At This Hackathon, Alexa Gives You More Than Just the Weather

At a recent USC hackathon, five teams had one night to make a voice-based digital assistant that helps people with developmental disabilities. Here's who got the $10,000 grand prize.

By S.C. Stuart   August 31, 2018 9:00AM ESTAugust 31, 2018

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At USC's recent "Voice Assistants for All" <u>hackathon</u>, five teams of engineers, product designers, cognitive systems researchers, clinical data scientists, speech technologists, and programmers competed for $10,000 and a chance to take their prototype to the next stage.

The challenge? Make an in-home, voice-based digital assistant to improve the lives and healthcare outcomes of people with developmental disabilities.

The event was jointly hosted by the WITH Foundation, which promotes comprehensive and accessible healthcare solutions, and USC's Center for Body Computing (CBC), a digital health research and innovation center, founded in 2006 by Dr. Leslie Saxon, a cardiologist.

In keeping with its tech-forward mission, CBC is now located at Playa Vista, aka "Silicon Beach," not far from Google, YouTube, Facebook, and a host of budding startups in the multifarious co-working spaces.

PCMag stopped by day two of the hackathon to watch a hyped up but understandably exhausted group do final presentations after an all-nighter.

"Our intent is to encourage solutions that make sure patients are involved in decision-making regarding their care," Dr. Saxon explained. "And that their expectations for their health care and health care needs are known and met."

Five judges—from industry, philanthropy, and academia—assembled at the front of the auditorium in comfy armchairs. The seats weren't red, and judges didn't have buttons to make them swivel like *The Voice*, but they did have mics and, after each presentation, participants were peppered with questions and feedback.

Almost all of the teams used Amazon's Alexa platform, which must have depressed those industry advisers wearing Google T-shirts in the audience.

The products were varied in tone, level of complexity, and objective. "Meddi" was a Natural Language Processing (NLP) concept that provided useful prompts to patients about daily medications.

"Say Food," a nutrition-based interactive voice assistant, gave on-the-spot recommendations based on a patient's blood sugar level, medical history, and other vital factors. The audience laughed when one of "Team Say Food" leaned toward the Alexa onstage and said: "Alexa, can I have orange juice today?" and Alexa responded with: "Yikes! Try green tea instead."

The idea that really captured my imagination—because it was so *very* imaginative—was "Eidla," a remote companion intended to combat social isolation from Akanimoh Adeleye and Alyssa Kubota, both PhD students in Computer Science at UC San Diego.

Eidla takes users on a fantastical trip to another world, where they meet strange and marvelous inhabitants. The idea is to engage people in a purely verbal/audio exchange and keep the psyche intact. Eidla would learn over time to retain data and deliver conversational gambits about the person's

hobbies, family members, and memories. It was charming; I wouldn't mind having one of those myself to chat to late at night after typing furiously to meet a deadline.


It was clear, though, that "Team Amplify" had the most marketable product. Brian Cohn and Dr. Chris Laine both work in a biomedical engineering lab at USC: Dr. Laine is a Research Assistant Professor and a specialist in clinical conditions (Parkinson's, essential tremor, and cerebral palsy) and oral-motor control, while Cohn is an NSF Graduate Fellow with a background in computational biology.

Their concept is a digital speech therapist that can ascertain whether children with cerebral palsy are improving their speech patterns.

Part of Amplify utilizes a singing competition and embeds useful words over and over again (robots never get tired or judge) so children get comfortable practicing to humor-filled prompts. Amplify showed real flair in both coding

and product design, in a "choose your own adventure" style, complete with interdimensional travel and talk of magic crystals to stimulate the child's imagination.
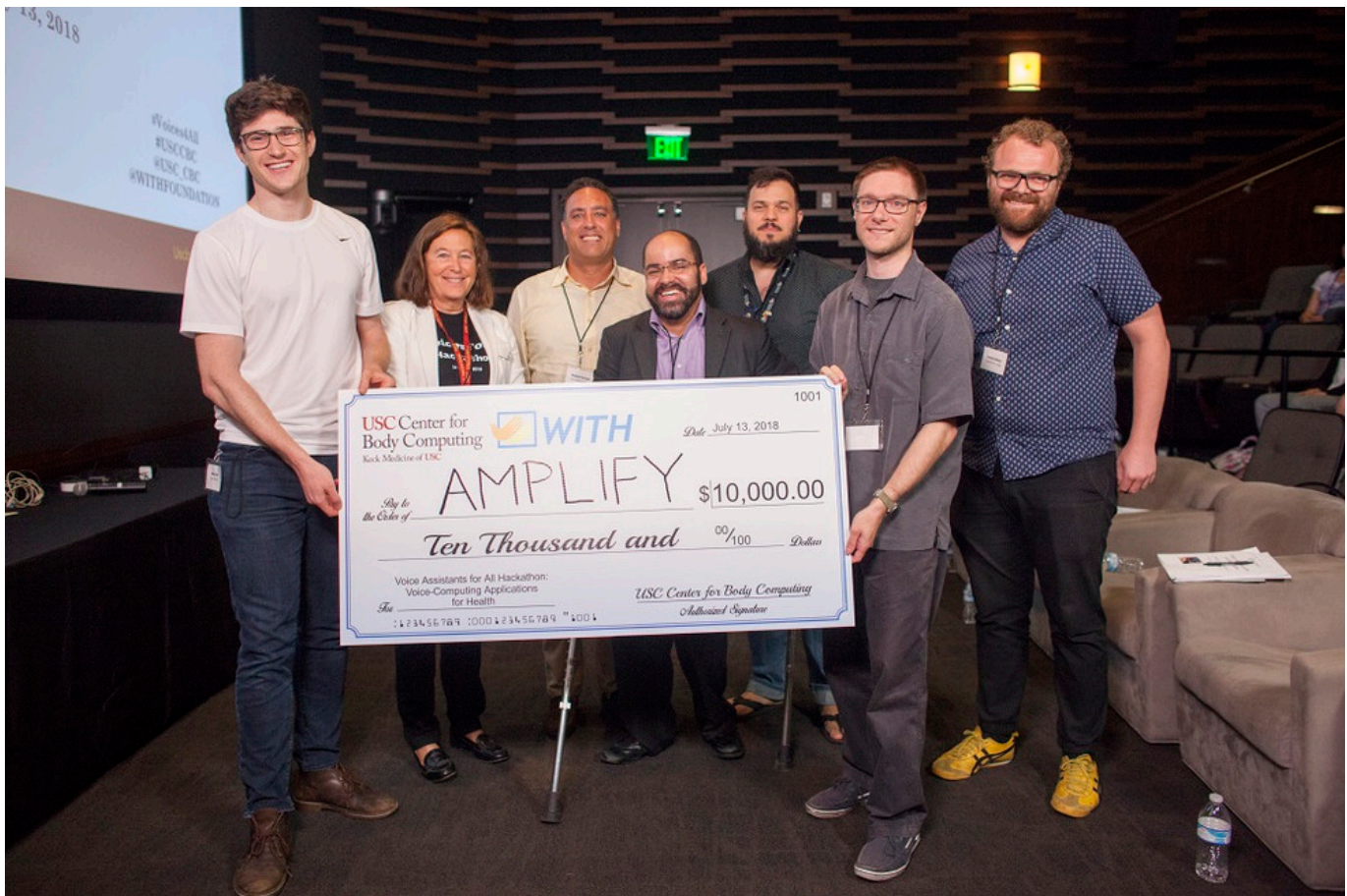
Although they had a few false starts getting Alexa to cooperate ("This is what happens when you make people stay up all night," laughed Cohn onstage), the two scientists clearly have something useful to meet market needs. The judges thought so too, and they were awarded the $10,000 top prize.

Afterwards, we caught up with Dr. Saxon, via email, for her feedback on the day.

"I was most impressed by the creativity of the approaches to the problem of meeting the needs of adults and seniors with disabilities," she wrote. "It made me realize that once we break with the paradigm that the patient and care provider need to be in the same place at the same time, everything is possible."

Professor Saxon pointed out that the hackathon used pretty low-cost devices.

"While leveraging a $200 dollar consumer device, our teams provided solutions to major problems confronting adults with disabilities, addressing continuous rehabilitation services, social isolation, nutrition, connection to community and the need for continuous health assessments. I couldn't be more proud of the results of this hackathon."

Team Amplify will present their research at the 12th Annual Body Computing Conference on Sept. 28.

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