



WE FINAL PROJECT

SIGN LANGUAGE DETECTION

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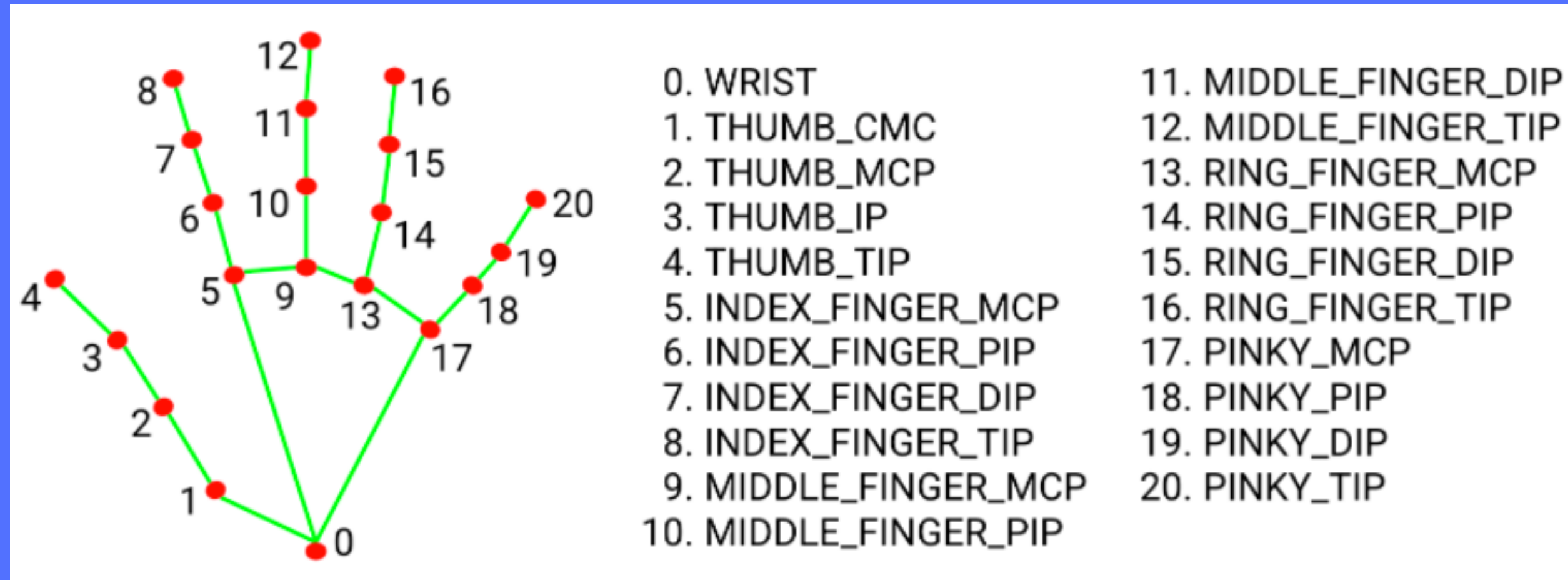


ABSTRACT

This project aims to create real-time environment and train a model which when shown a real time video of hand gestures used by the specially-abled shows the output for that particular sign in text format on the screen.



PARAMETERS OF SIGN LANGUAGE

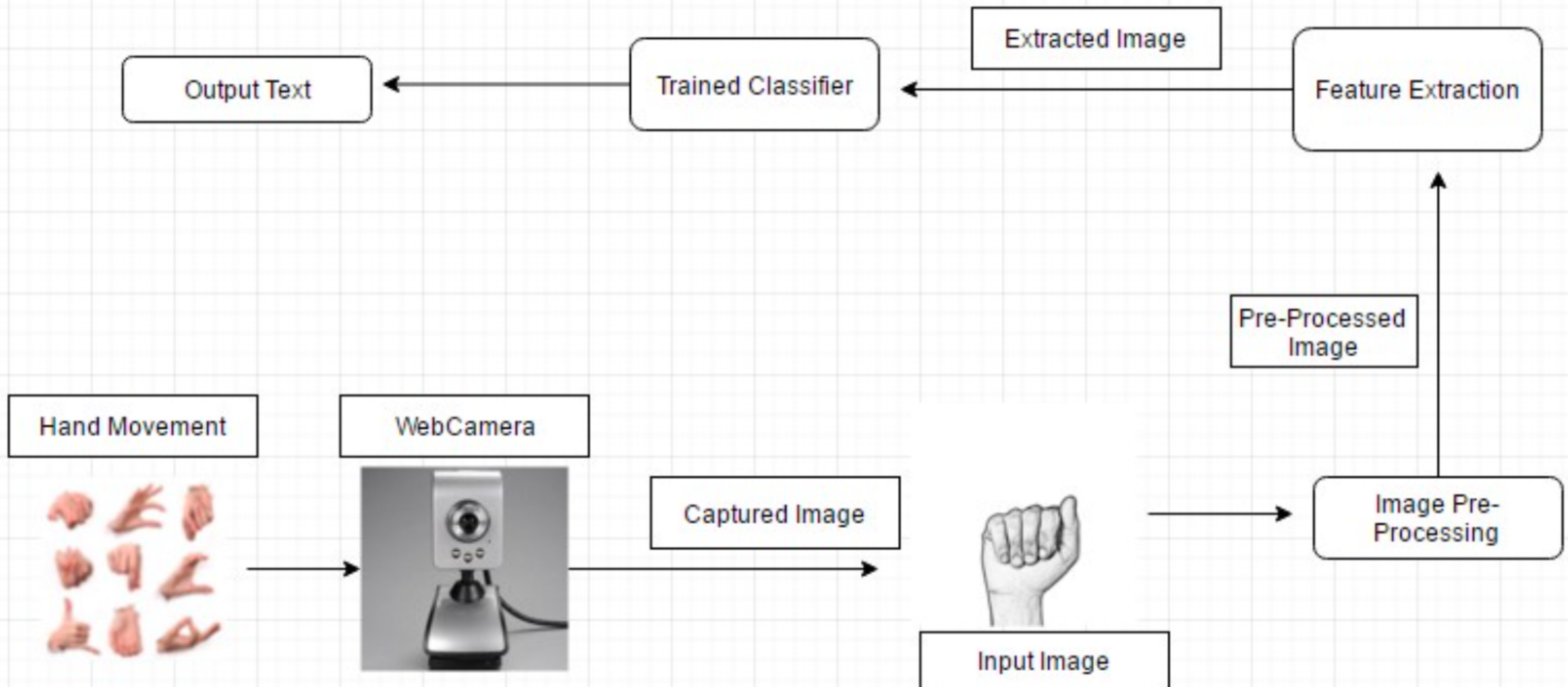


- HANDSHAPE

- PALM
ORIENTATION

- MOVEMENT AND
LOCATION

WORKFLOW

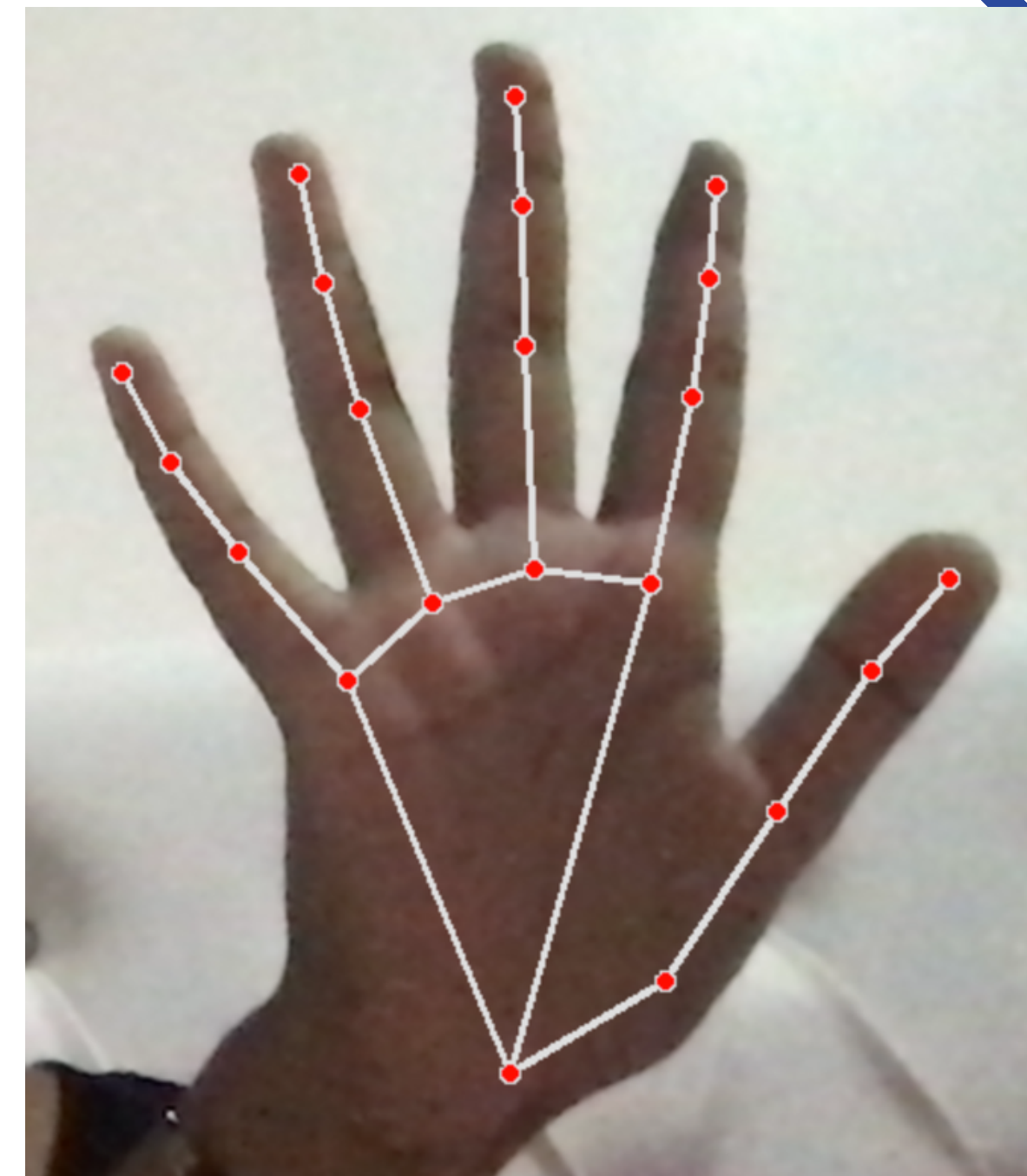
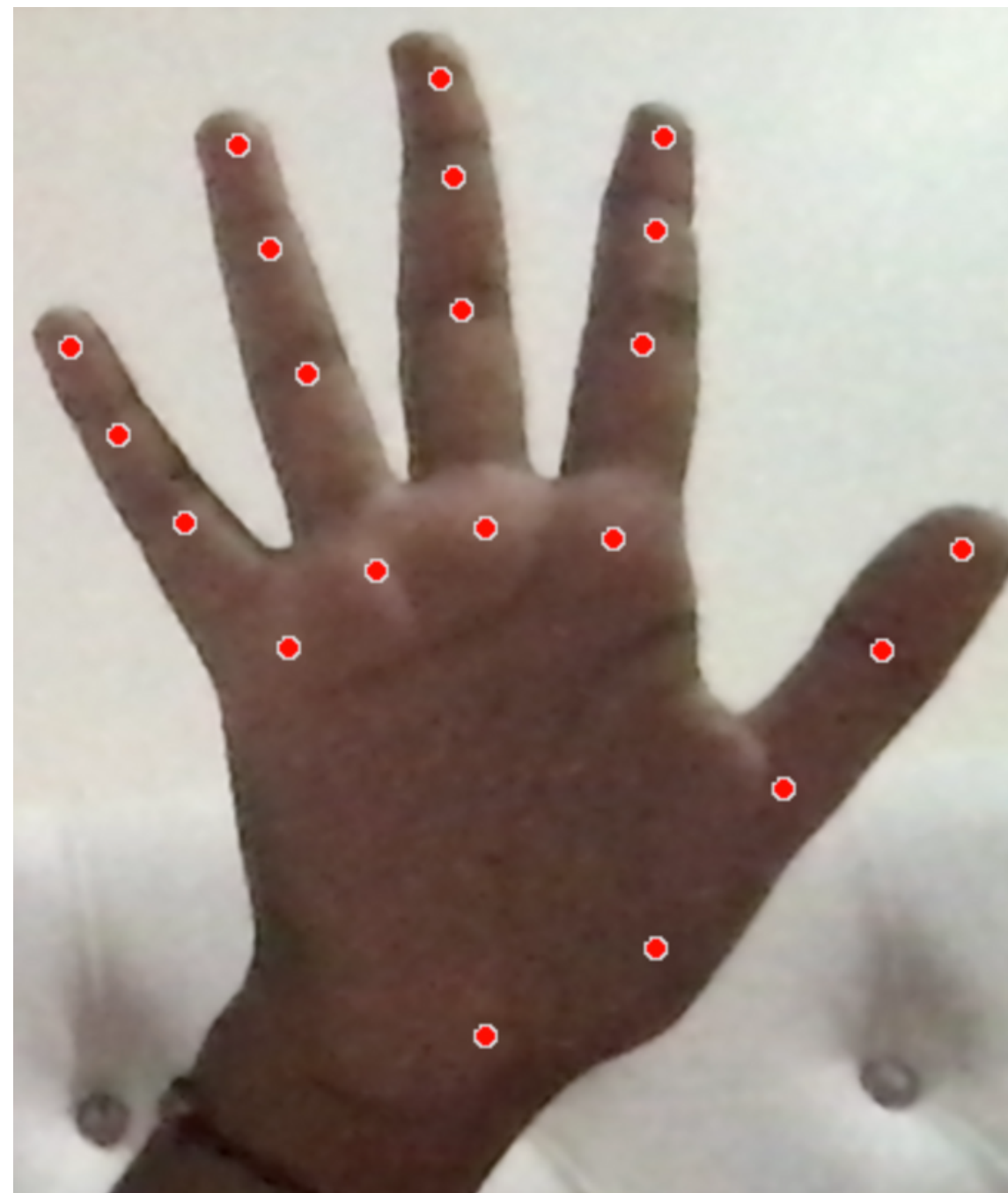


APPROACH

1. We implement Hand Tracking.
2. Sign Language Detection
3. Achieving Different Signs.

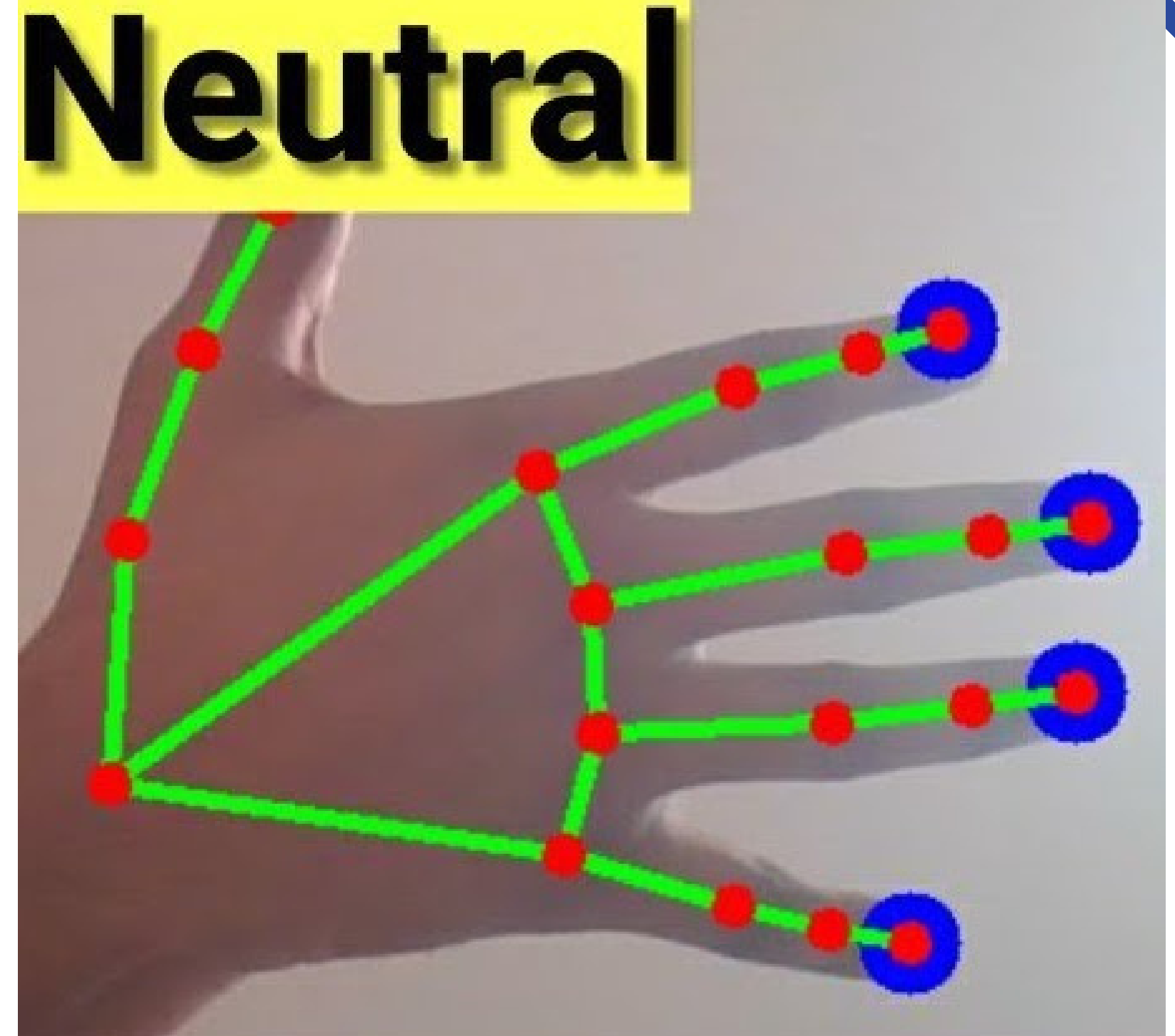
HAND TRACKING

Using this we will be able to track the 21 hand landmarks and then connect these landmarks by drawing a skeleton to it. By which we get a clear understanding of the sign language to implemented.

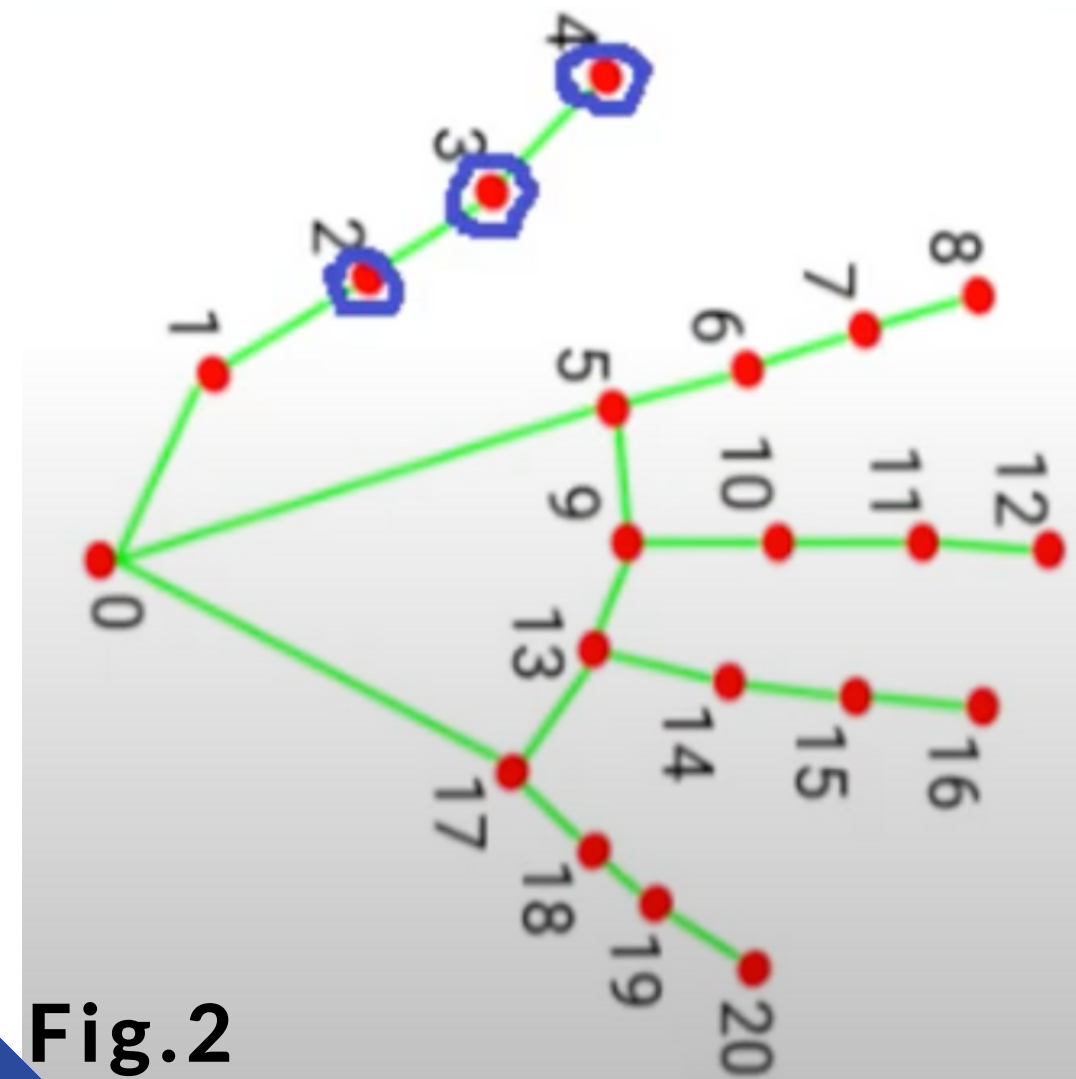
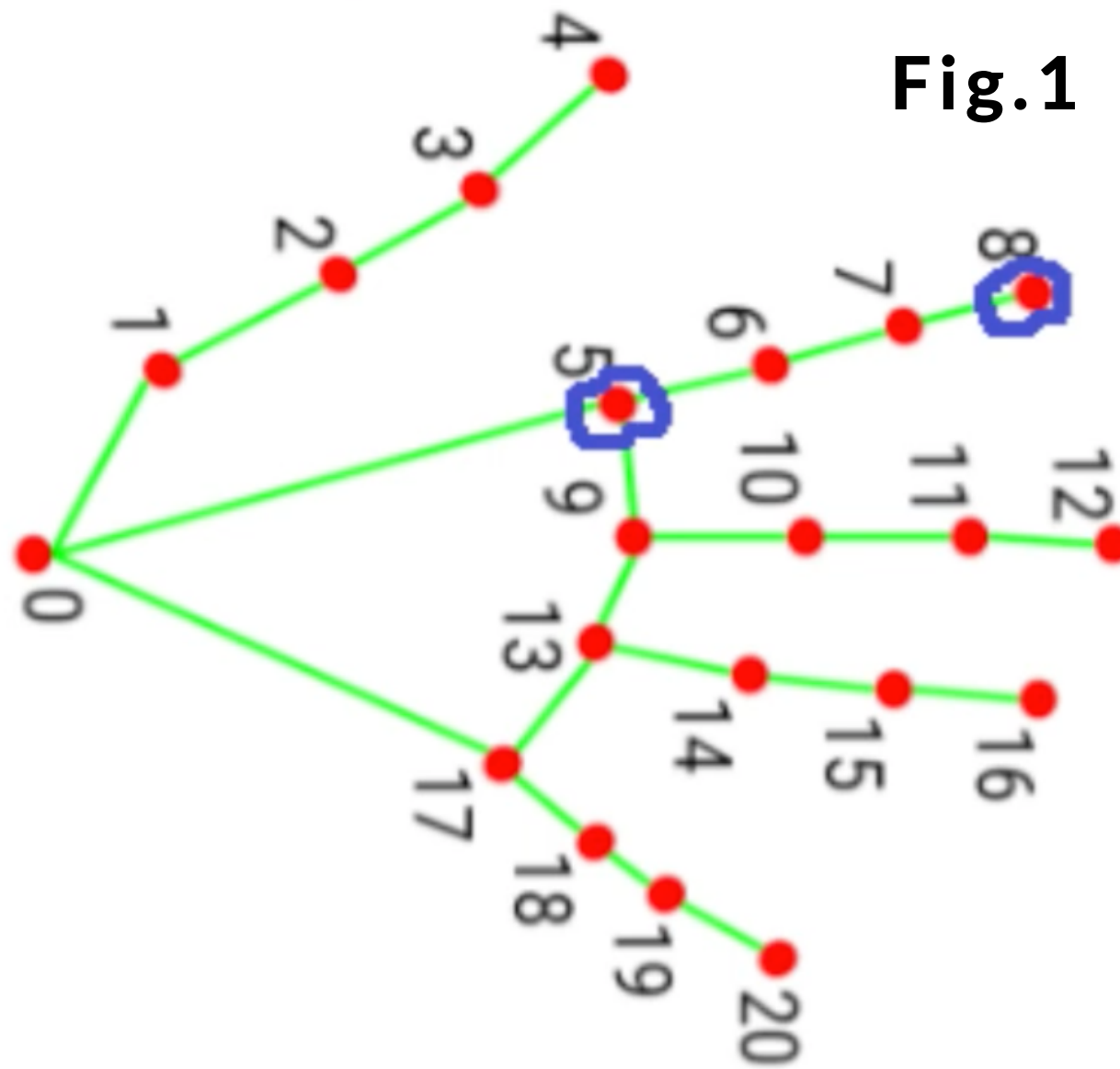


RECOGNISING SIGN LANGUAGE

- Handtracking plays a major role.
- We enumerate through each landmark and display the index.
- Then multiply it with height and width and convert the indices to whole numbers.
- The tips of the fingers are highlighted.
- Now we can generate different types of symbols.



- To generate like sign we observe that whenever the tip of each finger comes to the left hand side of the palm.
- And, for the thumb value the index of the tip should be greater than other landmarks.



ACHIEVING DIFFERENT SIGNS

- In this project I implemented some other signs like:
 - a. Stop
 - b. Up
 - c. Down
 - d. Left
 - e. Right including
 - f. Like and
 - g. Dislike



HANDS PLAY A KEY ROLE IN SIGN
LANGUAGE DETECTION

DEMO



Challenges

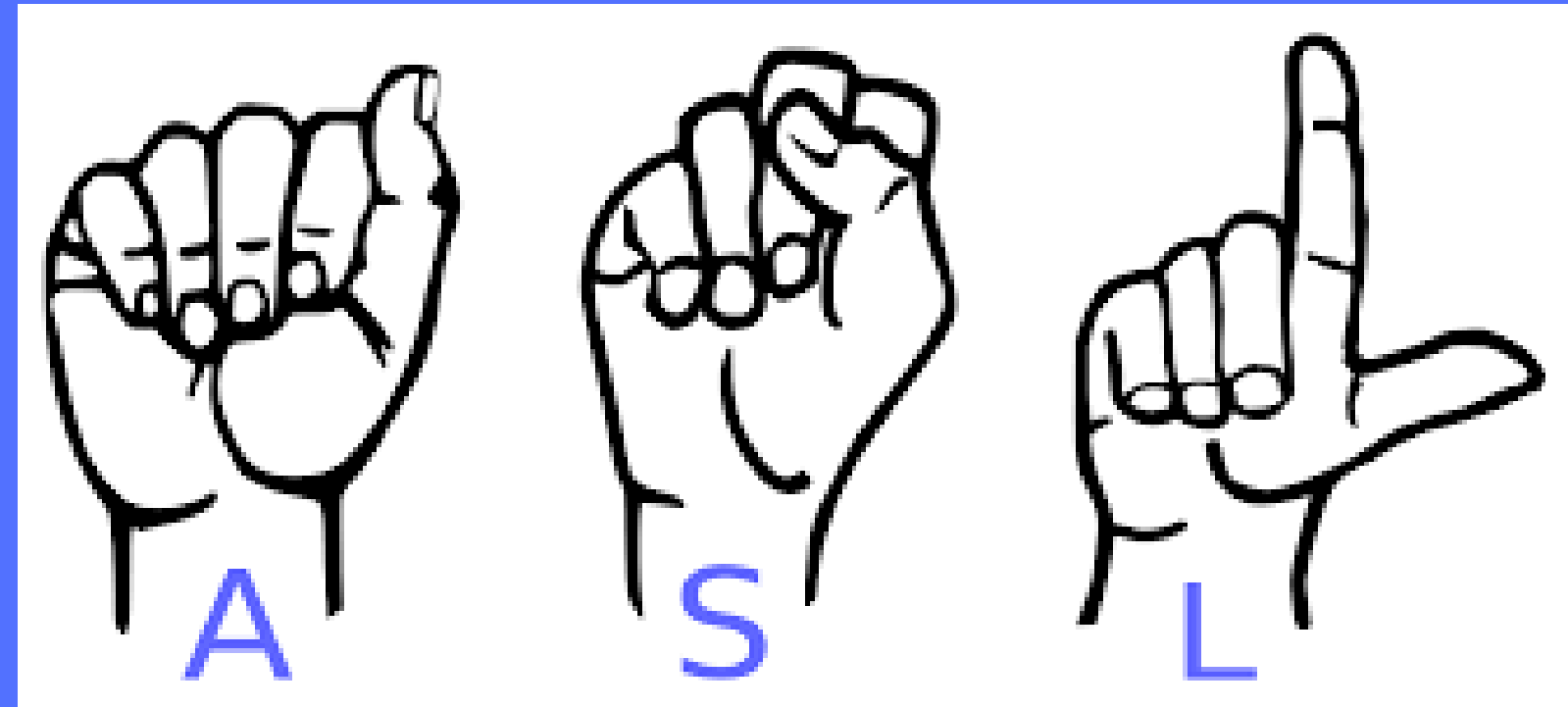
- 1 IDENTIFYING THE HAND LANDMARKS.
- 2 ACCURATE TRACKING OF HAND GESTURES.
- 3 IMPLEMENTING DIFFERENT KINDS OF SYMBOLS.



LIMITATIONS FACED

- THE REAL-TIME ENVIRONMENT WORKS WELL ONLY IN GOOD LIGHTING CONDITIONS.
- PLAIN BACKGROUND IS NEEDED FOR IT TO DETECT THE GESTURES ACCURATELY.

FUTURE SCOPE



- I WANT TO WORK FUTHER ON THE ASL, IMPLEMENTING DIFFERENT LETTERS AND SENTENCES.
- WILL MAKE SURE TO DEVELOP IT TO WORK UNDER ANY LIGHTING CONDITIONS AND BACKGROUNDS.

THANKYOU!!!

