New tools for telemedicine


Theresa Danna-Douglas

by JAMES RUTTER, Class of 2017

Dr. Paul Park '06 M.D., Ph.D. (cellular and molecular biology) believes telemedicine is the future of patient care in Nevada. To help healthcare professionals administer clinical services remotely, Park developed the Hummingdoc Flip, a device that connects to a smartphone and records data from a patient's heart and lungs. And he hopes the Hummingdoc Flip will soon be standard in every first-aid kit.

To operate the device, the user places the microphone from a pair of Apple EarPods in its center, closes the lid, and plugs the EarPods into a smartphone, thereby effectively giving the user his or her own stethoscope.

Park is in the process of developing an app to work with the Hummingdoc Flip that will allow mothers to record fetal heartbeat and send the information to physicians remotely.

Park says the University has been a great catalyst for success during the development process. Working with the University of Nevada, Reno Innevation Center — Powered By Switch and community partners, Park used the 3-D printer at the University's DeLaMare Library to print his first prototypes. With access to these services, he's been able to set the price of his product at a fraction of the price of his direct competitor. "The makers of the app we use sell a similar device for around $500," Park said. "With our product you get about 90 percent of that functionality, but ours costs $79.

"From a product development standpoint, the DeLaMare Library staff has been awesome. One of the students showed me all the computer resources and the 3-D printer, which was really helpful," Park said. "And now in the business development phase, the Innevation Center has been a real game-changer, by providing a great place to work and meet with advisors, as well as resources like student assistance. Jim Sacherman, the director of the Innevation Center, has really helped with business advice and finding additional resources."

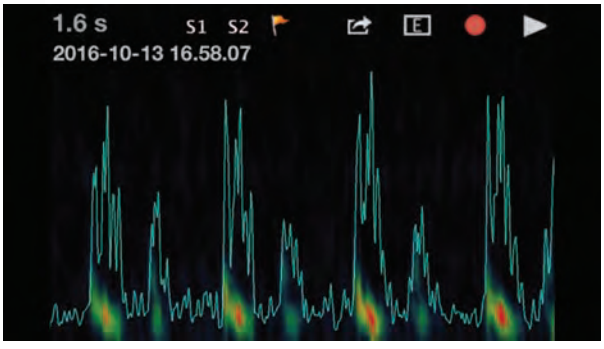
Park also described Reno as a changing landscape for entrepreneurs, where local groups are working to redefine business in the Biggest Little City. "There's capital here, and Reno has really been pushing to reinvent itself as a home for entrepreneurs," he said. "There are a lot of people, like those at the Economic Development Authority of Western Nevada, who are trying to build that reputation."

Park says he first got the entrepreneurship bug when he was working in Cambodia in the

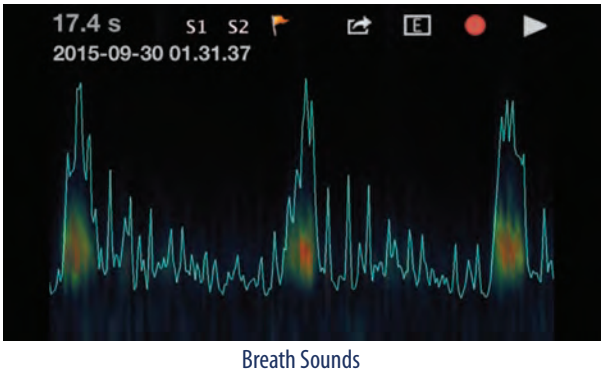
Combining the Hummingdoc Flip, Apple EarPods, and a smartphone gives patients the ability to effectively have their own stethoscope.

Paul Park '06 M.D., Ph.D. invented the Hummingdoc Flip working closely with the Innevation Ceter – Powered By Switch and other community partners.

Adult with atrial fibrillation (irregularly irregular heart rhythm)



Fetal heart sounds at 35 weeks (magnified)



Breath Sounds

spring of 2014. "I got interested in some of the humanitarian work happening in that part of the world, where sometimes they don't even have the equipment necessary to provide basic medical care," he said. Park and his colleagues often did not have access to the medical equipment they needed. "I started thinking it'd be great if we had a portable endoscopic device. We could take it around to places that don't have a lot of medical equipment," Park said.

"While I was there I saw all of this development happening outside government efforts and humanitarian aid groups," Park said. "I realized that entrepreneurs had a large role to play in helping these people."

But it was ultimately an encounter with an ill friend back in Cambodia after his return to the U.S. that gave Park the idea for his company.

"I had a friend who was emailing me about some symptoms he was having. I thought, he's either having atypical migraines or what we call transient ischemic attacks, or mini-strokes," Park explained. "One of the ways we could have made a determination would have been to listen to his carotid arteries for a specific sound. That was when I wished I could have also listened to his heart. And that was the piece of the interaction – the missing data – that really limited how I was able to assess him remotely."

Park believes the need for his Hummingdoc Flip, and other telemedicine products, will continue to increase in the coming years, as both populations and doctor shortages increase.

"I believe everyone is going to be using telemedicine consultations eventually. I think it's inevitable. It's very clear that there just won't be enough physicians to meet the rising demand, and the solution to that is technology. Instead of having patients travel great distances and sit in waiting rooms before being seen, we can use technology to streamline their visits."

Park's mission is to give patients an overall better health care experience by giving them the tools to learn more about their health and making telemedicine a more efficient process. This will also provide greater access to health care in places where it's currently lacking, such as in rural communities.

"With technologies like ours, we can provide better health care to people in remote areas where they don't have access to the right equipment or enough doctors. The big picture is to empower patients and to make health care more cost effective and efficient for everyone," he said.

The Hummingdoc Flip device is available online at www.hummingdoc.com. The app currently under development is expected to be available by early summer 2017. N