

Project Information

Q

360 million people in the world live with a hearing loss* which affects their ability to communicate with others. All that changes with Q, an assistive technology that bridges the communication gap. Q is a wearable captioning device that provides easy access to conversations for the deaf and hard-of-hearing. It can be used in a variety of situations in life – at work, school, social events, even at the doctor – anywhere and anytime for ease of communication.

The device has two special features that are revolutionary: Emot-captioning and Touch Speech. Emot-captioning displays the emotional context of a conversation to help the user understand the speaker's intention. For example, interpreting sarcasm correctly is a common issue for people with hearing loss. Sarcasm is too often taken literally because it is difficult to pick up the nuances of spoken language such as intonation. Q prevents these type of misunderstandings and strengthens social relationships because it allows them “to be in on the joke”. The other feature, Touch Speech, gives haptic feedback to the user's hand when missing sounds such as “N” and “M” are spoken. It enables the user to maintain eye contact and read body language, which is essential to meaningful conversations.

Q is world-changing because it improves the lives of 360 million people who are deaf or hard-of-hearing. It shatters communication barriers, challenges the “deaf” stigma, levels the playing field, empowers the user's confidence and independence, and fosters an inclusive world where every person is heard and understood.

*Citation source: “Deafness and Hearing Loss.” World Health Organization, 6 Dec. 2016, <http://www.who.int/mediacentre/factsheets/fs300/en/>

Details

The product ecosystem is a band worn on the hand, an array microphone clipped to clothing, a charging unit, and an app that can be used on a smartphone or tablet. When a person speaks to the Q user, their voice is captured by the array microphone, transported to the band via Bluetooth, and translated into text using voice recognition software. The text appears on an OLED screen embedded in the palm of the band.

Before Q, people needed to schedule captioning 24 hours in advance, making spontaneity impossible. Even then, captioning service is very expensive (approximately \$200 per hour). The equipment is cumbersome and takes up a lot of space. After setting it up, the user needs to be stationary, making it impossible to move around and have conversations with others.

The value that Q brings is social inclusion, conversation comprehension and by extension the ability to participate in conversations.

Compared to other existing captioning solutions, Q uses significantly less equipment at a lower cost.

Q users are independent from 3rd party captioning providers, there is little to no set up, and it's incredibly compact and mobile which can be used anywhere at a moment's notice. The intuitive visual interface gives the user more control over their captioning experience.

The greatest value that it adds to the life of a person with significant hearing loss is the ability to understand the emotional context of a conversation by using the Emot-captioning feature, which is something that is not addressed by any other captioning solutions.

Q levels the playing field between people with normal hearing and those with hearing loss. It strengthens the quality of social interactions and all that it can benefit personally and professionally.

We had a unique opportunity with this project. One of teammates lives with a profound hearing loss and uses various assistive technologies. Fortunately, her firsthand experience and knowledge of existing hearing devices helped us gather quick insights and validate our ideas in the process. Additionally, our project received Stage One grant funding from VentureWell.

