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Communication of Deaf people Based on Myoware Muscle Sensor

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Opportunity and Significance

The 2005 MarkeTrak VII report projected that the numbers of Americans with hearing loss will increase to 40 million by 2025 and 53 million by 2050 [1]. Lack of communication is the main problem that deaf people face. However, this issue can be optimized by introducing a product that helps deaf people attend any school they want, get the job they desire and adapt themselves in the social life.

Technical Objectives

This project aims to create a product that enhances communication of deaf people. The developed product has the following features:
• Using a Muscle sensor that transcribes sign language into actual letters.
• Using a voice detector that translates speech into actual words.
• Receiving and sending emergency alerts.

Related Work and State of Practice

•MyoWare Muscle sensor allow the human to control the movements of the hand exoskeleton which is useful to teach new trajectories, for muscle training, or for diagnostic purposes.
•Motion-capture gloves are used to record the wearer's handshape. Technology that reads naturally occurring bio signals.
• Prostatic hand is designed technology that reads naturally occuring biosignals from the body, which then can be apply those signals with any interface.

Technical Approach

The product is going to be performed under two main ideas hardware and software Hardware is about three important parts: muscle sensor, Arduino and Bluetooth Arduino. The main objective of the hardware part, is to convert sign language into database and then send it to the software part of the project. Software is about three parts as well: receiving database from the Arduino, receiving sound waves and sending/receiving Emergency alerts.

Next Steps for Development

Battery support
•Use batteries that can convert body heat into electricity.
More Sign Languages
•There are 130 different sign languages that exist, most widely used sign language is the American Sign Language and the Chinese Sign Language.

Commercialization Plan & Partners

This project was done under the guidance of Dr. Lubna Alazzawi and in collaboration with Rasmieh Faraj and Kassem Faraj.To commercialize the product, we need to reach deaf community events as well as insurance companies that have the same concern.

References

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