

Unmasking the Future

An innovative face mask is ushering in a new era of communication as well as safety.

by **Tim Hornyak**

As the coronavirus pandemic approaches the end of its second year, it is unclear if or when COVID-19 will become a thing of the past. Masks and other infection-prevention measures may be with us for some time. If that is the case, why do we not create value-added masks that do more than simply minimize infection risk?

That is exactly what Donut Robotics Co., Ltd. is doing. Founded in 2014 the startup, now based in Tokyo, is dedicated to creating new platforms and solving social issues such as communications

barriers. Drawing on Japan's long tradition of cutting-edge robotics, it developed a smartphone-controlled robot called Cinnamon that was trialed at Tokyo International Airport (Haneda). Cinnamon can swivel around on her base and nod her head, provide translation services, and has surveillance capabilities.

Donut Robotics' follow-up creation is C-FACE, a lightweight plastic and silicone electronic mask aimed at improving communication and combatting the coronavirus. Billed as Japan's first (patented) smart mask that works with smartphones, C-FACE is equipped with a microphone

and works by being attached to a standard face mask and then paired with a smartphone or other mobile device. When fully charged, its battery provides power for about 20 hours of continuous use.

A dedicated app can capture, amplify, and transcribe users' speech, which can also be projected to the phones of conversation partners. Speech can thus be clearly conveyed despite social distance, masks, or barriers. The C-FACE app can also translate speech into 100 languages, record the minutes of a meeting and transcribe speech for messaging apps. The pandemic served as the inspiration to provide frontline workers, including medical workers examining patients, with more functional masks.

"One of our engineers was researching translation through masks when he graduated from Tokyo University. I thought it would be possible to tackle social problems that are larger than inbound visitors, so I decided to go ahead with the

idea," says Ono Taisuke, CEO of Donut Robotics. "At first, I was concerned about being a robot company and making masks, but I was relieved when a major electronics maker began making masks as well. I think this can be an epoch-making product from Tokyo."

Sustainable Development Goals (SDGs) and corporate social responsibility are also an important factor in Ono's worldview. "The C-FACE re-enables communication for lip readers when masks obscure the lower face. It is also helpful in industries where a section of the workforce does not speak the local language." Six thousand units of C-FACE have already been sold worldwide. There are plans to introduce them at international airports in Japan as well as in major railway companies, and there have been many inquiries from overseas.

The company also has big plans for the future. Anticipating the end of the pandemic when masks are no longer as necessary, Donut Robotics is in the process of developing an in-ear version of its translation technology. Next year, it plans to demonstrate its prototype of a conscious humanoid robot, invoking a future where robots—including robotic clones of people—can engage in work and social relationships.

"One effect of the pandemic is that people's relationship with technology has changed in ways that have allowed our products to find their niche," says Ono, citing everything from the explosion in teleworking to VR vacations. "Looking ahead, we will need AI and robot solutions to address a whole host of issues including shrinking populations, and at some point in the future, our conscious minds may even move around in robot bodies." Ono credits Tokyo for facilitating the realization of his big dreams and being able to grow Donut Robotics, adding, "Even though we were founded in a provincial city, the richness of information and human resources available in Tokyo meant it was impossible not to come here. Tokyo has allowed us to introduce our ideas to the world."

Tokyo is full of visionary tech entrepreneurs who are passionate about making our world more resilient, and better capable of dealing with pandemics and other challenges. With Japan's expertise in robotics, AI and other technologies, there is no telling what kind of life-changing solutions they will surprise us with in the future.

At first glance it might look like a typical face mask, but this one can help the wearer translate their speech into many other languages, and even keep minutes.

