

EarTooth Technology

By: WHAT 

WHAT? Researchers:

Team # 12215

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Introduction

When we were trying to decide what our research topic was we decided to focus on floods, because they are prevalent throughout our region. We had also decided on trying to do something to help assist the deaf in an emergency situation, because our teammate River's mom is deaf. We know that during emergency situations, deaf people have issues communicating with others, so they oftentimes are unaware if they are in danger. The majority of other people don't know sign language, and though people can get information over the internet, they don't discover they are in danger in time. There are currently no ways to ensure that deaf people can get the information they need in time, so we decided to pursue this topic.

Our Solution

We came up with the idea that a small bluetooth sensor could be built into cochlear implants. Although the technology of bluetooth in cochlear implants already exists, this will be an addition to the existing technology. During an emergency, a broadcast would be sent out to all phones within a designated region that have EarTooth Technology enabled. Once receiving the signal, the programming of the smartphone would be temporarily overridden. Once this happens, a signal would be sent from the phone to the cochlear implant, which would then play a repetitive series of easily identifiable tones. Once the person heard this, they would pick up their phone. On their device, they would see a color coded screen with the type of disaster written at the top.

Then they would swipe to see a screen with information about the upcoming disaster. Swiping the screen again would bring up a screen entitled "What to Do." Depending on the disaster, this could have a map for evacuation, a list of things to prepare for, or any other important information.

Background & Analysis

For our project, we decided to research how the deaf are impacted during and after floods and how we could assist them. We came up with several ideas. One of our ideas was to have a notification app--we dismissed that because they already exist, and they don't ensure that people will get the knowledge in time; a radio that broadcasts to your implant--cochlear implants are not advanced enough to allow deaf people to understand that complex of information; we also thought of an alert watch--you can get the information from a smartphone.

To gather more information, we went to interview the Scio Fire Chief, who told us that Scio is implementing a database of deaf or foreign language speakers, so during a disaster, they know these people need special assistance.

We also contacted the Albany Emergency Management Specialist, who told us that Albany does not have that type of database. To learn even more, we attended the OSU FIRST LEGO League Day.

Once we finally came up with the EarTooth Technology concept, we decided to further analyze its implementation. We know it would require some cooperation between smartphone makers and cochlear implant makers, but some cochlear implants already use bluetooth to transfer the sounds. Therefore, all that would really be needed would be an EarTooth feature to enable the technology, located in the settings app of a smartphone. As such, no extra equipment would need to be purchased. Extra programming would be needed to transfer government emergency alerts into EarTooth files and to program the EarTooth system. There would be some cost for the corporation to implement this, which may add a very small sum to the price of the device. However, the government would likely subsidize the cost, as they already do for disabled people.

How we shared

We decided to post this to the internet in two ways:

First, you can view the content of our poster online at: <http://alturl.com/kz54r>

Second, a detailed description of our solution and product was published to our corporate sponsors website at avum.com

Oregon School for the Deaf

The Scio Fire Chief, Dwayne Miller

In Conclusion

As a result of our research, we learned that floods can be extremely dangerous, even with useful information. It is even more difficult for disabled people, especially the hearing impaired, because they face many challenges in getting information. Though floods are dangerous, even with our solution, it would inform people that they need to evacuate, which could save many lives. Our solution has the additional benefit of the fact that it can be used in any disaster.

This season we had fun learning about natural disasters in the world and designing ways to help inform people about how to be safe during an emergency.

Resources

The Scio Fire Chief, Dwayne Miller

FIRST LEGO League Day @ OSU

Darrell Tedisch, the Albany Emergency Management Specialist

River's mother--Summer Hobbensiefken

<http://www.ucar.edu/communications/factsheets/Flooding.html>

<http://www.nad.org/issues/ally.wordpress.com/2007/09/12/deaf-in-ics>

<http://waterwatch.usgs.gov/index.php?r=or&id=wnlcurrent>