

# Mixed reality prototype device showcase:

## Using smart glasses to enhance language access

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While the use of American Sign Language (ASL) interpreters and real-time captioning significantly increases deaf individuals' ability to participate in a wide variety of functions, there are some limitations. The major problem is that current ways of providing communication and information access to deaf people require them to split their attention between the visual focus of the specific content and the interpreter/captioning display. At any given point in time, deaf people are forced to decide what explanation to miss, with subsequent effects on topic comprehension and perceptions of the interaction and environments.

Smart glasses with a transparent screen on the lens, which have been available for over a decade, are increasingly lighter, more manageable and less battery-draining. The PI (Dannels) has developed an app that enables remote sign language interpreting and real-time captioning to be displayed on smart glasses, preventing the wearer from having to look at different individuals and/or screens. This innovative solution enables deaf patients to look directly at people, instead of toward interpreters or captions. This allows them to observe hands-on demonstrations, review instructions, and acquire important information. Smart glasses also enhance language access for those with limited mobility.

Smart glasses as shown in Figure 1 are able to project the interpreter and captions on the lens so the live streaming interpreter/real-time captioning is in the deaf person's viewing space at any given moment. *The demonstration will be based on PI Dannels' existing work supported by a current NSF Advancing Informal STEM Learning Pilot and Feasibility Studies grant*, focused on developing a platform with near-eye display to improve deaf children's access to remote ASL interpreting and real-time captioning during informal STEM activities (e.g. at a planetarium). Vuzix Blade is currently the only commercially available pair of smart glasses that almost looks and feels like a normal pair of glasses and gives access to a Software Development Kit (SDK), which allows the developer to program and code an app for its use. The smart glasses app and web portal has already been developed namely Access on Demand (AoD). Using smart glasses will be the ideal solution.



Using smart glasses



Access service displayed on lens

*Fig. 1. Using Smart Glasses with a Transparent Near-eye Display*