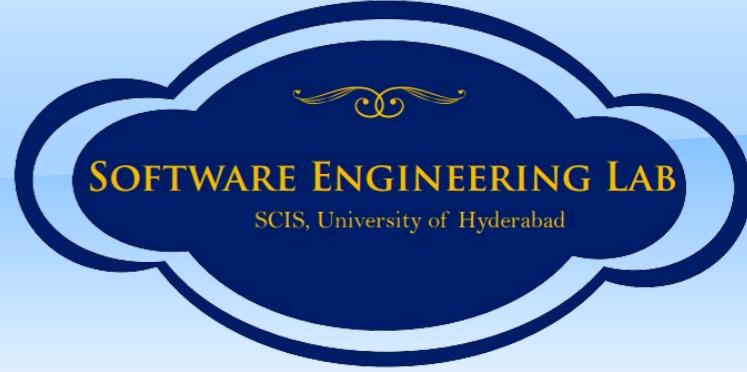


Technology Enabling Centre

Archetype Expo 2024

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Building Bridges with Inclusive Virtual Meeting

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Abstract

By integrating American Sign Language (ASL) recognition technology into our custom virtual meeting platform, ConnectHub aims to revolutionize communication for individuals with physical disabilities, especially those who are speech-impaired. This integration not only bridges communication gaps but also enhances the quality of life for millions worldwide by offering inclusivity and accessibility. ConnectHub provides a user-friendly interface and real-time translation capabilities, enabling fluent and autonomous communication through sign language gestures. This transformation initiative empowers individuals with disabilities, fostering greater independence, empowerment, and social integration across various settings, from casual conversations to professional engagements.

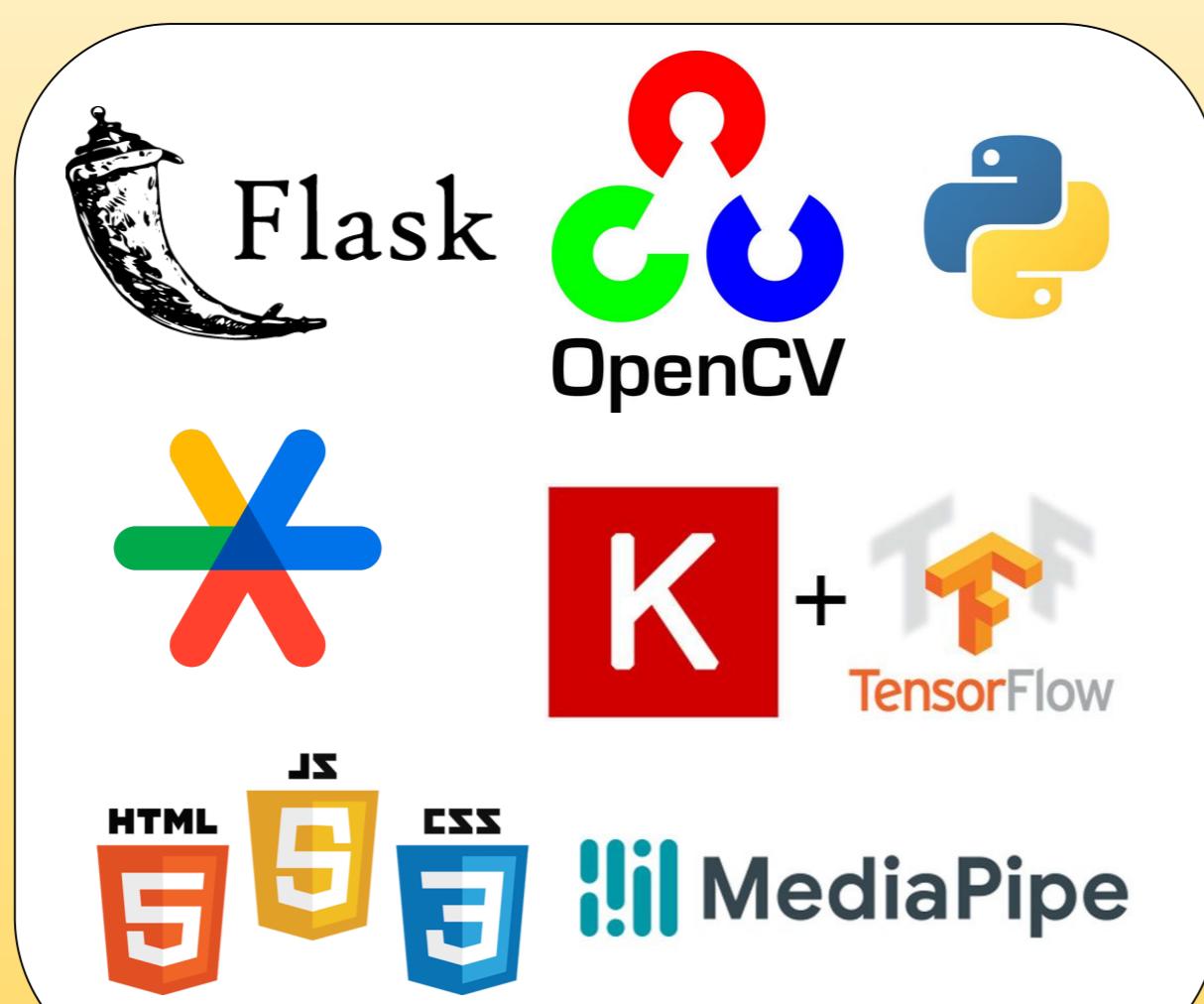
Problem Statement

To address the communication challenges faced by individuals with physical disabilities, particularly those who are speech-impaired, by developing and integrating American Sign Language (ASL) recognition technology into a custom virtual meeting platform.

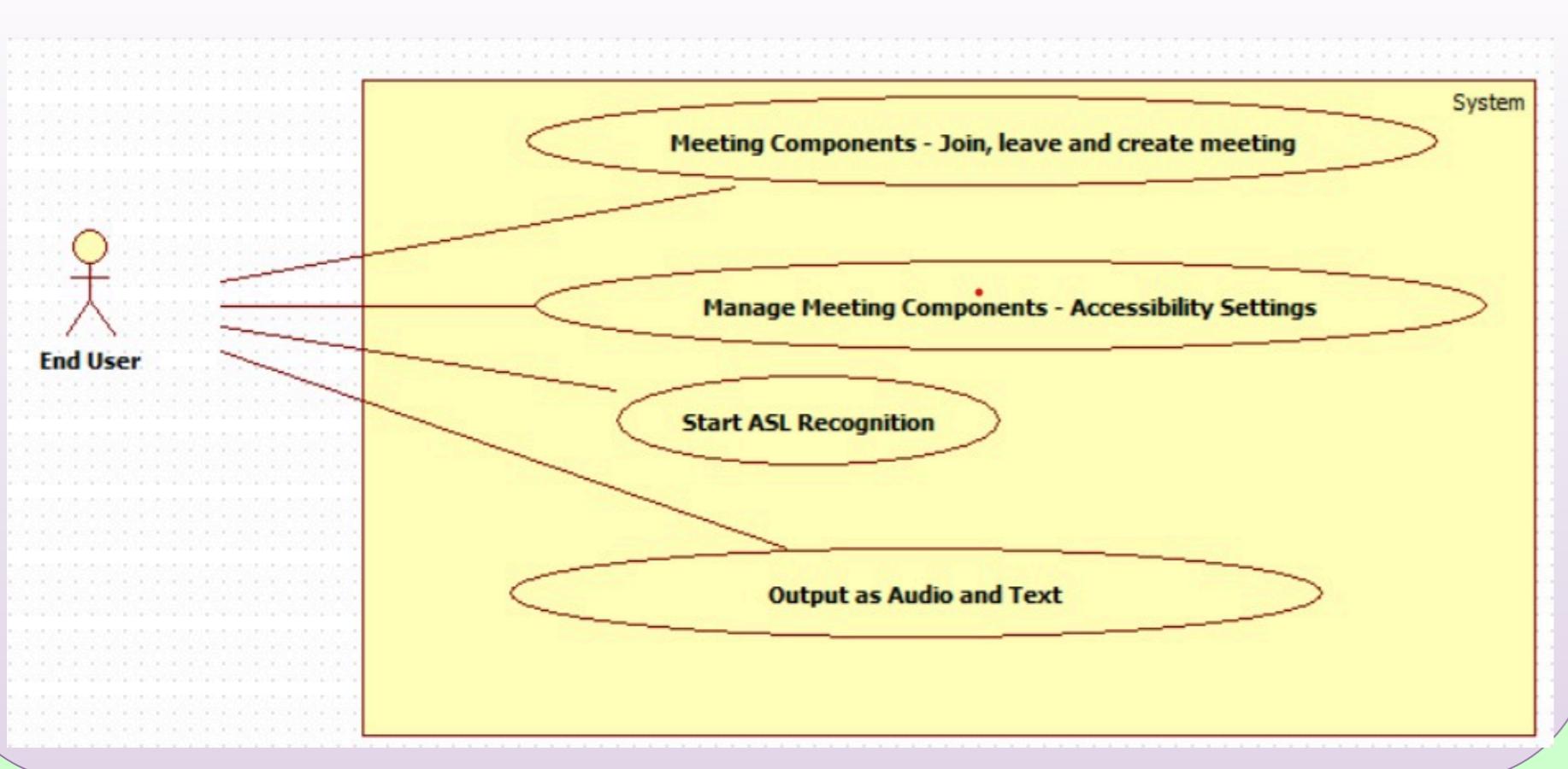
System Design-

Tools used for webpage

- 1) Flask framework
- 2) Python3
- 3) HTML
- 4) CSS
- 5) Tensorflow
- 6) Pytsx3
- 7) Google Auth
- 8) Mediapipe
- 9) Keras
- 10) OpenCV
- 11) Pillow
- 12) Greenlet



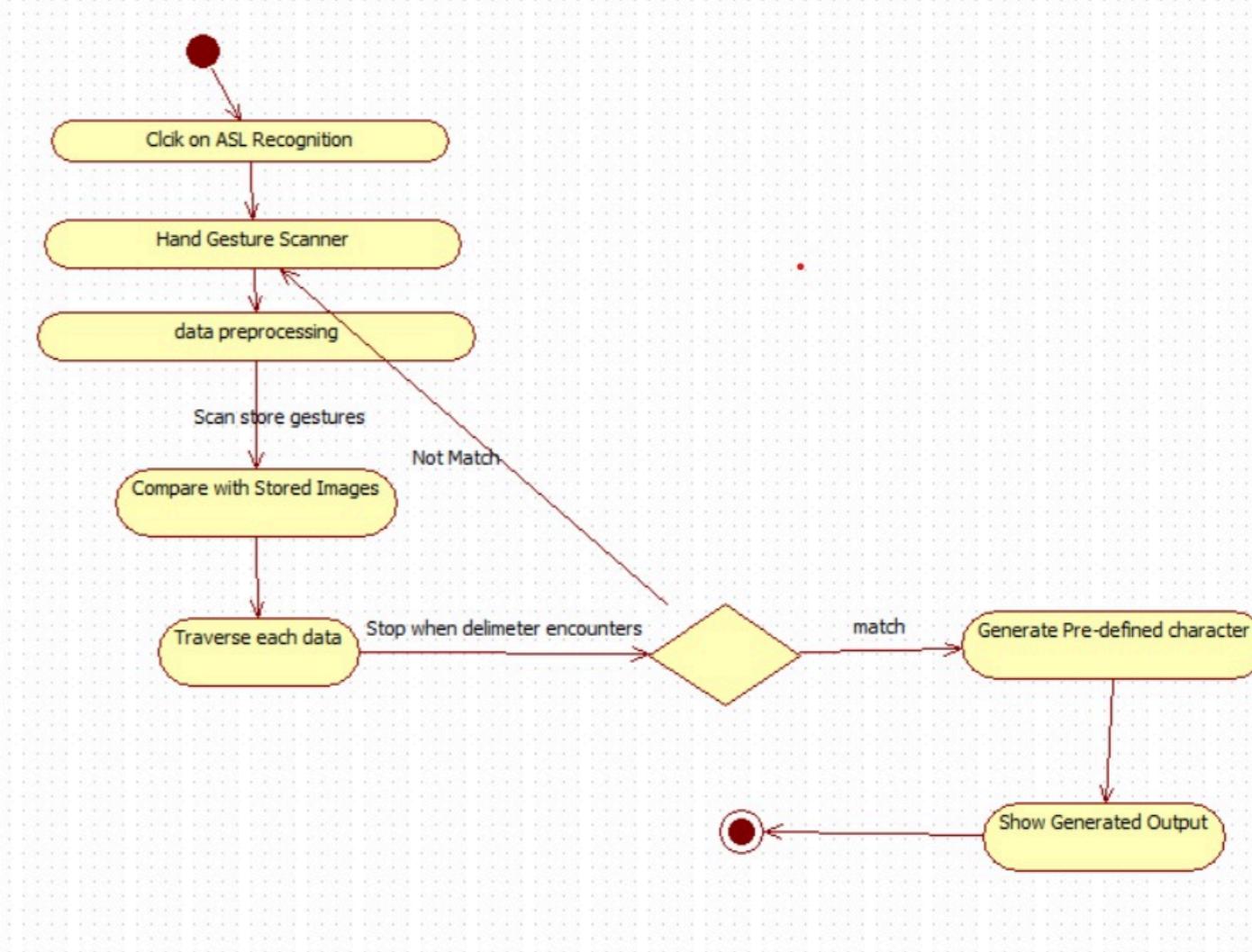
Use Case Diagram



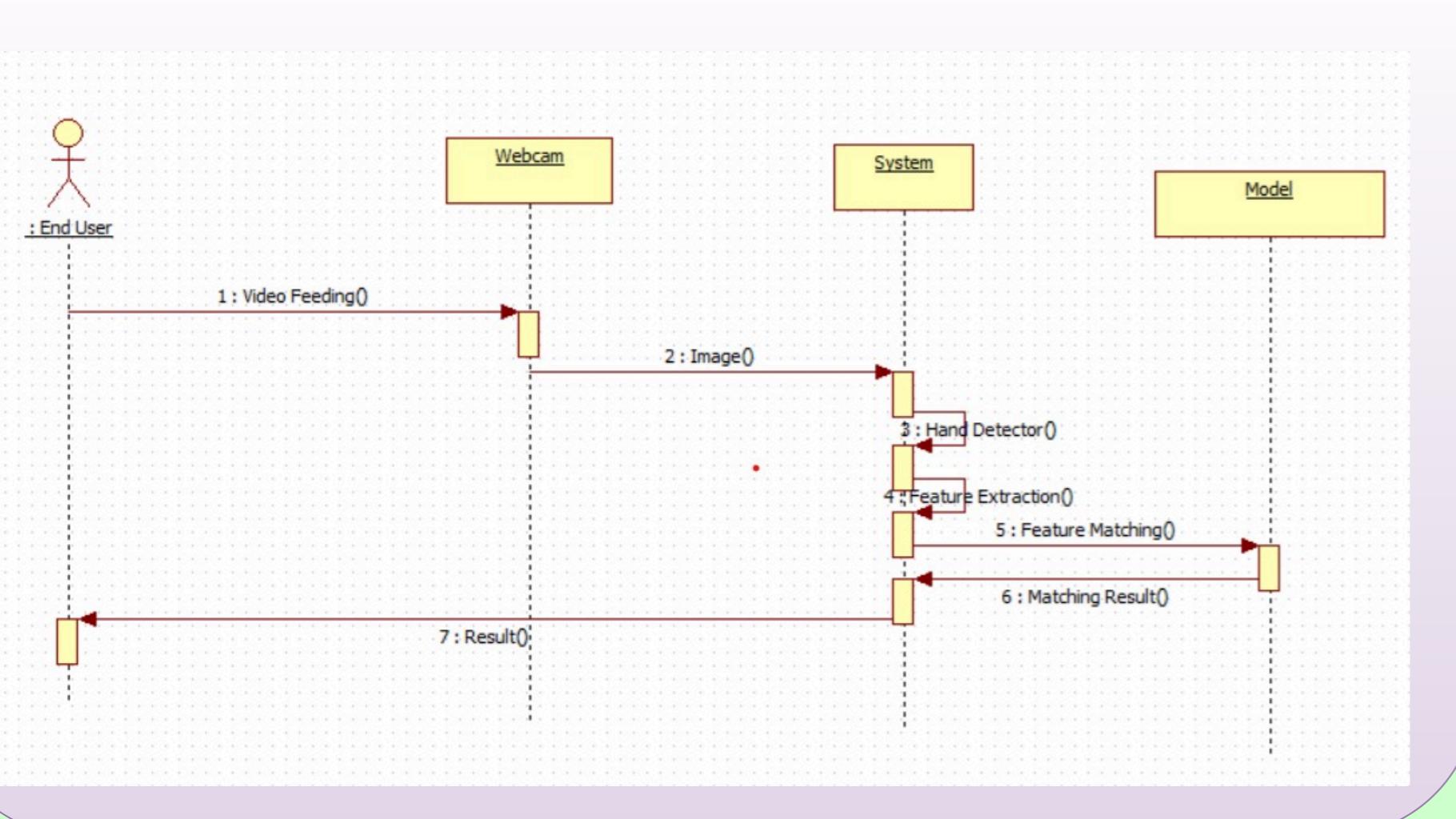
Future Enhancements

- 1) Expand accessibility features to cater to a broader range of disabilities.
- 2) Integrate ASL recognition model with virtual meet platform.
- 3) Support recognition and translation of multiple signs languages.
- 4) Explore integration with wearable technology for seamless communication.

Activity Diagram of ASL Gesture Recognition



Sequence Diagram of ASL Gesture Recognition



Conclusion:

This design when implemented with the given future enhancements, and with proper maintenance will be the best solution for the speech-impaired people, benefiting both them and the future of the country.

References

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