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## **Innovative tech ear solution for face masks designed for frontline workers**

University of Cape Town (UCT) MSc student in biomedical engineering Lara Timm has designed an ear saver solution, UCT Hearo, to assist the clinical partners and members of UCT's COVID-19 Research Task Team, who experienced the discomforts of wearing a mask fixed around the ears for hours on end.

Hearo is a neat and practical design that improves the comfort and fit of face masks with ear loops, typically worn by frontline medical staff working long shifts to contain COVID-19.

Common mask designs have a painfully obvious flaw: they anchor around the ears. They irritate and chafe the skin and often slip, needing to be adjusted and increasing the risk of self-contamination.

Timm, a member of UCT's Medical Devices Laboratory, wanted a fix that would not only eradicate the ear malaise but outperform existing designs.

Hearo is a soft, flexible, oval-shaped device that hugs the crown of the head, ensuring that face masks sit securely and comfortably over the nose and mouth: simple, effective, cheap. And biomedical engineering can be all three, said Timm, who relishes the opportunities that come with devising clever, inexpensive and practical solutions to common problems.

Developing the Hearo has taken Timm on a journey of discovery and challenge. Design was just one aspect; fabrication and production presented other hurdles.

"Initially these devices were being 3D printed," said Timm. "We could do this in-house using our 3D printers in the lab."

Although this solution was effective, it was not efficient. With a manufacturing time between 30 and 40 minutes per device, Timm sweated to get a reasonable number out each day. Laser cutting the Hearos would be more efficient, but sourcing materials became difficult, with suppliers experiencing stock delays due to the pandemic, she said.

But finally, she was able to outsource manufacturing to local companies, a boost at a time many were cutting back or closing shop. "Hopefully we can get a significant

number of Hearos out as soon as possible to ensure we make the biggest impact we can," she said.

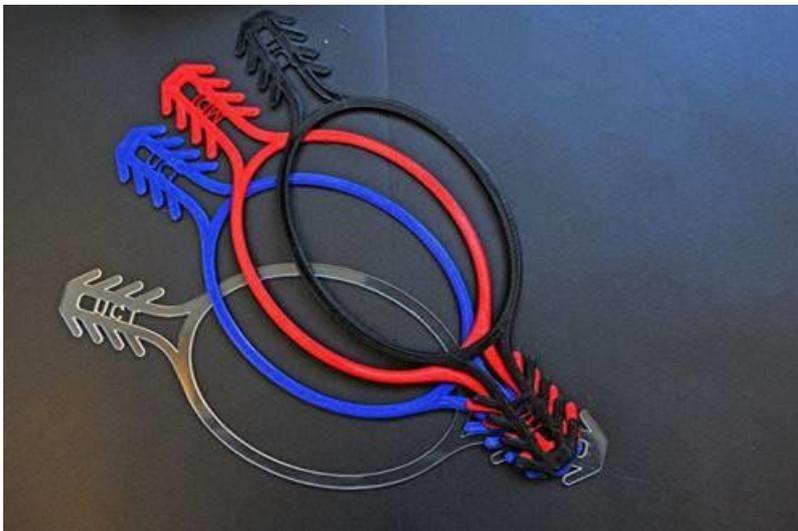
She has designed the device to have a life beyond the immediate surge in the pandemic. "Surgical masks will remain important in clinical settings long after the pandemic. We are currently in discussion with partners to find a way forward for the Hearo," she concluded.



Lara Timm wearing the UCT Hearo.

Photo: Lerato Maduna/UCT

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UCT Hearo.

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**ENDS**

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