Touch to Talk: A Wearable Tech Glove to Enable Speech-Impaired Persons to Communicate with Strangers in Public

Veseliza, Austin

Sign language is an effective alternative to speech for individuals who are speech impaired but still have full motor control. However, few people outside of the speech-impaired community understand any variety of sign language, leading to frustrating communication barriers between those who can't speak and those who can. Previously proposed solutions to replace typing messages out on a cell phone have typically required prior setup between the two conversation partners. Those solutions, while useful in more private situations, are not viable between strangers in a public setting. The goal of this project was to create a device that allowed a speech-impaired person to communicate fluidly in public with strangers who do not know sign language. Multiple iterations of functional prototypes were built by augmenting the Peregrine gaming glove, a device intended to log hand movements and send the corresponding keystrokes to a PC. Using the stainless steel strips woven into the fingers of the Peregrine as a base, a microcontroller and LCD were installed on the back of the glove, allowing the device to directly interpret and display hand movements as custom characters, words, and grammatical syntax. The glove acts as a keyboard, allowing users to type out messages by touching their thumb and palm to points along their fingers. The messages that are typed are then displayed in real-time on a screen housed on the back of the glove. This project's goal is to make a device useful and beneficial to the speech-impaired. User trials are currently underway to improve the design and better align the function to the users' needs. Future research will be done to bring the glove from a theoretical model to a commercially available product.

Awards Won: