rather, it is his tireless work ethic that has propelled him to the top of the climbing world.



—Marques Brownlee

Technology reviewer Marques Brownlee is huge on the small screen. Starting in his dorm room while at Stevens Institute of Technology, he is now operating out of a fully kitted-out studio, creating content viewed by millions of viewers.

The OPPO Find X2 reflects his relentless search for cutting-edge technology. Marques is a true self-starter, showing the power of being left to your own devices.

Marques Brownlee has always been obsessed with phones. Ever since beginning his YouTube channel at the age of fifteen in 2008, smartphones have been at the centre of his content and interest in technology.

Marques is at the forefront of the future, a sponsor of responsibility. The Smartphone Awards takes him on a yearly quest to find the best technology, a mission that takes time.





# Bot An Idea

*Asimov Robotics' founder Jayakrishnan T and his team created a robot that helps provide patients with food and medicines, thereby reducing the chances of health workers contracting the virus*



By NAINI THAKER

J

Jayakrishnan T realised early on that the coronavirus pandemic would take a severe toll on the lives of health care workers. In an attempt to minimise their interaction with patients, through Asimov Robotics—his Kochi-based startup—he created an advanced version of a robot that had helped health care workers during the Nipah virus outbreak in Kerala in 2018.

The 'Karmi-bot' can provide essential services like food and medication to patients in isolation wards—simple functions that would otherwise have to be done by doctors or nurses. "These tasks can be done through the robots, and the doctors and nurses can monitor the same from the nursing station," says Jayakrishnan, adding that

this helps reduce the staff needed. "The idea is to reduce exposure to patients as much as possible."

Currently the Karmi-bot—driven entirely by artificial intelligence and machine learning technologies—has been equipped with "a tray that can carry both food and medicines, and a detachable UV-ray disinfectant box [to disinfect patients' used items]," explains Jayakrishnan. It can also check a patient's temperature and alert staff if a patient has not worn a mask, further reducing the need for health care workers in isolation wards.

The Karmi-bot is placed at the nursing station and when required, it travels from bed to bed. Using a mobile application, the health care workers select the beds that need to be attended to. "The robot goes and verbally interacts with patients; gives them either food or medicines; collects disposable items and connects the patient to the doctor if needed," he adds. The disposable items are collected in a box that is disinfected with UV rays. "As soon as the box opens or when the robot stops, the UV light is disconnected," says Jayakrishnan.

Recently, the team at Asimov Robotics realised there is a need for disinfecting the wards as well, so

the Karmi-bot has been equipped with a targeted sprayer, loaded with disinfectant. "The robot does the function of disinfecting the room, which can later be followed up with a worker cleaning the ward. The chances of infection [for the worker] this way reduce drastically," says Jayakrishnan. In case there are issues with the robot, 85 to 90 percent of them can be solved remotely, unless it is a hardware problem.

Initially, in March, the robot was used to create awareness about the disease and the precautions that could be taken. It was placed in the canteens of two offices in Kochi, and would play videos created by the World Health Organization and interact with people on any questions they had about the pandemic. Later, the team decided to innovate the robot to help health care workers. But it was not easy. "Given that we were in a lockdown, it was difficult for the team to get hold of spare parts. We struggled a lot, but eventually managed to procure spare parts locally," says Jayakrishnan. He is hopeful that social distancing will continue to be followed in the future and that "robots and automation will help in maintaining the new normal". ✨

**“Given that we were in a lockdown, it was difficult to get spare parts but we eventually managed.”**

**JAYAKRISHNAN T**, FOUNDER AND CEO, ASIMOV ROBOTICS







# X-Ray of Hope

*Prashant Warier's technology solution can detect Covid-19 patients with their lung abnormalities in seconds and quantify the volume of infection*



By NAINI THAKER



# I

In 2016, Qure.ai was launched with the idea of developing an artificial intelligence (AI) technology that can identify and interpret abnormalities in chest X-rays. The company first applied this technology for the diagnosis of tuberculosis (TB) and deployed it in about 15 countries. The team realised that making minor tweaks to it can help in the detection of Covid-19 patients since it is also a pulmonary condition where respiratory illness ranges in severity, from asymptomatic to mild or severe.

In such a case, Prashant Warier, CEO and co-founder of Qure.ai, knew that having accurate information and actionable insights on hand will aid the overworked health care providers.

"The lungs of a Covid-19 patient

present very differently from those of a healthy person, and Qure.ai's solutions can help detect those differences," he says, adding that their solution—qXR which uses machine learning (ML)—can also quantify the volume of infection, making things a lot easier for health care workers. "This [quantifying the volume of infection] is ideal for monitoring ICU patients and understanding if their lung condition is improving or worsening on a daily basis," explains Warier.

Qure.ai has a database of over 2.5 million chest X-rays that have been used to train its ML algorithms. At present, qXR can detect 20 types of abnormalities, and identify and mark out the contours of each.

Qure.ai's solution has been extremely useful, especially for locations where swab test kits are scarce or too expensive. Warier explains with a possible solution: "A mobile van with an X-ray machine can go into areas where Covid-19 testing may not be easily available. The qXR technology in conjunction with clinical indications can help triage who needs to be tested or

hospitalised immediately." And only if a person tests positive, a swab could be collected for the PCR [polymerase chain reaction] test.

"You can reach a much higher population with the same number of kits and the chest X-ray costs a tenth of these test kits and can screen for high-risk cases," he says. The solution has been deployed in three states in India as well as in six other countries: Italy, Pakistan, Mexico, the UK, Oman and the US.

Warier understood that since most people across the world were isolated at home, it becomes imperative to track their health remotely. Given the Mumbai-based startup's experience in medical natural language processing, Warier and his team have developed a new AI-powered chatbot qScout.

"qScout can initiate WhatsApp chats with self-isolated/quarantined people and track the progression of their symptoms," says Warier. "This longitudinal user data is used to triage whether they should be hospitalised or can visit a testing centre to be tested for Covid-19." They are looking at extending this capability to other messaging platforms as well. ✨

**"The chest X-ray costs a tenth of [swab] test kits and can screen for high-risk cases."**

**PRASHANT WARIER**, CEO AND CO-FOUNDER, QURE.AI



# Breathing Easy

*Biodesign Innovation Labs is building affordable ventilators; CEO Gautham Pasupuleti wants to make device accessible to all*



By MANSVINI KAUSHIK



As India's Covid cases touch record highs almost every day and medical facilities at hotspots are filled to the brim, the need for life support systems for critically ill patients is even more acute. Covid-19 can lead to severe lower respiratory tract infection for which a patient needs to be put on ventilator.

According to a study by the Center for Disease Dynamics, Economics & Policy, in April, India had approximately 19 lakh hospital beds, 95,000 ICU beds, and 48,000 ventilators; most of the beds and ventilators were concentrated in seven states—Uttar Pradesh, Karnataka, Maharashtra, Tamil Nadu, West Bengal, Telangana and Kerala.

To deal with the crippling shortage of medical equipment, Biodesign Innovation Labs (Bild), a Bengaluru-

based startup that manufactures respiratory support devices, has ramped up its production line. Bild is focusing on government hospitals which are bursting at the seams with the number of growing Covid patients. "Our focus is to provide for government hospitals as they are the worst-hit. We are working with Niti Aayog for that," says Gautham Pasupuleti, CEO and managing director of Bild.

The three-year-old startup has received support from Birac (department of biotechnology), government of India, the government of Karnataka, Nidhi Prayas, among others to make automated versions of manual ventilators—named RespirAid—which cost between ₹100,000 to ₹150,000 as opposed to the high-end mechanical ventilators which cost upwards of ₹5 lakh.

"While RespirAid isn't a substitute for mechanical ventilators, it serves as a bridge between mechanical and manual ventilators.

It's a hand-held device that can be easily carried from your home to intensive care units. The purpose of this is to make emergency care equipment accessible and affordable to everyone," says Pasupuleti. Currently,

manual resuscitator or the Ambu bags are used for ventilation in hospitals. According to Bild, "They are only 75 percent reliable. RespirAid addresses the inconsistency, unreliability and exhaustion caused by an Ambu bag."

"Initially there was a lot of uncertainty; with the excessive demand for ventilators, we got quite a few queries and requests but (due to the national lockdown) the procurement of essentials to manufacture RespirAid was a challenge," says Pasupuleti. They carried out multiple clinical trials at various hospitals when the Covid-19 crisis struck. "It's a long process; finding the right equipment, putting the device together, testing, and manufacturing requires a lot of time and effort," he adds.

To meet the demand, Bild has tied up with Remidio, a Bengaluru-based maker of ophthalmology devices. "We are manufacturing our first 1,000 ventilators and hope to make another 10,000 over the next one or two months," says Pasupuleti.

Bild is looking to commercialise their offering too. "We are in talks with a couple of companies in India and the US to non-exclusively license our technology to them," he adds. ✎

**“Our focus is to provide for government hospitals as they are the worst-hit... we are working with Niti Aayog.”**

**GAUTHAM PASUPULETI**, CEO AND MD, BILD



# Delivering The Goods

*Sagar Daryani started delivering groceries and essentials during the lockdown along with food, and avoided cutting jobs*

By PANKTI MEHTA KADAKIA

For the first time in its 11-year run, quick service restaurant chain Wow! Momo saw losses—₹7 crore in April—thanks to the nationwide lockdown. “We are trying to be responsible and not have any job cuts. We have had organisation-wide pay cuts of 30 percent, but as a firm with cash reserves and investors, what we do today will determine the preamble of the company going forward,” says co-founder and CEO Sagar Daryani.



DEBARSHI SARKAR FOR FORBES INDIA

Within a few weeks of the lockdown, the company started a new business line called Wow

Momo Essentials (WME) to deliver groceries and essentials via Swiggy and Zomato within 45 minutes.

“This way more of our 2,700 employees are engaged. We can deliver eggs, bread, flour, vegetables, sanitary pads, condoms,” he adds. WME now contributes 50 percent to the company’s topline; if they did ₹2 crore in April, they will clock ₹5 crore in May. “In the pre-Covid-19 era, 25 to 27 percent of our business was via delivery; now it’s 100 percent,” says Daryani.

The future will see more innovations, consolidation and collaborations. Wow! Momo is partnering with Café Coffee Day to share space with more than 30 outlets to begin with. “Young businesses have to be agile. You will see a lot of mergers and acquisitions, so we can together surmount the challenge,” he says. ✎

Before the pandemic, Mysuru-based health care technology company Skanray made 100 to 200 hospital ICU and anesthesia ventilators in a month. Now, it has become a key player in the making of ventilators. To ramp up production Skanray has tied up with Bharat Heavy Electronics (BHEL) and BEL, and got support from the Karnataka government.

“We will supply a major chunk of the government’s requirement of ventilators. Of their demand of 50,000 ventilators, we will produce 30,000,” says Vishwaprasad Alva, founder and managing director of Skanray Technologies.

The medical equipment maker started business in 2003 with five people

# Breath Of Life

*Vishwaprasad Alva plans to boost ventilator production to 30,000 units*

By MANSVINI KAUSHIK



SHOT ON OPPO FIND X2 PRO

and today is present in 80 countries. It has eight manufacturing units, 50 products, and 80 patents. “The vision of the company has been to be a fair global player as opposed to competing over price locally with unregulated products,” says Alva.

He adds that the public-private partnership has worked wonders for Skanray. “Unlike earlier, public enterprises have been quick to respond to the crisis and streamlined the production process by giving us special permits and helping us in the procurement of essentials,” says Alva. Skanray has already made 8,000 ventilators and aim to complete the consignment by mid-August. ✎



# Advance Test

*Rahul Pathri's Docturnal has an app to pre-screen people for the coronavirus*

By NAINI THAKER

In 2016, Hyderabad-based Docturnal launched TimBre, a mobile application to detect patients with lung tuberculosis (TB). When the Covid-19 pandemic hit India, the existing solution was repurposed some modifications to pre-screen the coronavirus, using an application called CoVawe.

"The same technology can be used to detect Covid-19 as well, given that it is also a pulmonary disease," says Rahul Pathri, founder and CIO of Docturnal.

In the case of TimBre, the sound of an individual's cough would be recorded on a third-party microphone by a medical practitioner to detect whether or not a

person has TB. Now, the machine learning model acts as an experienced pulmonologist. CoVawe is available to customers and "it includes a 'do-it-yourself' test—for pre-symptomatic, asymptomatic and symptomatic Covid-19 patients—which could be used as a pre-screening tool", says Pathri.

However, the key for ensuring accurate results is data. "In order to get to a screening stage as

opposed to pre-screening solution, we had a need to introduce actual Covid-19 cough signatures and clinical data for which we are still awaiting data from the Indian Council of Medical Research (ICMR)," explains Pathri.

Once the data is updated in the machine learning model, after a short trial with ICMR and the required approvals, Docturnal is confident of taking the platform to the market. ✎



# Finding a Voice

*Dr Vishal Rao is customising masks for people suffering from throat cancer*

By NAINI THAKER

When the coronavirus pandemic hit, Dr Vishal Rao knew he had to do something for his patients who suffered from throat cancer.

"They have a hole in their throat so they cannot use regular masks to protect themselves," he explains. Rao, who is co-founder of Bengaluru-based medical devices startup Innaumation, had been designing innovations for people who lost their voice due to throat cancer. The oncologist decided to build on his expertise to enable throat cancer patients to adapt to the pandemic.

Rao's startup had designed the Aum Voice Prosthesis, a device made of silicon for people whose voice boxes had been

removed due to cancer, and had priced it as low as \$1 (about ₹70 apiece). With Covid-19, the team is working on creating bibs that resemble scarves and function like masks. "Instead of a regular masks, creating a bib allows cancer patients to cover their throat," says Rao. Currently, these bibs are being provided free of cost.

Once the patients started using them, there were requests for innovation on the design. Innaumation's team is now working with designers to add more colours and variations in style. "One of the main innovation was building a heat moisture exchanger, which can moisturise the lungs. The material used to make the bib is waterproof," says Rao. ✎



# Trucking On

*Kapil Bharati and his gang have kept Delhivery nimble to navigate the crisis and supply essentials across the country*

By RAJIV SINGH

Within 48 hours of the nationwide lockdown being announced, Delhivery, India's biggest ecommerce logistics company, proved its nimbleness: It repurposed its machine learning product-categorisation tool to identify essential goods in its network; used address disambiguation service to map out geographical elements corresponding

to red, orange, and green zones; started delivering across 4,500 pin codes within two days and all 15,500 pin codes in India within a week. It also started hyperlocal delivery across health, pharma, food and groceries. "This was a crucial ingredient for businesses to reboot," says Kapil Bharati, co-founder and CTO of Delhivery. A slew of steps were



BY AMIT VERMA, SHOT ON OPPO FIND X2 PRO

also undertaken on the Covid-19 relief front. It distributed over a million masks and sanitiser kits to the police and local authorities in every state, provided food and shelter to trucking partners and their

employees at its facilities, and supported food camps and distribution. "Our highest priority continues to be the safety of our teams, customers and the broader community," says Bharati. ✨

Bengaluru-based Jumbotail operates a B2B ecommerce marketplace connecting kirana stores to their suppliers, producers and traders. The nationwide lockdown brought traditional distribution and wholesale markets to a standstill, and online B2C groceries couldn't meet demand due to lack of labour.

This gave Jumbotail an opportunity to step up. "We deployed our J24 retail stores within apartment complexes and on-boarded RWAs as business customers to aggregate demand from communities," says Ashish Jhina, co-founder, Jumbotail.

The team identified

# Delivery At Your Doorstep

*Ashish Jhina reduced Jumbotail's delivery touchpoints and supplied essentials to households with its robust supply chain*

By NAINI THAKER



BY PADARTHI PRAKASH, SHOT ON OPPO FIND X2 PRO

about 500 SKUs (stock-keeping unit) as absolutely essential items and worked with suppliers to make them available. A supply chain driven by artificial intelligence and machine learning technologies allows the company to serve about 5,000 households daily.

"We use technology for reducing delivery touchpoints, and route optimisation," says Jhina, adding that the J24 stores are working with platforms like Swiggy and Dunzo for home deliveries.

The five-year-old startup was also working with non-essential services companies to utilise their workforce to ramp up delivery capacity. ✨



# Seeds of Change

*Despite the lockdown, Shardul Sheth of Agrostar delivered seeds to farmers to ensure sowing for the kharif season*

By NAINI THAKER

Innovation



SHOT ON OPPO FIND X2 PRO

While a number of startups have been finding ways to help farmers sell directly to consumers during the lockdown, Pune-based Agrostar has been doing its bit to ensure agri-inputs reach farmers. "With the onset of the kharif season, it was important for farmers to sow their crops on time... however, with most stores shut, supply was a key challenge," says Shardul Sheth, founder, AgroStar.

During the nationwide lockdown, the startup started delivering seeds and fertilisers for farmers to start sowing. "After taking the requisite approvals to operate and enforcing strict hygiene measures to ensure the safety of the delivery executives and our customers, we started delivering essential agri-inputs to the farmers," says Sheth. Agrostar has made over 1 lakh deliveries to farmers in Maharashtra, Gujarat, Rajasthan, Madhya

Pradesh and Uttar Pradesh.

But ensuring that these deliveries happen was not an easy task, given that the company was working at about 50 percent of its capacity. "This meant enabling remote work access for our whole Agri Advisory Team that speaks to farmers in their local language and gives them agronomy advice," says Sheth.

Given the acute shortage of laptops, within a week, the company had to instal hundreds of desktop

computers in its agri advisors' homes. There was a limitation to the number of farmers an agri advisor could cater to due to the challenges of remote working, so "we had to innovate on the fly to enable these conversations and engagements to happen on our app. Over the last three months we have seen a massive surge of users engaging with us through our mobile application instead of our call centres", says Sheth. ✨

# Designs For The Future

*Suhani Mohan and Karthik Mehta of Saral Designs adapted sanitary napkin machines to make masks*

By MANSVINI KAUSHIK



Suhani Mohan and Kartik Mehta, founders, Saral Designs

Saral Designs—a five-year-old startup known for selling low-cost, high-quality sanitary napkins and the machines that make them—has been a supplier of face masks to government hospitals since the coronavirus outbreak. “It was around March 15

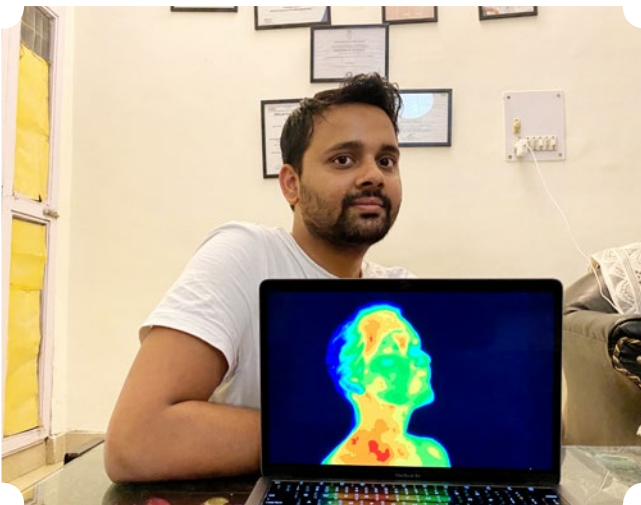
when we realised that there is a dearth of face masks in the country. We then devised a plan to modify our machines to produce three-ply masks instead of sanitary napkins,” says Suhani Mohan, co-founder and CEO of Saral Designs.

After putting in hours to decide the look and feel

of the masks, the team encountered new problems. “Once the lockdown was announced, we couldn’t find suppliers who could fabricate the components that were needed to modify our machines. It was then that the Mahindra group stepped in and with their participation, the plan

was up and running,” says Mohan. Since April 1, with an average production and shipment of roughly 13,000 masks per day, Saral has supplied close to 1 million masks.

For the 37-member team, the initial transition was onerous for the precautions they had to take. “We divided the team into batches. To limit the exposure to Covid-19, each batch works and stays inside the factory for 15 days. We had to renovate the factory to accommodate the team,” explains Mohan. Kartik Mehta, co-founder and CTO, says, “There are few technology manufacturers in India making equipment for surgical masks; we want to make our machines widely available.”



# The Silent Monitor

*Atul Rai of Staqu Technologies repurposed its AI warden to track employees in hospitals, warehouses and restaurants*

By MANSVINI KAUSHIK

From helping the UP police monitor CCTVs in prison to identifying people flouting PPE compliances, Staqu Technologies modified its artificial intelligence (AI) warden—nicknamed Jarvis—to help firms deal with the pandemic. The Gurugram-based startup altered Jarvis to track and monitor employees in hospitals, manufacturing units, warehouses and restaurants.

Staqu also launched AI-powered thermal cameras that detect body temperature at a range of 5 to 10 m. “A thermal camera calculates the temperature of the whole environment where it is placed and gives you the pixel-wise temperature of each of the

objects in the scene,” says Atul Rai, co-founder and CEO. “Initially our aim was to identify systematic Covid-19 patients, but today as almost 80 percent of the affected are asymptomatic, the only way to prevent the spread is by taking proper precautions... our radio analytics platform helps in monitoring all the activities within a premise equipped with CCTV. The AI alerts you when someone is not wearing a mask or maintaining social distance or if hygiene standards are not maintained.”

Currently this technology is being used for over 10,000 CCTV cameras across UP and Punjab. The company is also finalising contracts with “some airports.”



**B**engaluru-based Harkness Screens, a 90-year-old company that manufactures cinema screens for the country's leading multiplexes, has pivoted with new purpose, and products, to help fight the pandemic. Now, Harkness is 3D printing face shields, along with PVC aprons and curtains for doctors and quarantine centres, which can be sprayed with sanitiser and quickly disinfected.

"I'm a motorcyclist and I've always been fascinated by the story of Ducati, which started off making radio equipment until after their factory was bombed in the Second World War," says Preetham Daniel, senior vice president-Asia,

# Face-Saver

*Preetham Daniel of Harkness Screens pivoted to 3D printing face shields, PVC aprons and curtains for doctors*



By PANKTI MEHTA KADAKIA



SHOT ON OPPO FIND X2 PRO

Harkness Screens. "BMW began as a jet engine maker until the end of World War 1. I'm always fascinated by

such stories. To me, this situation is nothing less than a war. Companies will need to adapt. Who knows,

our future might be in medical grade equipment."

Daniel says they had no prior experience in the field. "I didn't even know what a face shield was, I was calling it a visor," he says with a laugh—but they could leverage their expertise in dealing with the PVC fabric, which is also used in their cinema screens.

While they started with an open source design, they had to tweak it to suit local needs. "For example, it's common in India to have longer hair—in the original design, if the doctor had a braid tied, the headband would just slip off. We had to make the back protected such that it would stay in place under any condition." ❖

# Chamber of Safety

*Akshay Singhal's Log 9 Materials has built a disinfection product for PPEs*



By MANSVINI KAUSHIK



BY HARRY ALFRED, SHOT ON OPPO FIND X2 PRO

**I**t is while looking for ways to sanitise groceries that Bengaluru-based nanotechnology startup Log 9 Materials ended up building the CoronaOven. The disinfectant chamber uses UV (ultraviolet)-C light to sanitise objects ranging from groceries to masks. "It can sanitise items in four to 16 minutes," says Akshay Singhal, founder and CEO of Log 9.

Built as per guidelines issued by the Food and Drug Administration (FDA) and the Nebraska Medical Centre that is a pioneer in using UV-C light for disinfection, CoronaOven is said to eliminate a range of pathogens. Singhal says essential workers like the police often end

up re-using their personal protective equipment (PPE), which makes them susceptible to infections. "The CoronaOven sanitises PPEs to make them suitable for reuse," he says.

Initially launched as a small, box-sized product, it is now being made available in multiple sizes and configurations, and is being used by the police, armed forces, at airports and in hospitals. In May, the five-year-old startup received a grant of ₹76 lakh from the Marico Foundation for the production and distribution of CoronaOvens, and has already deployed over 1,200 units. Singhal says the grant has helped them scale up. "We will be able to supply 6,000 to 8,000 CoronaOvens by the end of June." ❖



In its fight against Covid-19, fresh produce supply chain startup Ninjacart launched several initiatives, including delivering to homes, partnering with NGOs, and helping farmers.

During the lockdown, farmers were seeing their produce rot. Through its supply chain, Ninjacart bought this produce and supplied it to customers through platforms like Zomato, Swiggy and Dunzo. "We identified vegetables that were in excess supply, and those going unharvested within our farmer networks. We offered to buy these from the farmers to help them recover their costs," says Thirukumar Nagarajan, co-founder and CEO, Ninjacart.

# Farm to Table

*Thirukumar Nagarajan took fresh produce from farmers to people's doorsteps during the lockdown*

By NAINI THAKER



Apart from helping farmers, the Bengaluru-based company is also supplying food essentials to orphanages, old-age homes and slum areas at subsidised rates.

"Coronavirus instilled fear in individuals and the lockdown created a panic situation," Nagarajan says, adding that the company's first priority was to strengthen the existing engine, but they also had to do more to ensure limited movement of consumers.

Some of the solutions that Ninjacart came up with within a span of 48 hours, says Nagarajan, "included taking our trucks directly to apartments and setting up a mobile store. This helped in addressing the issue of panic buying." ❏

# Helping Farmers & Buyers

*Jyotiska Khasnabish helped farmers connect with agri players, and ensured their produce did not go waste*

By NAINI THAKER



BY NISHANT RATNAKAR, SHOT ON OPPO FIND X2 PRO

Bengaluru-based agritech venture Krishihub created a real-time dashboard called Essential Commodities Exchange to help farmers during the coronavirus pandemic. While some farmers did not know what to do with excess produce, buyers experienced shortage of foodgrains. Krishihub, along with SatSure—a data analytics

company—helped farmers get crop insurance during the crisis. Numer8, a data-science company, created the platform to bring together sellers, buyers, agri-machinery providers, ambient and cold-storage providers, and logistics service providers across India, and helped them connect with each other.

"Sellers can list their perishable produce across

India and buyers can contact the sellers directly. This has helped ease the pain of producers who are stuck with perishable products," says Jyotiska Khasnabish, co-founder and CTO of Krishihub, a B2B platform that lets farmers sell directly to businesses, thus bypassing middlemen.

While setting up the dashboard, the team initially faced challenges

like aggregating data points and ensuring the data was updated. It also had to target a different market once the pandemic struck. "We had to shift our focus from customers like restaurants, hotels and prioritise grocery stores and housing societies," says Khasnabish, adding that the startup will continue tapping this market even after the pandemic. ❏

# Lending a Hand

*Nupur Agarwal provided farmers with seeds and fertilisers during the lockdown, while also purchasing produce from them*

By NAINI THAKER



SHOT ON OPPO FIND X2 PRO

**N**upur Agarwal set up the Kiwi Kisan Window (KKW) in 2017, through which she works with farmers directly to generate

employment by procuring fruits, vegetables and grains from them. She then processes these at a unit in Vikasnagar, Uttarakhand, and sells the produce via

KKW retail outlets.

Once the coronavirus pandemic brought the nation to a standstill and affected businesses, Agarwal and her team

set their priorities on taking care of farmers and customers. "We started by spreading awareness about Covid-19 among farmers, especially in remote parts of the country. And to ensure they could continue farming, we provided 3,500 farmers with seeds and fertilisers," says Agarwal, adding that her team also distributed food, face masks, face shields and sanitisers to farmers.

When it came to consumers, her team has been providing home deliveries while taking adequate precautions. "KKW was always supposed to be an offline retail store," says Agarwal. "But by March 22, we were taking orders over WhatsApp and delivering to homes. And by April 10, we launched our own website and application."

Agarwal and her team were forced to innovate and tweak the business model to fulfil customer demands. One of the many hiccups her team faced was the lack of supply.

"We realised due to the lack of labour, there were transportation issues and there were massive delays in the produce reaching us. We decided to start providing our farmers with logistical support as well," she says. ✨



**W**ith the rise in demand for sanitisers during the lockdown, CavinKare innovated with its style of packaging to reach as many people as possible, and make the products affordable as well. Result: Sanitisers in a sachet. Under its brands Chik, Nyle and Raaga, the company started selling 2 ml pouches for ₹1.

“The concept of launching the sanitiser in a sachet as well and making it available in a typical FMCG kirana outlet were ideal steps to ensure the safety of masses at this crucial time,” says CK Ranganathan, CMD of CavinKare. Its range of sanitisers were launched in two weeks. “It generally takes 6 to 18 months for developing a new product.

## Message In A Sachet

*CK Ranganathan of CavinKare repackaged sanitisers, made them affordable by selling sachets for ₹1*

By NAINI THAKER



However, because our R&D team had already researched about sanitisers and kept the formulation ready, we were able to make this quality sanitiser available in the market in just two weeks,” he adds.

As a logical extension to sanitisers, the company also launched a range of disinfectants under the brand name Bacto-V. There are two different products under the brand: A disinfectant for gadgets and one for disinfecting multiple surfaces. The most recent addition to its portfolio is SaaFool—a vegetables and fruits wash and a meat and seafood wash in a sachet format. ✎

**T**he coronavirus pandemic has forced companies to take a relook at their strategies and cater to the demand that certain products command during the crisis. VLCC decided to join the fight against the virus by launching a range of sanitisers. “Sanitisers and hand wash are products we had always thought about. They were in our research and development pipeline,” says Jayant Khosla, MD, VLCC.

Like VLCC, there were 152 new players that entered the sanitiser manufacturing market in March, according to a report by data analytics company Nielsen India. Khosla and his team believed manufacturing and

## Hands-On Approach

*VLCC’s Jayant Khosla launched sanitisers using premium-quality alcohol*

By NAINI THAKER



launching sanitisers would be a challenge. However, the greater difficulty was in addressing the massive surge in demand during the past few months. “There was dearth of the right quality of alcohol. I could have picked up any alcohol, but was clear that we won’t compromise on the quality even if that meant we would launch the product a few days late,” says Khosla.

VLCC’s sanitiser is in a gel-based form and uses a combination of spirit and IPA. “With over 70 percent of alcohol, the formulation also uses tea tree oil, rosemary oil and aloe vera extract to ensure skin protection,” says Khosla. The sanitisers are sold via both online and offline models ✎

GERICO A. CANLAPAN



# Class Act

*Pratham works with 14 states to provide e-learning to rural India, says co-founder Madhav Chavan*

By NAINI THAKER

**T**he pandemic, followed by the subsequent lockdowns and physical closure of all educational institutions, has only led to a further divide in the educational system. While institutes in urban India have made a smooth shift in moving to online classes, rural India has suffered the most since people there barely have access to a cellphone.

Organisations like Pratham are innovating by finding ways to continue education through other methods like WhatsApp, SMS or even Radio, TV and Interactive Voice Response (IVR).

“The digital devices or print materials that were distributed could no longer be shared given the social distancing norms,” says Madhav Chavan, co-founder and president, Pratham. They moved to WhatsApp learning, but realised that either there was one device available per family or they didn’t have access to an Android



device. “So we moved to SMS,” says Chavan.

Chavan and his team decided to focus on activity-based learning. The team would send messages via WhatsApp or SMS and then regularly follow-up via a phone call. “With SMS, the challenge was we couldn’t send video links. So we had to ensure each message

was one lesson in itself,” he says. The organisation is working with 14 state governments, including Haryana, Maharashtra, Himachal Pradesh, Bihar, Uttar Pradesh and Delhi, for content and implementation of remote learning solutions.

In Maharashtra, Pratham is working with the government on a

radio, SMS and phone-call model. The 15-minute radio broadcasts include educational activities and conversations with children and parents, which are then followed up with a phone call. “Due to this situation, we have started engaging with parents a lot more. We have started training parents to help children learn,” he adds. ✎

# Feeding The Needy

*Restaurateur Varun Tuli opened up kitchens of his delivery business to cook meals for migrant workers*

By KATHAKALI CHANDA



**F**or F&B entrepreneur Varun Tuli, the managing director of Yum Yum Cha, it started small. A few days after the national lockdown was announced in March, Tuli opened up the kitchens of his delivery business

Noshi and catering venture Food Inc, across Delhi and Gurugram, to cook about 1,000 meals a day for migrant workers, who were out of work and in distress.

In a few days, the 38-year-old realised the crisis had ballooned and,

as more requests for help poured in, he ramped up the initiative. With help from a few business executives, who pitched in with rations—rice, grains, masalas and salt—and support from the National Restaurant Association

of India (NRAI), Tuli’s kitchens started rolling out about 10,000 meals a day. By the time they wrapped up on May 3, they had sent out about 3.5 lakh meals—from khichdi to soybean pulao, vegetable dalia and rajma rice—in a little over a month, distributed through agencies like the Red Cross, the Municipal Corporation of Gurgaon, Rashtriya Swayamsevak Sangh volunteers etc. “Our businesses were shut for a while, so this gave our staff a purpose. And for us who had the privilege of comfortable lives, this was our opportunity to do something,” says Tuli.

At a time the restaurant industry itself was scraping the bottom of the barrel to survive, Tuli continued to pay salaries to his staff who, in return, turned up to cook for the initiative—“frontline work”, as he calls it, akin to the medical workforce or charity. Besides, as a board member of the NRAI, he also lobbied with the industry body and other stakeholders to contribute to what eventually snowballed into the Feed the Needy project, serving over 67 lakh meals. Says Tuli, “If it wasn’t for restaurants, the migrant situation on the ground would have been far worse than it was.” ❏



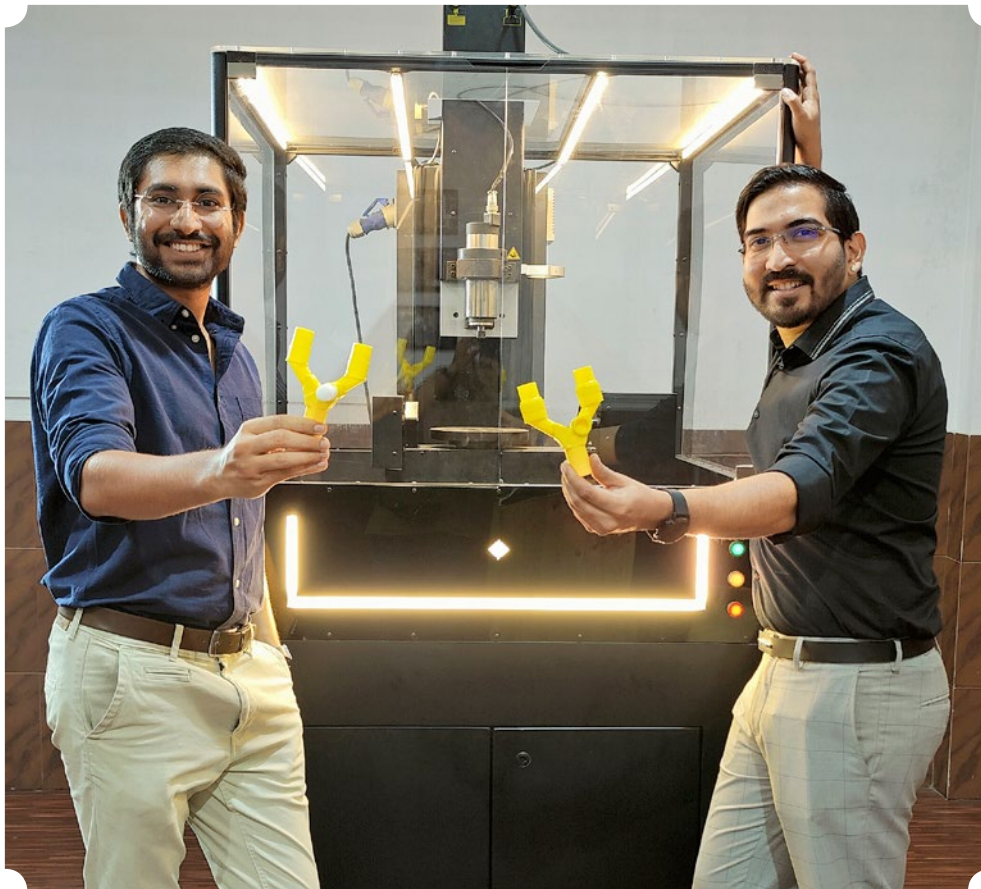


# Breathing New Life

*Kaushik Mudda and Navin Jain of Ethereal Machines use 3D printing technology to augment ventilator capacity*

By PANKTI MEHTA KADAKIA

BY NISHANT RATNAKAR, SHOT ON OPPO FIND X2 PRO



Kaushik Mudda (left) and Navin Jain of Bengaluru-based Ethereal Machines

**O**n March 25, when the first phase of the nationwide lockdown was announced, Bengaluru-based startup Ethereal Machines began to think about how they could help fight the coronavirus.

“It could take about three months to make the number of ventilators required; and those that companies like the

Mahindra Group are putting their might behind are essential, but not the complex ventilators we really need,” says Kaushik Mudda, co-founder of Ethereal Machines, which raised \$1.25 million last year from investors, including Bloom Ventures, CitrusPay founder Jitendra Gupta and others. “We started thinking about what the next best

thing was to augment ventilator capacity.”

As the pandemic played out in Italy, when doctors had to pick and choose between patients to put on ventilators, the idea of a 3D printed splitter came to the fore—where an extra attachment is built for the ventilator exterior, from where the oxygen supply comes out. It splits the supply 50:50

between two patients.

“It’s an extreme, last-resort measure,” cautions Mudda. “When we started talking to doctors here, we realised that the issue on ground is with that 50:50 ratio. Different patients have different requirements, and the equal split often ends up making one patient collapse faster while the other recovers. The actual split required could be 30:70 or 40:60, depending on the health of each patient.” The other issue is of cross-contamination of previous, other illnesses between the patients. Mudda and his team began working on ‘differential ventilation’ that can also prevent cross-flow and claims to have cracked it for the first time in the world. “We were no experts in ventilators or pulmonology, but we sat with doctors to understand how ventilators work. It took us eight iterations over 10 days to perfect a prototype. That speed is thanks to 3D printing.”

Three months since they got permission to make ventilator equipment, Ethereal Machines has scored a ₹50 lakh grant from ACT Grants, a fund created by India’s startup community to enable ‘ideas that can combat Covid-19 with immediate impact’. “This is now being deployed to allow hospitals across the country to get the splitters free of cost,” says Mudda. “We are producing around 25,000 splitters to distribute for free.” ✨



# The Corona Shield

*Guruprasad Rao's Imaginarium is making face shields, and circuit splitters that enable multiple patients to use the same ventilator*

By PANKTI MEHTA KADAKIA

Mumbai's Imaginarium, whose core business is 3D-printed jewellery, currently has all hands on the deck to make face shields for Covid-19. The company is also trying to produce circuit splitters for ventilators, so that multiple patients can use the same ventilator.

"On Day 1 of the lockdown, we held a senior management meeting and decided we need to do something to help," says Imaginarium founder Guruprasad Rao. "Saving lives at any cost is important."

There was immediate buy-in from everyone involved, and the company made a core group of management, manufacturers and engineers. It also created a helpline via email, calling out to people who needed help in the pandemic.

"We have the infrastructure, and our facility was open to try out and validate designs," says Rao. The company used an open-source design for face shields, with some tweaks. It validated prototypes via 3D printing, received feedback, and made necessary improvements.

"Once we were confident, and demand increased, we used injection moulding



technology to ramp up production," he adds.

The shields are sold at ₹100 per piece, plus an 18 percent GST, and at ₹65 for bulk orders. "We sell about 100 units at a time to NGOs, doctors, government bodies, and so on," says Rao. "We've also been

consulting to get feedback from clinicians on the material, and making improvements accordingly. We have now moved to using acrylic, which works better than the OHP sheets we were using initially."

Acrylic, Rao says, is more durable and is easy to

sterilise and re-use. Even today, the email helpline is active. "We are constantly monitoring it and taking stock of demand, checking to see who needs how many units," says Rao. "We are an organisation that is driven by values, and the time to display them is now." ✨



From the launch of an antiseptic liquid in 1933 to a range of products, including soap, hand wash and hand sanitisers, Reckitt Benckiser's (RB) brand Dettol is synonymous with hygiene. And because of the Covid-19 outbreak, the company is innovating in different ways to meet the demand for its products, the latest being the Dettol Disinfectant Spray.

"Given our strong heritage and germ protection equity, most of our segments have seen an increased demand because of the heightened need for hygiene," says Pankaj Duhan, CMO, Reckitt Benckiser South

## Hygiene Check

*Apart from conducting awareness campaigns, Reckitt Benckiser, led by Pankaj Duhan, has distributed soaps, masks and disinfectant products*

By NAINI THAKER



Asia Health, in an email interaction with *Forbes India*. "We are fully supportive and want to focus our attention on ramping up supplies and access to our products further together with fact-based knowledge on the importance of personal hygiene, which is critical in today's times."

Apart from a number of awareness campaigns, RB has distributed 10 million Dettol soaps to the most vulnerable communities in India. For frontline workers, it gave 3.5 million N95 masks while 1 million litres of disinfectant products, including Lizol and Harpic, were donated to support public health care institutions. ✨

## When the Peripheral Becomes Essential

*Angad Singh Thakur switched to manufacturing sanitisers for the underserved*

By MANSVINI KAUSHIK



SHOT ON OPPO FIND X2 PRO

When the pandemic broke out, Angad Singh Thakur had

to reduce the production of his personal hygiene products. "It's an essential commodity so we didn't

have to halt production entirely," says the 28-year-old of his Himachal Pradesh-based contract manufacturing business Still, to keep the business going, he switched to producing hand sanitisers, because it was "peripheral" to what they were already doing, he says. "Although a lot of manufacturing units are based in Himachal, their focus is to sell to the rest of the country. We have tried to identify and supply sanitisers to the underserved areas within the state including hundreds of panchayats and various

government hospitals," says Thakur, who started producing sanitisers in the first week of April.

"When the number of coronavirus cases were exponentially rising in our area, we stopped the production for two weeks to get workers back on track, while maintaining proper precautions was a challenge," says Thakur, who has sold between 10 and 12 tonnes of sanitisers so far. By resuming the production of all their hygiene products Thakur and the team are "limping back to normalcy", he says. ✨

# Extending A Helping Hand

*Rushabh Shah manufactured sanitisers and provided food to the needy, apart from giving advance salary to its staffers*

By NAINI THAKER

A few weeks after the coronavirus outbreak in India, Rushabh Shah and his father Keyur Shah decided to contribute in the fight against the coronavirus in their own small way. Their Ahmedabad-based Bleach Chem Group innovated to manufacture sanitisers during the crisis.

“Manufacturing sanitisers is fairly simple, especially for a chemical trading business like ours,” says Shah, the next-gen scion who oversees the pharma and health care division of the group, which is primarily into B2B businesses.

Demand for the product was never going to be an issue given the penchant



for people to keep their hands clean to keep the virus at bay. However, they had to pay a hefty price to procure the raw material, IPA. “From ₹70,000 per tonne, the price shot up to ₹2.2 lakh per tonne over a span of a few days after the lockdown came into effect,” says Shah.

Apart from launching sanitisers from the first day of the lockdown,

Rushabh and his team have been distributing food packets to over 1,000 needy families per day. And while other industries announced job and salary cuts, Bleach Chem ensured there were no layoffs.

“In fact, we gave our employees advance salaries and provided extra allowance for household spending to our blue collar workers,” he adds. ✨

# Tonic For the Troubled

*Anand Virmani hired on commission basis so that people in the F&B industry were not left jobless because of the pandemic*

By MANSVINI KAUSHIK

India’s first craft gin brand, Greater Than, was a direct casualty after sale of liquor was banned in the country in March in the wake of the coronavirus pandemic. “Since the ban has been lifted now and retail stores have opened, most of our business comes from at-home drinking, and not sale at bars and restaurants,”

says Anand Virmani, co-founder of Nao Spirits.

As employment in the F&B industry is adversely affected because of Covid-19, Nao Spirits has devised a programme—named GT Squad—that hires people on commission basis. “People earn based on the number of bottles they sell to a retailer and for every sale they make,



SHOT ON OPPO FIND X2 PRO

we forgo our margin; this way we are trying to give back to society while creating opportunity,” says Virmani. Through this programme, Nao Spirits has doubled the number of people it employs.

Amidst the lockdown, the five-year-old startup has also been ensuring customer engagement by launching two-minute

do-it-yourself cocktail-making tutorials. “It’s ok if people use another brand of gin. The idea is to engage with our customers using good quality content,” says Virmani. “While we are trying to expand, the pandemic has restructured the way we live, and in this new normal, we are trying to figure out where we fit.” ✨





# Sanitiser Pivot

*Vaishali and Sanjeev Aggarwal scaled up the production of sanitisers at their pharma firm to meet the huge surge in demand*

By NAINI THAKER

Soon after the pandemic hit India, Vaishali Aggarwal started getting frantic phone calls from retailers who ran out of stock for Scott Edil's sanitiser. For the Chandigarh-based family-run business, the focus had always been oral liquids and injections. But due to the surge in demand, the company's focus has shifted to sanitisers. "It was always part of our product portfolio, but earlier we would sell about 20,000 bottles per month. Now we are selling about 15 lakh 100 ml bottles per month," says managing director Sanjeev Aggarwal.

A ₹700 crore company (in revenues) now, Scott Edil manufactures and distributes generic pharmaceutical products—from cephalosporins to hormonal preparations—in different forms across India and in over 40 countries.

Although they launched sanitisers about five years ago, the Aggarwals never dreamed of this kind of demand for a product that brought in only 0.5 percent of their company's total revenue. "In order to fulfil the demand, we had to get another licence for one more facility. Currently, we are manufacturing 400,000 bottles daily," adds Vaishali Aggarwal, technical director at the firm and wife of Sanjeev Aggarwal. Increasing manufacturing during the lockdown was not easy, and there were logistical and labour challenges as well as a dearth of raw materials. But Scott Edil's team was clear



SHOT ON OPPO FIND X2 PRO

about what they needed to do. "We had to ensure our sanitiser reached as many people as possible and so having a resilient supply chain was necessary,"

Sanjeev Aggarwal adds. So what's the future for Scott Edil's sanitisers once the Covid-19 crisis subsides? Says Vaishali Aggarwal: "We have

received great feedback for our sanitisers. So we will not only continue production, but will also market it more aggressively going forward." ✨

# Bagging Rights

*Aryata Bhansali's Agarwal Industries is using its resources to make bags to store grains and dry rations instead of cement*

By MANSVINI KAUSHIK

The coronavirus pandemic prompted Aryata Ankur Bhansali to temporarily pivot her Kolkata-based family-run cement-bag-making business. As the demand for cement—and the bags used to store it—plummeted, Bhansali was quick to realise a more pressing need that her factory could cater to. “There’s no dearth of demand for

essential goods. So we had to be innovative about using our existing resources to produce what was needed... bags used to store grains and other dry rations,” says Bhansali, promoter, Agarwal Industries.

However, food grains often need to be stored for longer than cement, so the bags need to have a longer life span, especially under direct sunlight since



they’re often kept in open fields, explains Bhansali. So, using the same raw material as cement bags, her team “re-jigged the input composition marginally” by adding a UV additive.

Production took off soon and even though there are entrenched food-bag manufacturers, Agarwal Industries managed to sell around 20 lakh bags in two months. ❏

# Mask Matters

*Himanshu Aggarwal pivoted his business to make PPE, masks and face shields instead of glassware during the pandemic*

By MANU BALACHANDRAN

For Himanshu Aggarwal, 29, proprietor of Suman Traders in Ambala Cantonment, the onset of Covid-19 meant a massive opportunity to pivot his business in order to survive. Aggarwal manufactures



SHOT ON OPPO FIND X2 PRO

glassware used in laboratories across schools and colleges. Following a nationwide lockdown in the wake of the coronavirus, Aggarwal decided to use all his raw material and even outsource some from the

adjoining city of Ludhiana to manufacture personal protective equipment (PPE), face masks and face shields. Today, he sells his products to private buyers, offices and banks, among others.

“I used the help of small-time labourers who were staying at their homes to help me with the manufacturing,” says Aggarwal. “There was a lot of back and forth regarding the materials used in the kit. Now, we adhere to all standards. The raw material was quite similar and it was easy to manufacture these safety equipment compared to what I manufacture otherwise.”

Eventually, he plans to go back to making glassware for labs. “This is only short term, perhaps for another year, till the time there’s a vaccine for the coronavirus,” says Aggarwal. Much of that is also because there has been a surge in the number of manufacturers making PPE kits and face shields. ❏





**U**rogynaecologist and social entrepreneur Dr Aparna Hegde has been at the forefront of the fight against the coronavirus. She has set up—and is in charge of—a 100-bed Covid-19 ward at Cama Hospital in South Mumbai. That apart, she has modified the communication model at her NGO ARMMAN to provide critical information about the virus to underprivileged pregnant women and mothers—through automated voice calls.

ARMMAN or Advancing Reduction in Mortality and Morbidity of Mothers, Children and Neonates leverages technology to create cost-effective, scalable solutions to improve maternal and child health care in India. The 12-year-old non-profit organisation offers five programmes that have reached over 18 million women and children in 16 states.

“In the wake of the coronavirus outbreak, we have introduced three new initiatives. We now provide Covid-19-specific information through our programmes Kilkari and mMitra that reach 3.3 million women. We have also started a virtual OPD for pregnant women and children which is manned by qualified obstetricians and paediatricians; it gets 100 to 200 calls per day. Besides, we have collaborated with the government to provide safety-related guidelines to health care workers, and through this service,

# Talking Health

*Dr Aparna Hegde, in charge of a Covid-19 ward, also provides information about the virus to pregnant women through her NGO*

By MANSVINI KAUSHIK



reached 800,000 medical officers and ASHA workers so far,” says Dr Hegde, who studied at Stanford University and trained at Cleveland Clinic, Florida.

ARMMAN has won the Skoll Award for Social Entrepreneurship 2020,

the British Medical Journal South Asia Award for Maternal and Child Health Team of the Year 2018, the WHO Public Health Champion Award in the innovation category 2017 and the GSK-Save the Children International

Health Innovation Award. “Our programmes are the largest such mHealth-based maternal and child health programmes in the world and we plan to have a pan-India presence in the next five years,” says Dr Hegde. ✨



oppo

**OPPO Find X2 Pro**  
Automobili Lamborghini Edition



# EXPERIENCE THE ULTIMATE DESIGN

**Cutting-edge technology meets  
Avant-Garde art**

Disruptive technology and artistic design are the two driving forces which are shaping each model of OPPO. Lamborghini is a sheer driving pleasure wrapped in striking design, Combining their strengths in technology and aesthetics, OPPO and Lamborghini are a tour de force.



**Aventador SVJ Roadster**  
**The source of inspiration**

Lamborghini's iconic SVJ Roadster is a perfect amalgamation of breath-taking performance and state-of-the-art aesthetics.