



**SMART INDIA
HACKATHON
2022**

Basic Details of the Team and Problem Statement

Ministry: Department of Empowerment of Persons with Disabilities (Divyangjan), Ministry of Social Justice and Empowerment

PS Code: RK759

Problem Statement: Enabling alternative accessible strategies for persons with speech impairment.

Team Name: Team SignBes

Team Leader: Ramanand Anand Mohare

Institute Code (AISHE): C-15688

Institute Name: Nagesh Karajagi Orchid College of Engineering and Technology, Solapur

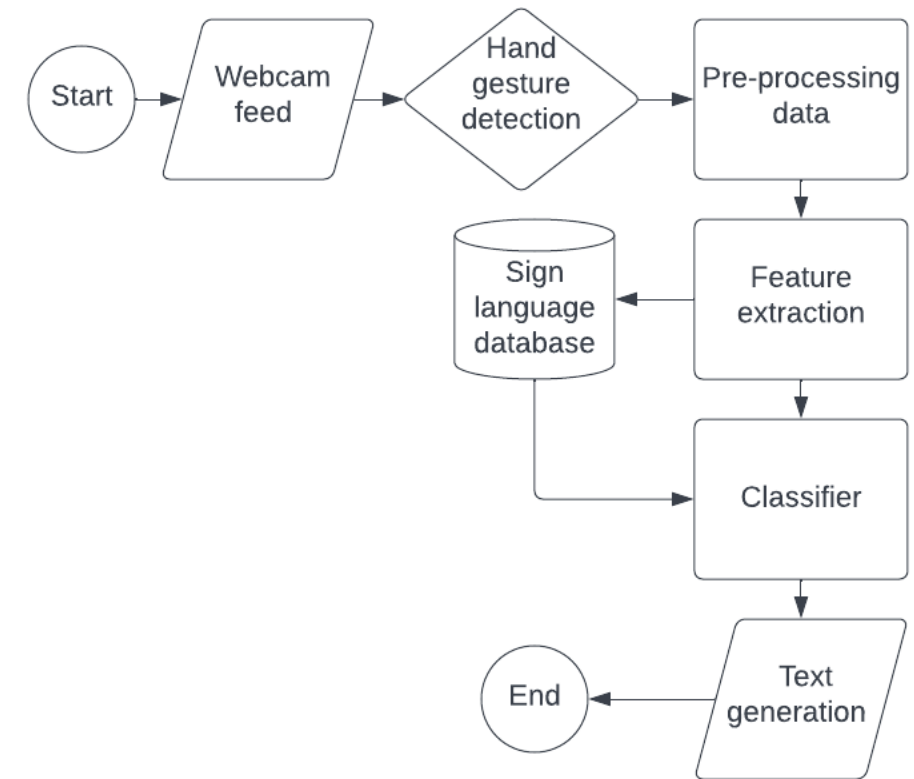
Theme Name: Smart Education

Approach Details

Idea: To build a web application where users can make use of various facilities to overcome their speech impairment.

- Web application makes use of ML-based text prediction for sign language gestures.
- Predicted text can be used to generate its voice output and the user can save it for future use, for smooth communication.
- Speech can be converted into text and translated into any language with the help of a web speech API.
- The application can be used as an AAC (Augmentative and Alternative Communication) device that makes use of virtual picture boards to communicate in public/private places.
- Users can build flexible communication boards as they want for better communication.
- Virtual picture boards will make use of NLP to generate sentences that can be converted to speech.
- Based on the user location identified by the application it will suggest user some sentences which can be used for most of the scenarios based on location.
For Example, frequently used sentences to communicate in a restaurant
- The application will provide users with 100+ 3D models to learn sign language. Fun questions can be used in common phrases and everyday greetings.
For Example, Thank You, Good Morning

Process Flow Chart:

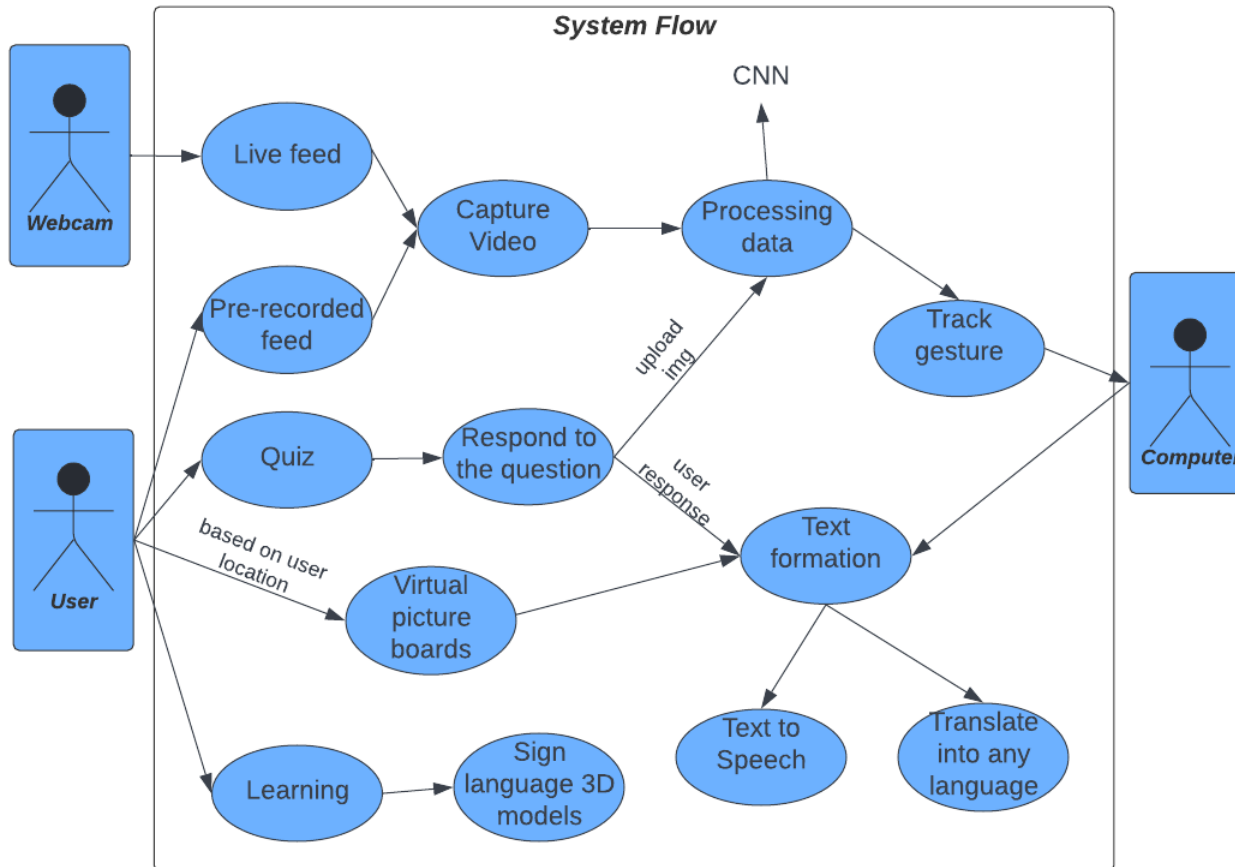


Technology stack:

- Programming language: Python
- Framework: Flask, Scikit-learn, TensorFlow, OpenCV
- Front-end tools: HTML5, CSS3, Bootstrap, JavaScript
- Database: MySQL
- Server: Gunicorn

Approach Details

Use Cases:



Dependencies:

- Internet connectivity
- Latest browser
- Smartphone/Desktop with web camera

Show Stopper:

- Old graphics card
- New sign language gesture

Team Member Details

Team Leader: Ramanand Anand Mohare

Branch: B.Tech Stream: CSE Year: III

Team Member1: Pranoti Saudagar Pawar

Branch: B.Tech Stream: CSE Year: III

Team Member2: Zeba Akhtar Mohd.Iqbal Bagban

Branch: B.Tech Stream: CSE Year: III

Team Member3: Sampada Sanjay Tikale

Branch: B.Tech Stream: CSE Year: II

Team Member4: Rachana Ravishankar Mangalaram

Branch: B.Tech Stream: CSE Year: II

Team Member5: Pruthvi Suresh Rathod

Branch: B.Tech Stream: CSE Year: II

Team Mentor1: Prof. M. S. Otari

Category: Academic Expertise: ML Domain Experience: 12 years

Team Mentor2: Girish Arun Patil

Category: Industry Expertise: AI/ML Domain Experience: 3 years