



ASL Communications Device

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Project Goals

This project aims to create an alternative communication channel for people who are hearing or speech impaired. With the ASL Communications Device, users will be able to translate hand gestures to speech and text. Using flex sensors, an accelerometer and an Arduino, we can get values that will allow us to differentiate between different gestures and movements. Using those values we can run the LDA machine learning algorithm to translate the values into words.

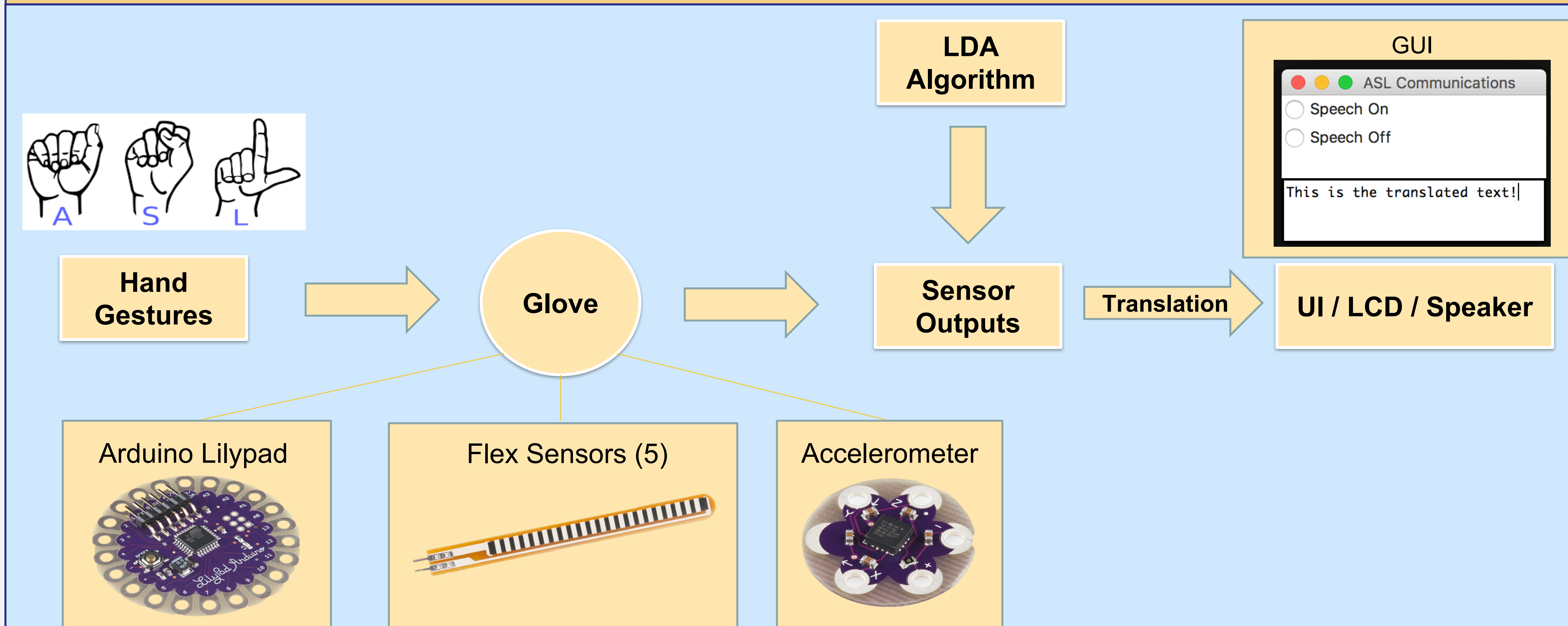
Progress Made & Challenges

Currently, we have developed a LDA machine learning algorithm to translate sensor values into words. Since we are still in the process of developing a hardware prototype, we have used estimated values to train our algorithm. We have also connected the flex sensors and accelerometer to the Lilypad Arduino to begin gathering real-word data for the ASL Communications Device. We are currently successfully receiving values from the sensors.

Future Work

We aim to provide sign language translations for the English alphabet and commonly used words. The translation will be displayed on a GUI with the ability to convert the translation into speech. If additional time permits, we plan to make the device fully portable. We are planning to add an external battery source, a WIFI module, and outfit the glove with its own LCD screen to display translations. We also hope to expand our dictionary of translatable gestures.

Device Diagram



Prototype

