Paired

Connecting disabled people

!AlgoDemons

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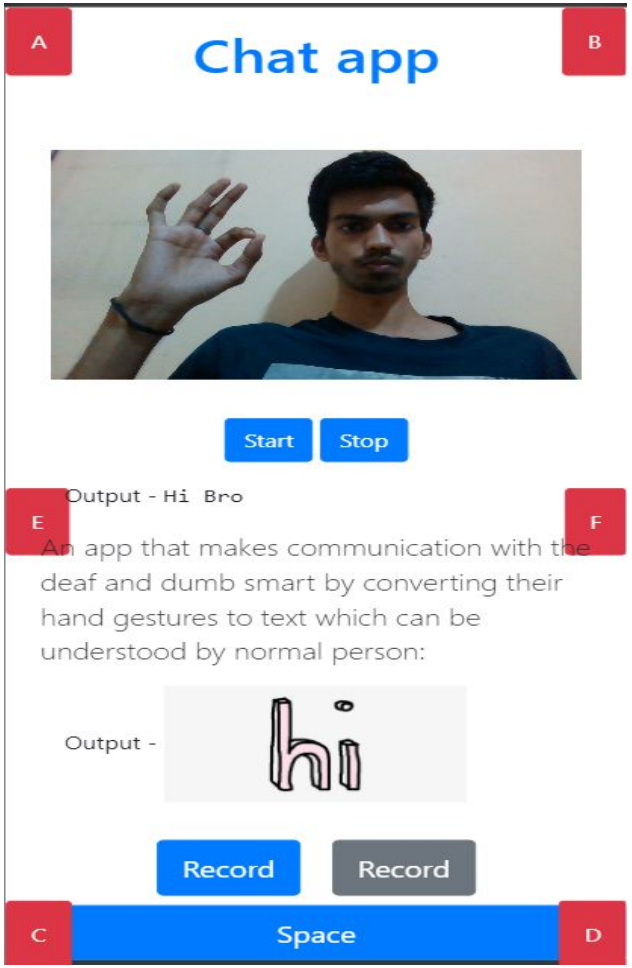
Problem Statement

- Disabled people face difficulty in communicating with each other when at distance.
- Chatting apps currently do not focus on connecting the disabled people.
- Communication using Sign Language feature is also not enabled in many apps.
- Communication using Braille feature also lacks in many chatting apps.
- Current messaging apps are also not feasible for illiterate disabled people.

Features of Paired

- The app can recognise American Sign Language from gestures using Machine Learning enabling Deaf and Dumb to send messages using it.
- Incoming messages will be converted from text to American Sign Language for the deaf and dumb people to recognise the messages even if they are not literate.
- Blind people can also send messages using their Braille.
- The incoming messages will also be converted to speech to enable blind people to hear the messages



Modus Operandi

The web based application , takes in the data from the webcam available on the laptop/phone (machine). This data stream is processed to narrow down the live data stream.

The data is now fed into a Cnn based machine learning model which makes prediction on the basis of the symbols present in the video stream made by the user

The predictions is displayed and fed to the chat for the user

The Process of reading data, preprocessing the video stream and making predictions on the video is done for every time the User wants to send a message.

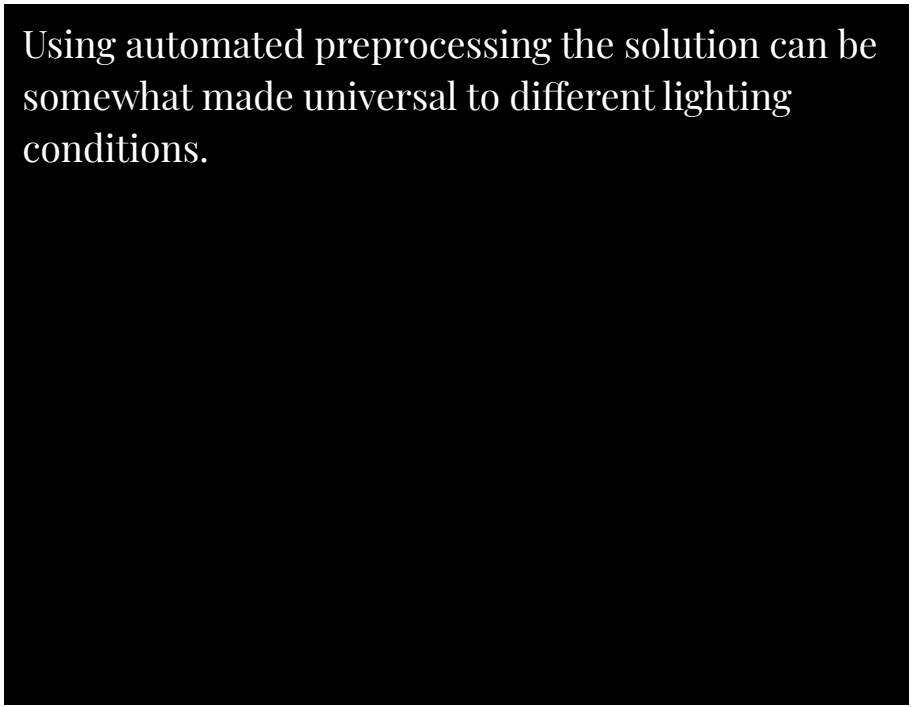
Blind people will place their fingers over the button which have been placed at convenient locations for them.

They will type the Braille messages which will be interpreted by the app and then the messages will be sent to the receiver in both speech and sign language form.

Further Improvements

The major Roadblock of the solution is the background environment as pre preprocessing cannot account for all types of background and lighting conditions. So this part of the problem can be solved using some kind of auto encoders.

Using automated preprocessing the solution can be somewhat made universal to different lighting conditions.



Tech Stack

Machine Learning

Tensorflow + Keras Api
Open Cv
scikit-image

Backend

Django
Image.io library
Pillow library