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Startups in focus / *Inbal Orpaz*

Groundbreaking technology that's changing lives

A growing number of Israeli tech projects are addressing the everyday needs of people with disabilities

A woman walks into a bank to inquire about the bank's terms for a loan. She waits her turn but, when it comes, struggles with the task. She is deaf and can't understand the response from the bank clerk. Instead, she will have to return with a person to hear for her. People with disabilities and special needs encounter similar situations on a daily basis, but a number of startups, including Israeli ones, are seeking to address the problem.

In some cases, providing help would be relatively simple. In the case of the deaf woman, for example, a device that converts speech into sign language or text would enable her to understand the clerk. "For most people, technology is the tool that improves their lives and social connections. For people with disabilities, it can change reality," said Shosh Kaminsky, who is in charge of development and knowledge management at Beit Issie Shapiro, a long-standing Ra'anana-based organization that provides services for children with disabilities. It even established an accelerator project for entrepreneurs with the goal of improving the lives of people with disabilities.

The project, called A3i (which stands for Accelerating Inclusion in Israel), is being conducted in cooperation with the Ruderman Family Foundation and PresenTense, a Jerusalem-based global Jewish organization with a range of programs encouraging innovation. The Ruderman foundation has made it a priority to support integration efforts for people with disabilities in Israel and the United States. Currently, 13 entrepreneurs are involved in A3i, most involving technology projects in the initial stages of development. Two of the projects aim to develop devices and services for the deaf.

Using technology at Beit Issie Shapiro.

Kaminsky explains that the projects are an effort to make translation services for the deaf more accessible. In the case of the woman at the bank, the goal is to provide her with a means to understand what she's being told and to respond either on a keypad or through direct speech. "These are items that don't exist yet, and they are very important to a deaf person," Kaminsky said – enabling the deaf to participate in conversation and to express themselves. One of the applications under development would translate speech into text that would be displayed on Google Glass (Google's wearable eyeglass-style computer).

Siman Shenagish ("An accessible sign") is a sign-language organization that's also participating in the Beit Issie Shapiro accelerator. It's presently carrying out a pilot project for telephone call centers staffed by sign-language interpreters. In the process, it also makes businesses accessible to the deaf community.

The accelerator is one of a growing wave of projects in Israel and abroad designed to address the needs of people with disabilities, including the blind and physically impaired, as well as autistic individuals, through technology. They are frequently a response to personal experience, someone close to the entrepreneurs having a special need.

As with many other fields, this effort got a boost thanks to the growing use of smartphones. For many people with disabilities, an application that addresses the users' needs can change their lives dramatically. Israel has not created a center of critical know-how in the field, but it is certainly a direction that the local high-tech sector could gravitate toward. More than a billion people – 15% of the world's population – have a physical or mental disability. According to the World Health Organization, this includes 110 million to 190 million adults with hearing disabilities. The director of PresenTense's Jerusalem office, Guy Spiegelman, notes that developers in Israel have been particularly active in creating products that address the needs of autistic users, as well as accessibility to touch screens for people with physical limitations.

One such entrepreneur is Giora Livne, who trained as an engineer and was paralyzed in an accident seven years ago. In 2012, Livne founded the company Sesame Enable, together with Oded Ben Dov, a graduate of the Israel Defense Forces' technology unit. Sesame Enable develops technology that enables people with a limited range of movement to use mechanical devices through head or hand motions, or with the use of a joystick. The company's goal is to develop a smartphone that can be fully operated using the company's technology.

It already has a number of products activated by body movement, including an e-reader (a device similar to Amazon's Kindle), but with which the user can turn digital book pages through head or hand motions and use a dial pad for placing telephone calls.

And then there's Ola Mundo, founded by Ofir Harel. Ofir was looking for new ways to assist his autistic son, Adam, in connecting with his surroundings. Adam does not express himself verbally on the phone. Harel therefore developed an application that uses illustrations and symbols. The product can also benefit children who are not autistic but have other special needs and do not write or speak.

Kaminsky notes that products for people with special needs must not be so broad in their approach that they cannot be tailored for the requirements of the individual user. That, however, complicates the task. Spiegelman, meanwhile, says Israel has made advances in solutions adapted for individual needs as a result of experience with disabled Israeli war veterans, even if the aim was not to turn a profit. And one nonprofit, Milbat, has been working for more than 30 years in providing a range of services and technologies for the disabled and the elderly.

On the academic front, the media innovation lab at the Interdisciplinary Center in Herzliya is focusing this year on technology for people with disabilities. One project, TangiPlan, is addressing the needs of teens with ADHD (attention deficit/hyperactivity disorder). The project is addressing the challenge that some ADHD children face in getting ready for school in the morning. It includes an app for schedule planning and tracking performance of daily tasks.