

Robotic intubation prototype crawls to the lungs in difficult situations

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Students in the Biodesign program of the Hebrew University of Jerusalem and Hadassah Medical Center designed a self-guided robotic intubation device that crawls to the lungs in difficult situations. Credit: The Hebrew University of Jerusalem

Intubation is the placement of a plastic tube into the lungs that allows anesthetized or critically ill patients to breathe. The current procedure requires the physician to see the trachea and choose between two very similar holes, one leading to the lungs, the other to the stomach.

Failure to identify the correct hole can lead to patient death. Worse,

intubation sometimes has to be carried out in the field, during military operations, or on patients that have blood or liquids obstructing the way.

This month, graduates of the Hebrew University of Jerusalem's Biodesign program revealed a prototype called GuideIN Tube. GuideIN Tube is a robotic intubation device that automatically identifies the lungs using an infrared source and navigates toward it. The device was successfully tested on [cadavers](#) at the Hadassah Medical Center, and clinical trials will begin as soon as next year.

"I strongly believe that GuideIn Tube represents the future of intubation," said Dr. Elchanan Fried, director of the general [intensive care unit](#) in Hadassah Medical Center, and the group's clinical expert. The device targets a \$3 billion market, which is expected to increase by 5% annually. "We really thought about the paramedic in the field", said Itai Hayut, the leading engineering student on the project. "We wanted something simple and compact that they could trust without fail. I think we hit it on all marks."

Other students in the group include Tommy Weiss-Sadan, a biology graduate student, as well as Sarah Horwitz and Ariel Shrem who are completing their MBA degrees.

Biodesign is a multi-disciplinary, team-based approach to medical innovation, created by the Hebrew University of Jerusalem and Hadassah Medical Center in partnership with Stanford University. The program takes outstanding medical fellows, bioengineering and business graduate students, and tutors them in the science and practice of bringing a medical innovation to the market. The program is directed by Dr. Yaakov Nahmias, head of the Bioengineering program at the Hebrew University, and Prof. Chaim Lotan, director of the Heart Institute at Hadassah Medical Center.

Other teachers include, Prof. Dan Galai, Dr. Niron Hashai, and Dr. David Planer.

Provided by Hebrew University of Jerusalem

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