Give Me A Sign

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Electrical & Computer ENGINEERING
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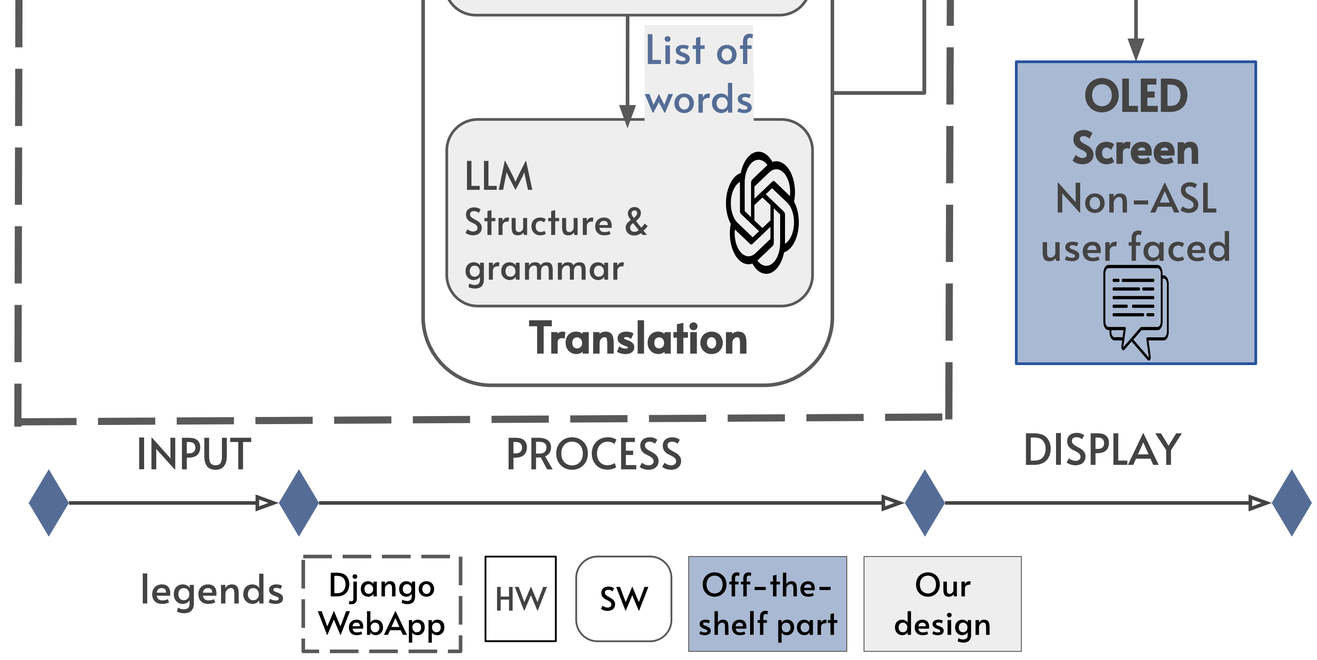
Product Pitch

Give Me A Sign is a system that provides live subtitles for American sign language (ASL) users so they can naturally converse and communicate with anyone anywhere, especially in social settings with non ASL users.

With a simple phone case attachment, built-in camera on a phone, and web application, we enable sign language to be immediately translated to English in real time. Packaged within our product, we incorporate computer vision with a trained machine learning model to recognize **dynamic sign language** phrases, and send this to the web app along with an OLED screen via bluetooth. Our system has a high **91.1% word accuracy** and shown on **dual screens** within **1-3 seconds**.

The interactions between ASL speaker and engager becomes seamless, allowing greater inclusivity of hard-hearing, deaf, or sign-language-using individuals in everyday life.

System Architecture



System Block Diagram

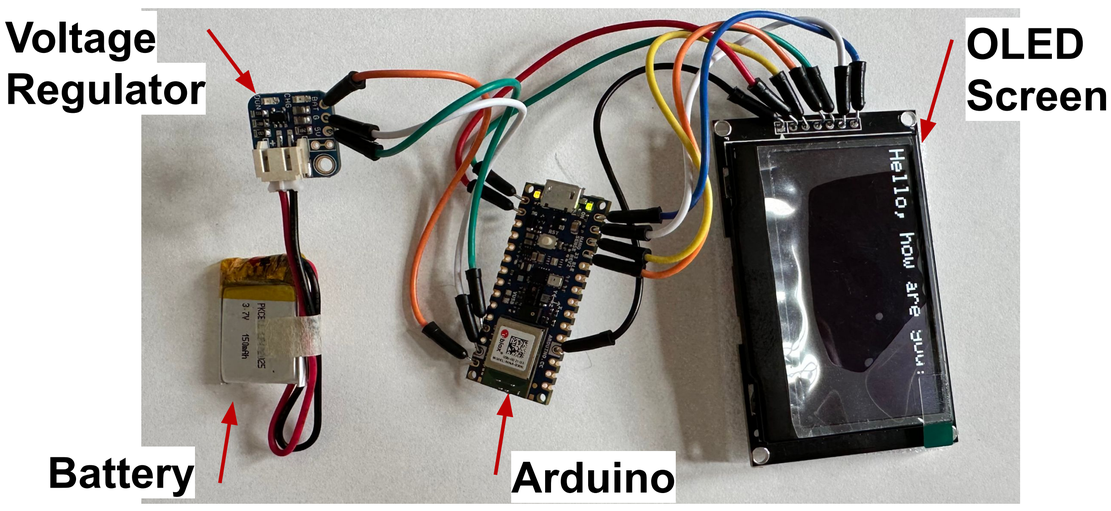
System Description

Front View: Translation Page

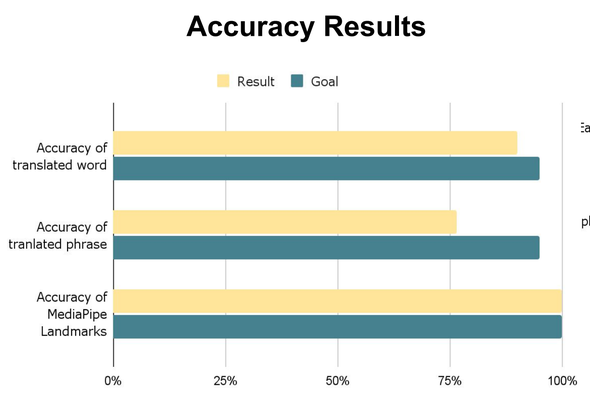
Back view: OLED Screen

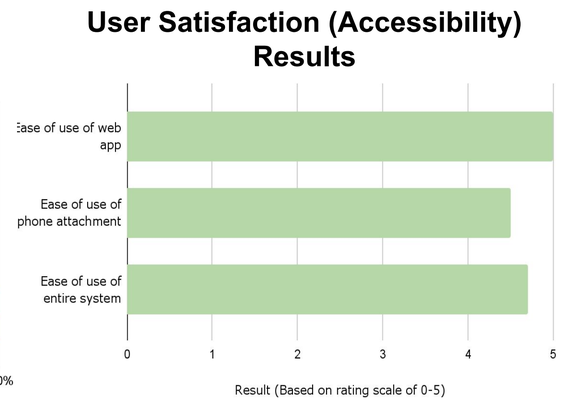
Web App Home Page

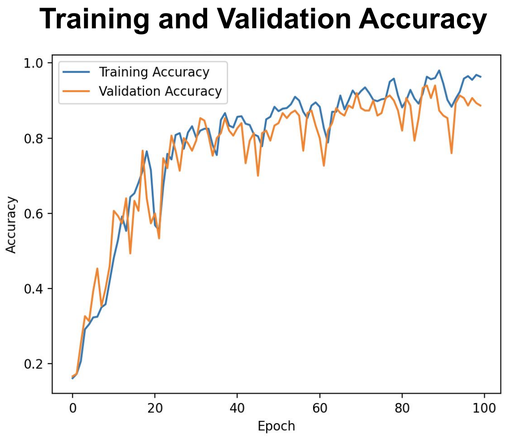
Attachment Model



System Evaluation







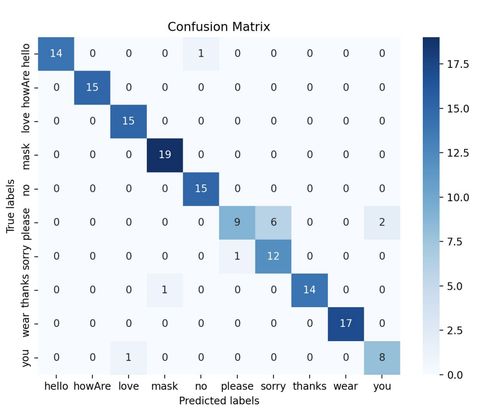


Table 1: Latency Results

Component	Goal	Result
Latency of web app	1-3 sec	Avg. 2.5 sec
Latency of OLED screen	1-3 sec	Avg. 4 sec

Table 2: Design Trade Offs

Design Choice	Trade Off
Local ✅ Cloud storage ❌	Speed ⬆️ Flexibility ⬇️
Web app ✅ Mobile app ❌	Accuracy ⬇️ Complexity ⬇️
Reduce amount of phrases	Accuracy of translation ⬇️
LLM✅ NLP ❌	Complexity ⬇️

Conclusions & Additional Information

https://course.ece.cmu.edu/~ece500/projects/s24-teame1/

Give Me A Sign enables **real-time translation** of ASL to English, achieving a high accuracy and portability.

Lessons learned include addressing technical challenges and prioritizing user experience, while future possibilities include refining the system's accuracy and expanding functionality to support additional sign languages or integrate with wearable devices.