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Wollongong-made 3D bioprinters hit the global stage

UOW RESEARCHERS DELIVER LOCALLY DESIGNED 3D BIOPRINTERS TO INDIAN MEDTECH EXPERTS

Prosthetists in India will have access to the latest advances in 3D bioprinting to correct ear deformities, thanks to ARC Centre of Excellence for Electromaterials Science (ACES) researchers from the University of Wollongong (UOW).

ACES researchers have dispatched two customised bioprinters designed and manufactured in Wollongong to Indian medical device manufacturers as part of a strategic collaboration between UOW and Andhra Pradesh Medtech Zone (AMTZ) in India.

The 3D Genii printer is part of the package bound for AMTZ, which is designed to print implantable, flexible, customised prosthetic ears that match the anatomy of patients suffering from microtia (a congenital deformity of the ear that has a heightened rate of disease in India compared to Australia).

The printer has been built specifically to deliver high precision silicon rubber prints in complex shapes, such as those found in an ear. The patient's ear is scanned using smart phone software, and the file is uploaded for printing.

The 3D Genii will allow a prosthetist to complete their work faster and in a more streamlined manner, while providing simple scanning technology that can be used remotely to ensure the system is more accessible across the broader population.

ACES Director, Distinguished Professor Gordon Wallace AO, said the delivery of printers to India is an exciting step in accelerating new technologies, creating new industries and building local medtech infrastructure for both Australia and India.

"We've seen some impressive advances in the partnership between UOW and AMTZ in terms of identifying areas of clinical need, developing the best strategies to meet that need, and bringing together the knowledge and expertise to deliver the most effective solution in the least amount of time," Gordon said.

"Both India and Australia have challenges in delivering health innovations to their rural areas. We hope these latest developments will help in reaching out to those patients and healthcare professionals who can work remotely with us to access 3D printing technologies."

AMTZ will also take receipt of the 3DREDI, a locally designed and manufactured 3D bioprinting research and education system that equips users with the essential hardware and skills to embark on projects in the rapidly emerging bioprinting industry.

The platform has been developed with the input of world-leading clinicians and features an intuitive research bioprinting platform that is capable of creating structures containing living cells. The system comes complete with interactive printing and characterisation tutorials to allow educators and students to familiarise themselves with the capabilities of multi-material bioprinting.

The AMTZ team will utilise the 3DREDI system to advance their knowledge in bioprinting while focusing on the use of 3D bioprinted structures for cardiac regeneration.

UOW's Global Brand Ambassador, Adam Gilchrist AM, said the 3D bioprinting collaboration has much to offer both India and Australia in advancing research, training and manufacturing.

"UOW already has many strong connections with India, and there's so much more we could do together," Adam said.

“It’s exciting to see UOW share its internationally renowned expertise in bioprinting to help India establish a state-of-the-art, affordable and accessible industry that will have a real and significant impact in local communities in both India and Australia.”

UOW [signed a strategic collaboration in Visakhapatnam \(Vizag\), India in 2019](#). Several research and training initiatives have been established under the Memorandum of Understanding, including the development of the scan and printing package to produce 3D printed ears, and innovative programs to support widespread deployment of the technology in India and Australia.

The project also received support from the Federal Government’s Australia-India Council (AIC), to build bilateral partnerships to translate 3D bioprinting research in India, and is led in collaboration with RPA Ear, Nose and Throat Surgeon A/Prof Payal Mukherjee.

ABOUT TRICEP

TRICEP – UOW’s Translational Research Initiative for Cellular Engineering and Printing – is providing critical input into both the research and training initiatives, and was responsible for the design and production of the 3D Genii and 3DREDI. TRICEP houses world-leading research infrastructure to develop innovative technologies in 3D bioprinting, including printer manufacturing, biomaterials, and bioinks.

MEDIA RESOURCES

Images of Distinguished Professor Gordon Wallace and the bioprinters is available [via Drop Box here](#).

MEDIA CONTACTS

Lauren Hood, Communications and Media Coordinator - Intelligent Polymer Research Institute (IPRI)

T: +61 2 42215306 | M: +61 458 286 611 | E: lhood@uow.edu.au

Ben Long, Media and Public Relations Coordinator, UOW

T: +61 2 4221 3887 | M: +61 429 294 251 | E: ben_long@uow.edu.au

UOW Media Office

T: +61 4221 4227 | E: media@uow.edu.au