

Press Release

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Honoris United Universities develops 3D-printed respirator and potentially lifesaving diagnostics and equipment in support of global efforts to combat COVID-19

Tunisia / Casablanca / Durban, April 08, 2020: Teams of scientists, doctors, engineers, students and professionals from Honoris United Universities, the first and largest pan-African network of private higher education institutions, have developed a prototype for a new non-invasive respirator, as well as face shields and splash protection masks, which can be affordably and quickly manufactured via 3D printing. The teams have also developed innovative testing and pharmaceutical interventions during a pan-African hackathon.

During this period of unprecedented strain on global healthcare systems, governments and hospitals are calling for solutions that will address the shortage of ventilators and other critical equipment to save lives during the pandemic.

In an act of solidarity, **Université Centrale in Tunisia**, a member institution of the Honoris network, has partnered with Digital Industry Tools Expert (DITEX), which brings together the expertise of Dassault Systems, Université de Lorraine in France and industrial engineering company TECH-3D. Together, the team has successfully produced a non-invasive ventilation system that can be made using commonly accessible and inexpensive components, making it affordable and easy to produce globally. A team of doctors from within the Honoris network including **Chadli Dziri, MD**, a leading surgeon and director of the **Honoris Medical Simulation Center** in Tunisia, and his colleague **Dr. Mamoun Ben Cheikh**, an anesthesiologist, also consulted on the design of the ventilator.

The ventilator design, which is an open-source software without patent, can be used by countries around the world. The non-invasive kit includes a protective face mask, 3D-printed, that connects to an electric insufflator – the body of which can also be 3D printed. Attached to the insufflator is an oxygen tank that delivers a predetermined, fixed concentration of oxygen.

Project lead, **Professor Nidhal Rezg**, sponsor of the idea at the Polytechnic Engineering School of Université Centrale / DITEX – Université de Lorraine said, *"We have collaborated with some of the very best and highly skilled engineers, scientists, researchers and medical professionals within our network and academic partners to rise to the challenge and create a device that can potentially save lives in the fight against COVID-19. It was critical to ensure it was affordable, easy and quick to produce and most importantly available to everyone. The device can be easily duplicated in different countries in Africa and around the world using software that can be downloaded – and it comes with a free instruction manual for ease of use. It has also been designed to be used in both a hospital and a home setting."*

Also, within the Honoris network, three healthcare innovations from **École Marocaine des Sciences de l'Ingénieur (EMSI)** – the largest engineering school in **Morocco**, have been selected in a pan-African hackathon (Marocovid 19) involving students, start-ups, entrepreneurs, professors and engineers. There were 10 winners in total, all of which will be virtually incubated by Hack & Pitch and Start-up La Factory – leading incubators in Morocco that accelerate innovation by supporting collaboration between tech start-ups and corporates.

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The three winners included '*African Saviour*', which uses drones to deploy nasal swabs and other coronavirus diagnostic kit to medics across remote rural areas. The diagnostic pack carried by the drone will include a hydroalcoholic gel and gloves, both of which are single use. When the drone returns, it will only have to carry the sample, which will be in a sterilized bag, and the drone will have to go through a disinfection point as soon as it returns.

The other two winners include a '*Digital System Medical Respiratory*' system. It communicates a patient's vital signs and medical needs in real-time through a digital platform that connects monitoring hardware –such as air pressure regulation – to communicate a patient's status to a relevant healthcare professional to avoid any kind of direct contact for monitoring.

The third EMSI winner, the '*Moroccan Electronic Prescription (MeP)*' smartphone platform, allows a doctor to create and validate prescriptions that a patient can then collect from the pharmacy using a unique QR code. This reduces doctor-patient contact, potentially saving the lives of much-needed medics on the front line.

In South Africa, REGENT Business School also part of the Honoris network, has produced face shields and splash protection masks using 3D printed parts in its three iLeadLABs – in Durban, Johannesburg, and Cape Town – and is distributing them at no cost to select public healthcare facilities. *“The first batch was printed in a matter of days and production hasn't stopped since,”* said Dr. Ahmed Shaikh, Managing Director of REGENT Business School. He added, *“The true grit of a nation is revealed during times of crisis, like this one. We are facing an undeniably powerful adversary – and an invisible one at that. REGENT Business School is grateful to be able to meaningfully contribute to the fight against COVID-19 by producing and donating life-saving essential gear.”*

Honoris United Universities CEO, Luis Lopez, praised the mission, speed and collaborative intelligence of the teams. *“The communities of Honoris and their partners have responded to the calls for support from governments and healthcare professionals in identifying new solutions in the fight against COVID-19. I strongly commend the teams for the collaboration and rapid development of affordable and accessible solutions. I applaud the commitments the Honoris organizations are undertaking and I am proud of them and our colleagues in these endeavors, and in our efforts around remote learning and remote working. Honoris' Education for Impact mission is powerfully meaningful as we come together in these pursuits.”*

About Honoris United Universities

Honoris United Universities is the first and largest pan-African private higher education network committed to educating the next generation of African leaders and professionals able to impact regionally in a globalized world. Collaborative intelligence, cultural agility and mobile mind-sets and skills are at the heart of Honoris' vision of higher education. Honoris United Universities joins the expertise of its member institutions to develop world-class African Human capital that is competitive in today's fast-paced, demanding and increasingly digitized labor and start-up markets.

Honoris United Universities gathers a community of **45,000** students on **60** campuses, learning centres and via on-line, in **10** countries and **32** cities. The network counts **11** institutions: multidisciplinary universities, specialized schools, technical and vocational institutes, contact, distance and online institutions. Students have an opportunity to experience exclusive partnerships and exchange programs in more than **60** universities across Europe and the United States. Over **280** degrees are

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offered in Health Sciences, Engineering, IT, Business, Law, Architecture, Creative Arts and Design, Media, Political Science and Education.

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About Université Centrale, Tunisia

A private multidisciplinary university ranked as #1 in Tunisia by Unirank. Founded in 2001, it offers a wide range of courses and degrees across several schools: Engineering & Architecture, IT, Business, Law, Media & Journalism and Health Science. The university offers its students 10 smart campuses in the city of Tunis and is a reference in the Maghreb with its cutting-edge Medical Simulation Center. www.universitecentrale.net

About Digital Industry Tools Experts (DITEX), France

Born out of a collaboration between the University of Lorraine and Dassault Systèmes, DITEX is a unique center of excellence designed to meet the challenges of the industry of the future. With more than 15 years of experience in Dassault Systèmes solutions in the field of Engineering education, DITEX supports higher education organizations in their digitization of engineering courses, to prepare the students for the next challenges of the industry. The center also offers an array of related services, from certifications on Dassault Systèmes solutions to hosting and management of engineering projects on its Cloud (support, data management, users, roles, assistance).

DITEX is part of UFR-MIM (Mathematics, Computer Science and Mechanics Training and Research Unit) and the University of Lorraine's LGIPM Research Laboratory (Computer Engineering for Production and Maintenance Laboratory), in France. <http://ditex.univ-lorraine.fr/>

About TECH-3D, France

Through years of experience in manufacturing innovative special machines, TECH-3D specialize in delivering industrial engineering services to diverse sectors including automobile, aeronautics, telecommunication, steel, pharmaceutical, food etc. www.tech3d-france.com

About EMSI, Morocco

Established in 1986, EMSI is the largest private institution for engineers in Morocco. A pioneer for 33 years, EMSI is part of an innovation dynamic that is constantly renewed and has received numerous international awards thanks to the world-class research and publications of the School's Innovation and Research Centers, LPRI Lab and the SmartiLAB. www.emsi.ma

About REGENT Business School

Since 1998, RBS has been a leading business school offering training courses for leaders. In an increasing globalized world, RBS has established centres of excellence in partnership with international organizations such as the Institute for Entrepreneurship, the Islamic Centre of Finance and Banking Services, the Association of Business Schools of BRIC countries and the Centre of Administration and Innovation of Public Sectors. REGENT has developed the iLeadLAB, a specialist "employability unit" in response to the accelerated pace of technological transformation and global labour market disruption. iLeadLAB offers its students hands-on development and experience in Critical thinking, Problem Solving, Digital Literacy, Creativity and Imagination. REGENT boldly innovate and step-change to remain relevant. www.regent.ac.za

Media Relations Contact:

Marjorie@djembeconsultants.com (French)

Nanayaa@djembeconsultants.com (English)