

Background and Motivation

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Project Goals

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Figure 1. Label in 24pt Calibri.



Figure 2. Label in 24pt Calibri.

Requirements and Challenges

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System Level Results

- **Browser ASL Translation:** Successfully developed a web-based pipeline that converts sign language videos into words using deep learning.
- **Efficient Cloud-Based Deployment:** Optimized critical scripts in the ML pipeline to accelerate processing on AWS, reducing inference time and improving scalability
- **Separation of Compute Tasks:** Separated tasks across AWS EC2 instances, using lightweight instances for frontend interactions and high-performance instances for compute-heavy ML related inference.
- **Seamless Frontend-Backend Communication:** Established seamless communication between a React-based frontend and Django backend, enabling quick processing and presentation of translations.

- **OpenAI Integration:** Integrated OpenAI services to refine raw model predictions into meaningful sentences. (if we have it)
- **Robust Video Processing Pipeline:** Implemented efficient transmission and processing of real-time video streams from the frontend to the ML backend, ensuring quick and accurate feature extraction and prediction. (if we have it)

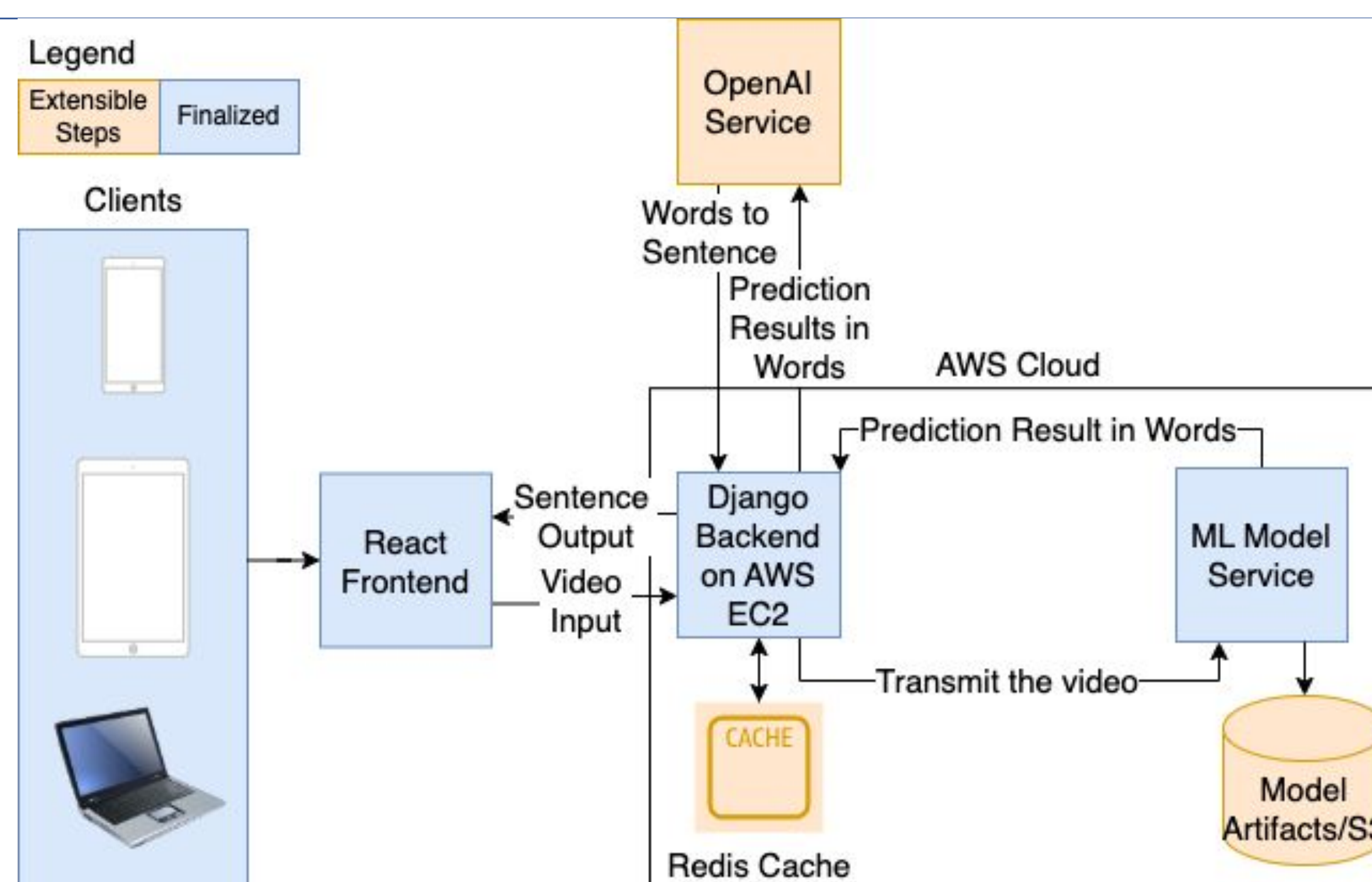


Figure SLR1. System Diagram.

Model Level Results

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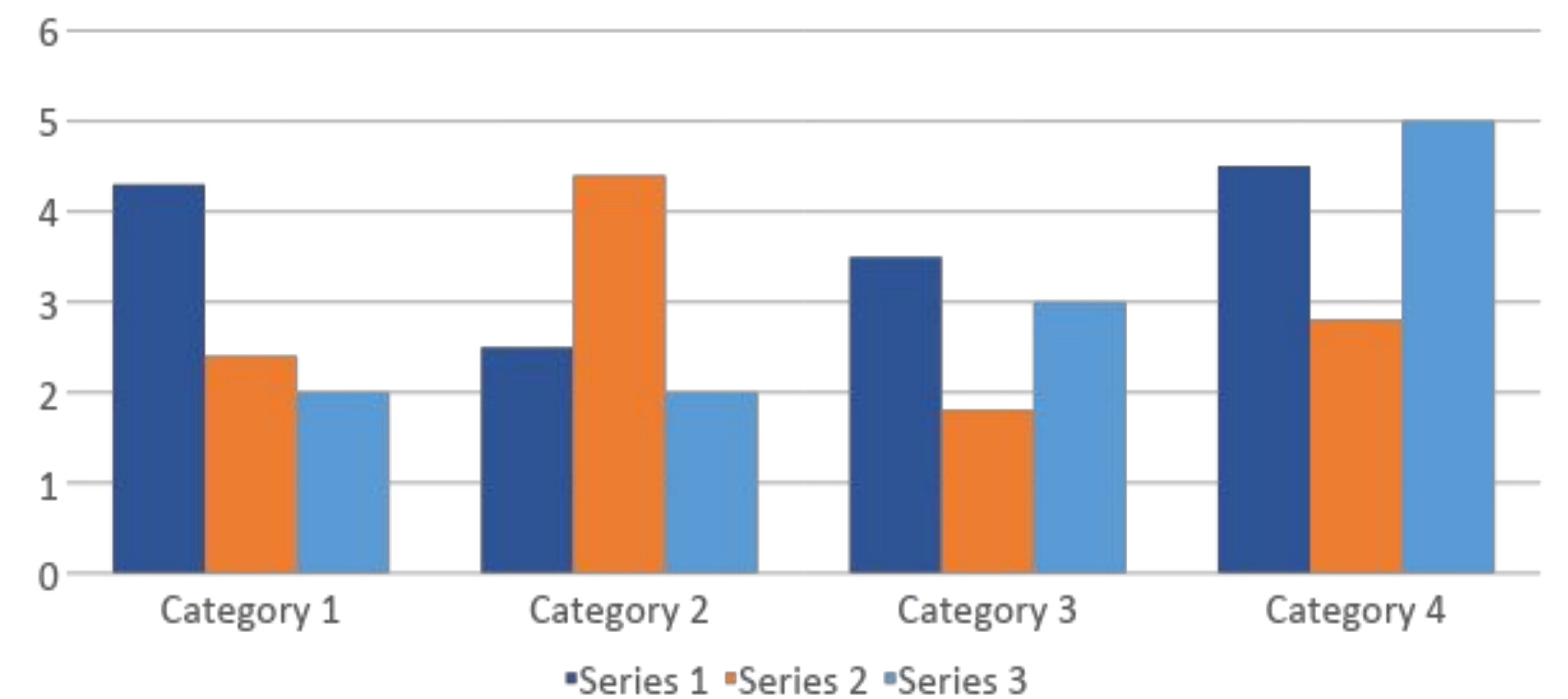


Figure 3. Label in 24pt Calibri.

Conclusion and Future Work

We developed a sign language translation system to enhance communication for the Deaf and Hard-of-Hearing community. Using deep learning, our solution converts sign language gestures into text, refined through extensive design, implementation, and testing.

If we had more time, we would integrate database services to enhance user experience and efficiency.

Contact

[name]
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[phone]

References

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