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NTU partnering ST Aerospace, Germany's Evonik to support new 3D and bioprinting technologies

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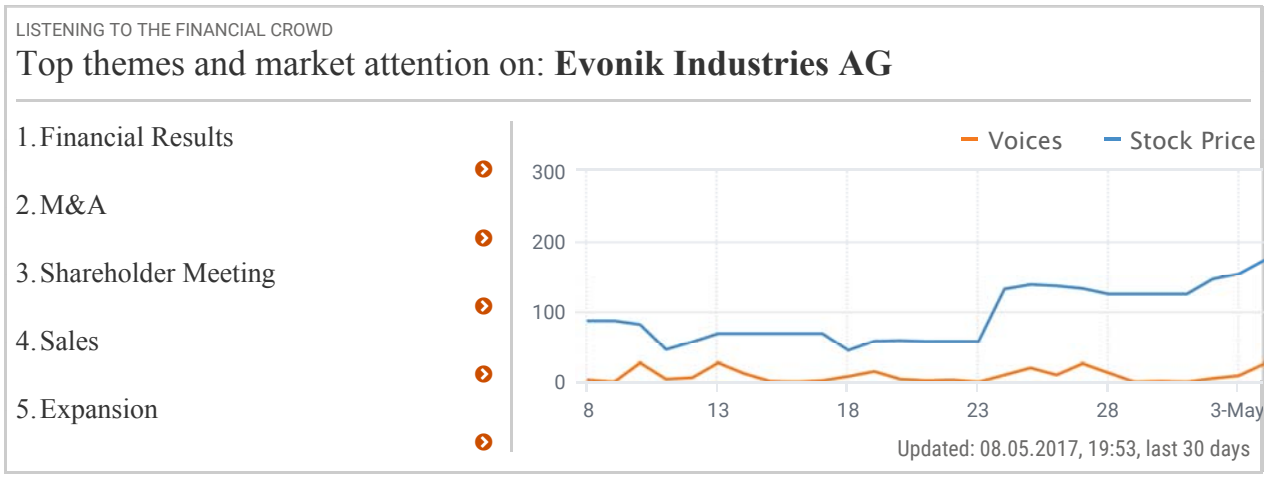
SINGAPORE - Nanyang Technological University (NTU) is partnering two leading firms to develop more reliable ways of producing aerospace components using 3D printing, as well as new methods of printing human tissue.

On Friday (May 5), the university's Singapore Centre for 3D Printing signed separate research collaboration agreements (RCAs) with Singapore Technologies Aerospace (ST Aerospace) and German firm Evonik's health care business line.

ST Aerospace will be working with NTU scientists on two new research projects. One project aims to develop more consistent and reliable ways to 3D print aerospace parts using a technology known as Directed Energy Deposition (DED), which is a process specifically used to print 3D models from metals and alloys. The other project seeks to identify the factors affecting the quality of a 3D-printed polymer part during the printing process.



With Evonik, a world leader in speciality chemicals with a presence in over 100 countries, NTU will research and develop a new type of bio-ink for 3D bioprinting.

Bio-ink consists of living cells and nutrients that allow the 3D printing of living tissue. 3D printers use bio-ink to create a supporting structure layer by layer while inserting living cells at the same time. This forms a live tissue that could aid in the regeneration of particular tissues or organs.

Said NTU chief of staff and vice-president (research) Professor Lam Khin Yong: "Combined with industry expertise from ST Aerospace and Evonik's health care business line, NTU will help translate 3D printing technologies for mainstream manufacturing processes, contributing to Singapore's standing as a leading research and development hub for additive manufacturing."

Dr Stefan Randl, vice president of innovation management of Evonik's health care business line, said: "In our joint research project with NTU, we will combine our broad portfolio and knowledge with NTU's world-class 3D-bioprinting expertise to develop new bioinks with the potential to offer new therapeutic solutions in the growing areas of regenerative medicine and tissue engineering."

ST Aerospace's chief technology officer Lim Tau Fuie, said its tie-up with NTU will further advance 3D printing technologies from research to the market with robust and practical solutions for the aviation industry.

Set up last year, NTU's Singapore Centre for 3D Printing is funded by Singapore's National Research Foundation. Its industry partners include top firms like ST Engineering, Keppel Offshore & Marine Technology Centre (KOMtech), Sembcorp Design and Construction, and Emerson Process Management, as well as local small- and medium-sized enterprise (SMEs) and start-up companies.

The centre is led by Professor Chua Chee Kai, the world's most cited scientist in 3D printing technologies, and is home to over 100 researchers, including master's and PhD students, said NTU.