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The Hebrew University of Jerusalem

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3D Tomography Tool Reduces Dentures Procedure from Days to Minutes

Prototype 3D tomography targets growing denture market aiming to replace a 100 years old procedure

Jerusalem, August 6, 2013 — Dentures, known as false teeth, are prosthetics constructed to replace missing teeth. Fitting dentures is a long and hard process in which the patient has to visit the clinic multiple times so soft and hard plastic material, resembling silly putty, can be used to take exact measurements of his or her mouth. Failure to take exact measurements causes mouth sores, discomfort, and pain.

"The process hasn't significantly changed in the last 100 years," said Dr. Anat Sharon, director of the maxillofacial prosthetics clinic at Hadassah Medical Center. "It takes so long that most dentist clinics simply refuse to carry out the procedure." The Biodesign program, a joint effort of the Hebrew University of Jerusalem and Hadassah Medical Center, allowed Sharon to recruit engineering and business students to help her develop an alternative procedure.

Sharon's Biodesign group developed a digital complete dentures impression system (DCDI), a standard optic tray composed of multi-line camera array and an integrated pressure source. "Digital recording is simply carried out at different pressures," said Elishai Ezra, a graduate student in bioengineering, "so we can measure everything at once, produce a 3D model, and 3D print the entire thing in a single visit."

Watch a video about DCDI at http://youtu.be/cKK2YL62L5Q.

The technology targets a $7 billion market in the United States alone, but the group hopes to target the aging population of developing countries that can benefit from a simple, cost-efficient technology.

Other students in the group include Dr. Shmuel Chen of Hadassah Medical Center, as well as Yana Mazurovsky and Amit Zilbershtein, 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.

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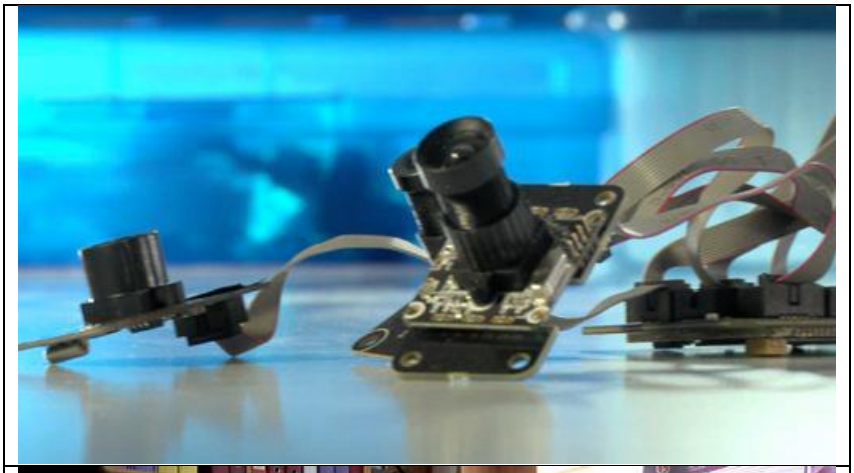

(Photos: Hebrew University / Hadassah Medical Center
Hi-res versions available upon request)

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