

ROTORCRAFT

Singaporean eVTOL Maker Aims To Inspire National Aerospace Industry

NTU team developing Singapore's first domestically-produced aircraft



"If it can be dreamed it can be built"—the motto of the team behind Singapore's first domestically designed and produced aircraft. © David McIntosh/AIN

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Singapore's Nanyang Technological University (NTU) has revealed an eVTOL design that could become the country's first domestically produced passenger aircraft. Although certification of a full-scale aircraft isn't expected until 2035, flight testing of the sixth-scale model unveiled today is taking place in Singapore and Germany.

The NTU technology demonstrator project, unveiled on Tuesday at the Singapore Airshow, has been underway in secret for around three years, building on the Project Zero eVTOL concept first unveiled in 2013. After initial conversations in 2019, government funding was allocated to the current project in 2023. A 30-strong team is led by NTU professor James Wang, whose rotary-wing experience includes a tenure as senior v-p of marketing and v-p of research and development at AgustaWestland (now Leonardo).

The lift-and-cruise-configured eVTOL features eight lift rotors atop four wing-mounted pylons, along with a rear pusher propeller. Many components were developed by the project and its partners. These include proprietary rotors and a compact motor design, the latter produced with a Chinese company. The use of new composite materials and magnesium alloys is also being explored.

After studying more than 20 initial configurations, Wang described this layout as among “the least challenging,” although he suggested that revisions could be made to the certifiable design. Expected to enter service around 2035, it is designed to carry one pilot plus four passengers or up to 500 kilograms of cargo.

The 8-meter wingspan scaled technology demonstrator has already conducted domestic tethered hover trials, although restrictive civil aviation authority permissions necessitated a second location. A month ago, a second scaled aircraft began a flight-test campaign in Germany, carrying a 25-kilogram payload.

Wang believes that the nascent eVTOL arena has room for at least half a dozen OEMs to share the commercial market, highlighting the benefits of inter-company collaboration. Technical learnings and regulatory collaborations informed by this project also have the potential to benefit the wider Singaporean aerospace industry, building on the country’s extensive MRO expertise.