

HISTORY OF ELDERBOTS PROGRAM

August 2015

ORIGIN OF ROMIBO: Romibo, the predecessor of EB, was developed by Aubrey Shick <https://www.linkedin.com/in/aubreyschick> while at the CMU Human Computer Interaction Institute. She envisioned a low-cost robot for use as a therapeutic device for children with autism. Her model strategized that people would buy the robot, assemble it, then donate it to organizations that offered such therapy. As far as we know, that never happened, at least not in significant numbers. But she did distribute some Romibos to organizations around the country and the world for use in therapy.

Aubrey then went to <http://origamirobotics.com/>. This company struggled to produce a new Romibo, initiating a Kickstarter campaign last year and producing a limited number of the new Romibo model. We recently saw one used by Tess Lojacano of <http://fineartmiracles.com/>. It has a nicely redesigned shell but lacks much of the functionality of the prototype EB, although her robot didn't operate properly.

QOLT's ROLE: QoLT was supportive of Romibo from early on. This was beneficial to us as well. The QoLT Ambassadors (Joe McLaughlin, Doug Hoecker, and Margaret Lindquist) often staffed tables at events such as the Carnegie Science Center www.scitechfestival.org. We needed something attractive to compete with the many other activities going on, and Romibo served that purpose well.

ELDERBOTS PROGRAM: When Aubrey left CMU we inherited partially assembled Romibos and assorted parts, with few working properly. Nevertheless Jim Osborn conceived of the ElderBots program, with the following mission:

"The mission of the ElderBots program is to provide opportunities for interactions between older adults and high school students. It provides benefits to both elders and students to expand social interactions with unfamiliar communities. This will be accomplished through visitation sessions where students will demonstrate to adults a small robot they have built, and share with them the use of the robot. The robot serves as the focus for developing strong social interaction between the two groups."

ElderBots, then, deals with the socialization aspect of this interaction, not the technology itself, although we know that EB's near-universal appeal would serve to greatly enhance the relationship. A strong secondary benefit is that its open-source platform could serve as a good tool for tech education such as coding and robotic prototyping.

About a year ago we engaged Cetin Merlici, a Senior Robotics Engineer at NREC, to improve EB's performance. For the remainder of last year he struggled with its many technical problems, not the least of which was the inability of its "WiFly" board to maintain a wi-fi connection with the controlling iPad. Finally late last year we decided to abandon that configuration, switching over to the smart phone instead. Along with other improvements, particularly to its sound quality and volume as well as stronger wheel motors, we got a working prototype last May. In the meantime, Origami Robotics asked us to give them the Romibo name, which we graciously did, renaming our new model "EB".

FUNDING: We made applications or sent letters of interest to some prominent funders. None have yet agreed to grant us any funds. We had limited success with the www.upprize.org recently, having been named one of 19 semifinalists from a field of 111 applicants. While this is a noteworthy honor, it didn't result in any grants. It is also perhaps worth noting that the UpPrize application was about "EB the

gadget”, not the primary ElderBots’ mission of intergenerational socialization, although it was mentioned as an application of EB.

JAA: The JAA (Jewish Association for Aging) in Squirrel Hill has regularly used a Romibo for over a year in weekly activity sessions in their dementia unit. Amber, one of the JAA staff, is extremely skilled in using the robot to elicit responses from the participants. As a result, JAA has been extremely supportive of the ElderBots concept, providing strong anecdotal evidence of EBs ability to stimulate dementia patients. Debbie Winn-Horvitz, the JAA CEO, is seen in the UpPrize video referenced below giving support to our application.

EB AS CROWD-SOURCING: We are currently exploring a new possibility for EB:

“Consider a future in which robots engage socially with people, especially elders who are prone to isolation and loneliness – a population that could benefit greatly, but is also the least likely to have technological acumen. To achieve the goal of a conversational machine, we propose a large scale crowdsourced social interaction system. Volunteers (for instance, high school students) will use their smartphones, tablets, or computers to connect to our ElderBot therapy robots deployed in elder people’s homes and interact with them through a cloud-based Wizard of Oz type remote operation infrastructure. The dialogues from the conversations will be stored and analyzed for synthesizing chatbots, each tuned to converse with one elder with unique subject matter and vernacular. This project is a socially responsible application of contemporary technology by virtue of the elders it could serve and the opportunity for young people to participate in that service. It opens additional possibilities of robot-facilitated services for elders such as reminding, monitoring, Internet access, and communication with peers. It is scientifically ambitious by virtue of scale, dialog analytics, and “mass customization” of a platform technology to individual users. It will generate corpora of conversation data that could be useful in additional interaction paradigms.”

This new direction has strong similarities to the original mission of ElderBots with its use of volunteers interacting with elders through EB. The crowd sourcing initiative will therefore enhance ElderBots by making robots more readily available.

URLs:

- first view of prototype in April: <http://tinyurl.com/paqer74>
- updated prototype in May: <http://tinyurl.com/p65qv3h>
- UpPrize video: <http://tinyurl.com/poyf4gs>
- UpPrize semifinalists: <http://upprize.org/semifinalists/>