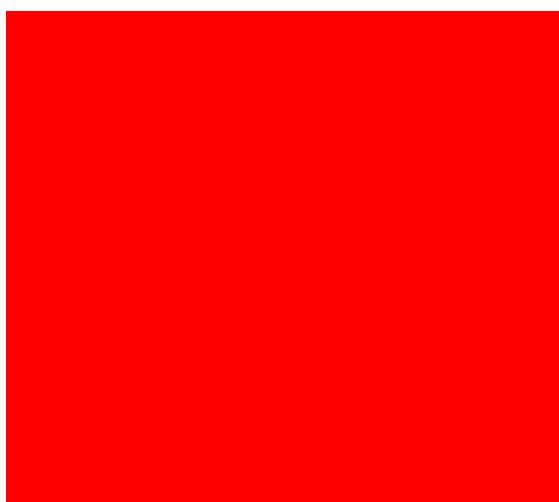
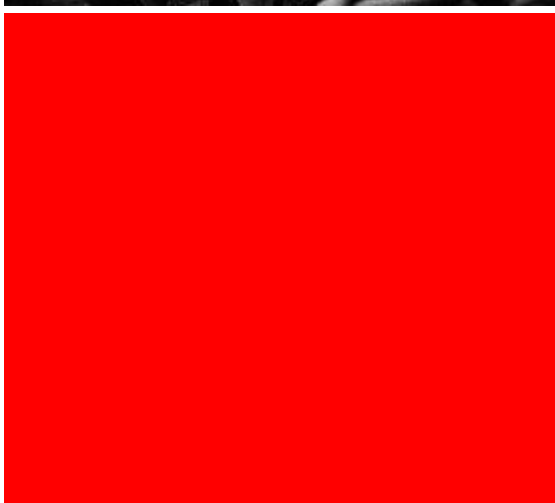




ML PROJECT REPORT



SYMBIOSIS UNIVERSITY OF APPLIED SCIENCES

INDORE



An INTERNSHIP REPORT

ON

“SIGN LANGUAGE
PREDICTOR”

Submitted to “Symbiosis University of Applied Sciences, Indore
As a project report for the partial fulfilment of the award of degree of

BACHELOR OF ENGINEERING

IN

SCHOOL OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

Submitted To:

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Assistant Professor

SCSIT

Submitted By:

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Disha Garg 2018BTCS025

Divyanshi Kakirde 2018BTCS027

SYMBIOSIS UNIVERSITY OF APPLIED SCIENCES

INDORE

CERTIFICATE

This is to certify that the Project report entitled “ Sign Language Predictor ”, submitted by Ishita Tripathi, Disha Garg and Divyanshi Kakirde, students of third year towards partial fulfilment of the degree of Bachelor of Engineering in School of Computer Science and Information Technology in year 2018-2022 symbiosis University of Applied Sciences , Indore (M.P.) is in partial fulfilment of the requirement for the award of the degree of Bachelor of Engineering and is a bona fide record of the work during the academic semester fifth.

Place:

Date:

INTERNAL EXAMINER

EXTERNAL EXAMINER

SYMBIOSIS UNIVERSITY OF APPLIED SCIENCES
INDORE

RECOMMENDATION

The work entitled “Sign Language Predictor”, submitted by Ishita Tripathi, Disha Garg and Divyanshi Kakirde, students of third year Computer Science and Information Technology, towards the partial fulfilment for the award of degree of Bachelor of Engineering in Computer Science and Information Technology of Symbiosis University of Applied Sciences Indore (M.P.) is a satisfactory account of their Project and is recommended for the award of the degree.

Endorsed By:

Dr. Neha Gupta

Dean, SCSIT

SYMBIOSIS UNIVERSITY OF APPLIED SCIENCES
INDORE

ACKNOWLEDGEMENT

The successful completion of any work is generally not an individual effort. It is an outcome of dedicated and cumulative efforts of a number of people, each having their own importance to the objective. This section is a value of thanks and gratitude towards all those people who have implicitly or explicitly contributed in their own unique way towards the completion of the project. For their invaluable comments and suggestions, I wish to thank them all.

Positive inspiration and right guidance are must in every aspect of life. Especially, when we arrive at academic stage for instance. For the success of our project a number of obligations have been taken. We have performed solemn duty of expressing a heartfelt thanks to all who have endowed us with their precious perpetual guidance, suggestions and information. Any kind of help directly or indirectly has proved importance to us.

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Chapter 1: THE PROJECT

1.1 Project definition

There have been several advancements in technology and a lot of research has been done to help the people who are deaf and dumb. Aiding the cause, Deep learning, and computer vision can be used too to make an impact on this cause.

In this sign language predictor project, we create a sign detector, which detects numbers from 1 to 10 that can very easily be extended to cover a vast multitude of other signs and hand gestures including the alphabets.

We have developed this project using OpenCV, Tensorflow and Keras modules of python.

1.1.1 Objective

This can be very helpful for the deaf and dumb people in communicating with others as knowing sign language is not something that is common to all, moreover, this can be extended to creating automatic editors, where the person can easily write by just their hand gestures.

1.1.2 Project scope

Our model was able to predict the 44 characters in the ASL with a prediction accuracy >95%.

Features that can be added:

- Deploy the project on cloud and create an API for using it.
- Increase the vocabulary of our model
- Incorporate feedback mechanism to make the model more robust
- Add more sign languages

The prerequisites software & libraries for the sign language project are:

- Python
- Numpy
- cv2 (openCV)
- Keras
- Tensorflow

Chapter 2: REQUIREMENTS ANALYSIS

2.1 Functional Requirements

ID	Requirement
FR1	Should be easy to use
FR2	Response time should be less
FR3	Must be scalable
FR4	Should be portable to a different machine
FR5	Should be able to detect gesture easily

2.2 Non-Functional Requirements

ID	Requirement
FR1	Recognise Hand Gestures
FR2	Display the type of hand gesture in text
FR3	User should be able to store more gestures if needed
FR4	Accuracy should be more than 80%
FR5	Memory allocation must be local on the device

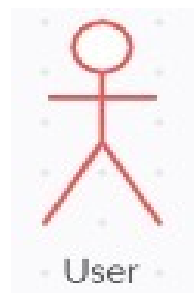
2.3 Use-Case specification

2.3.1 Find actors

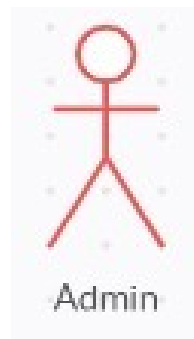
1. Database



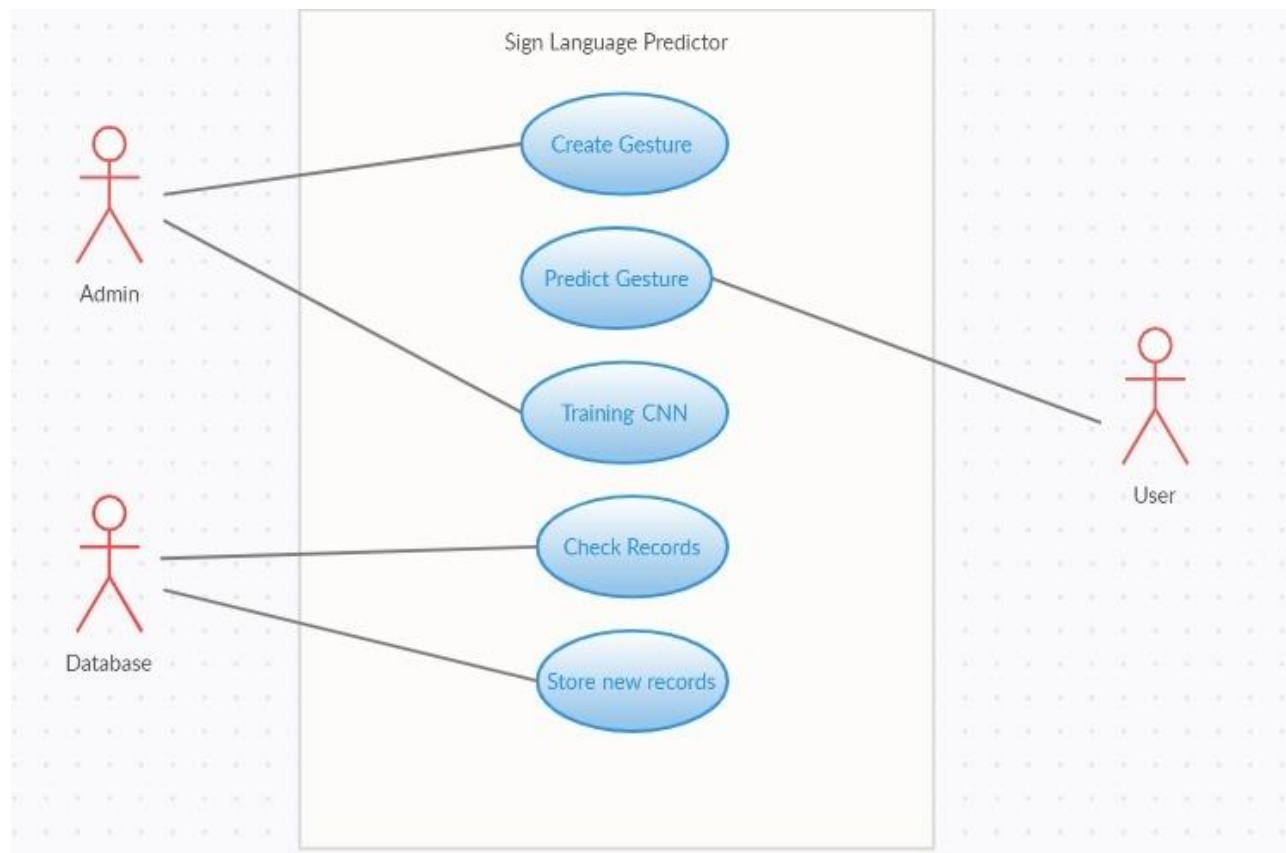
2. User



3. Admin

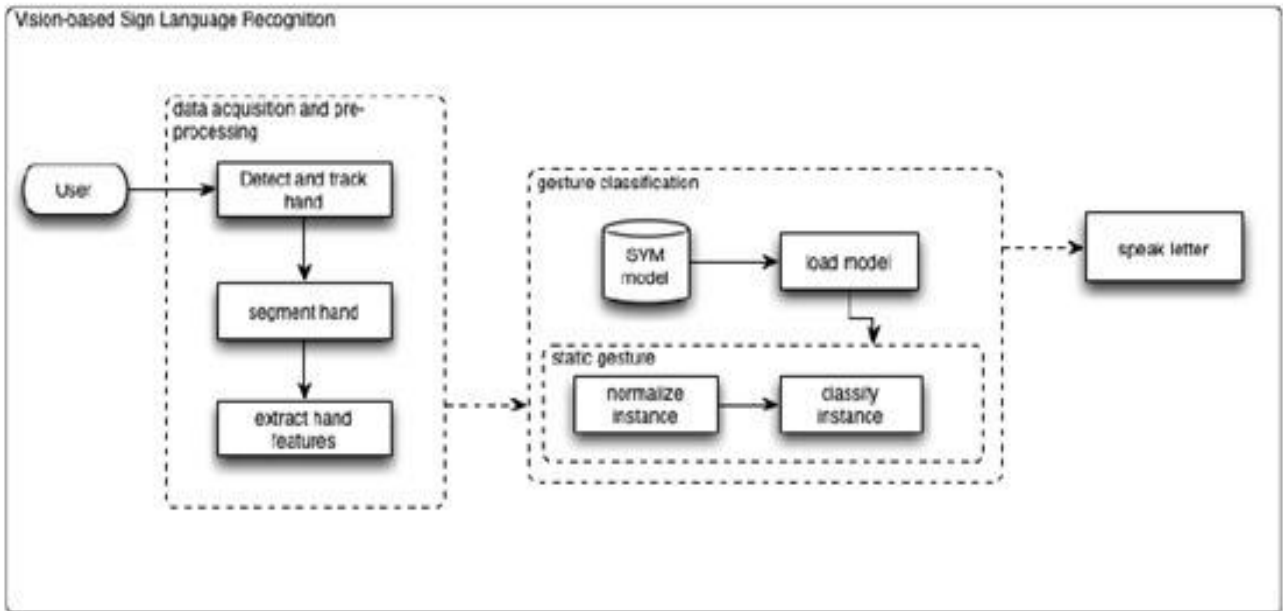


2.3.2 Use Case Diagrams

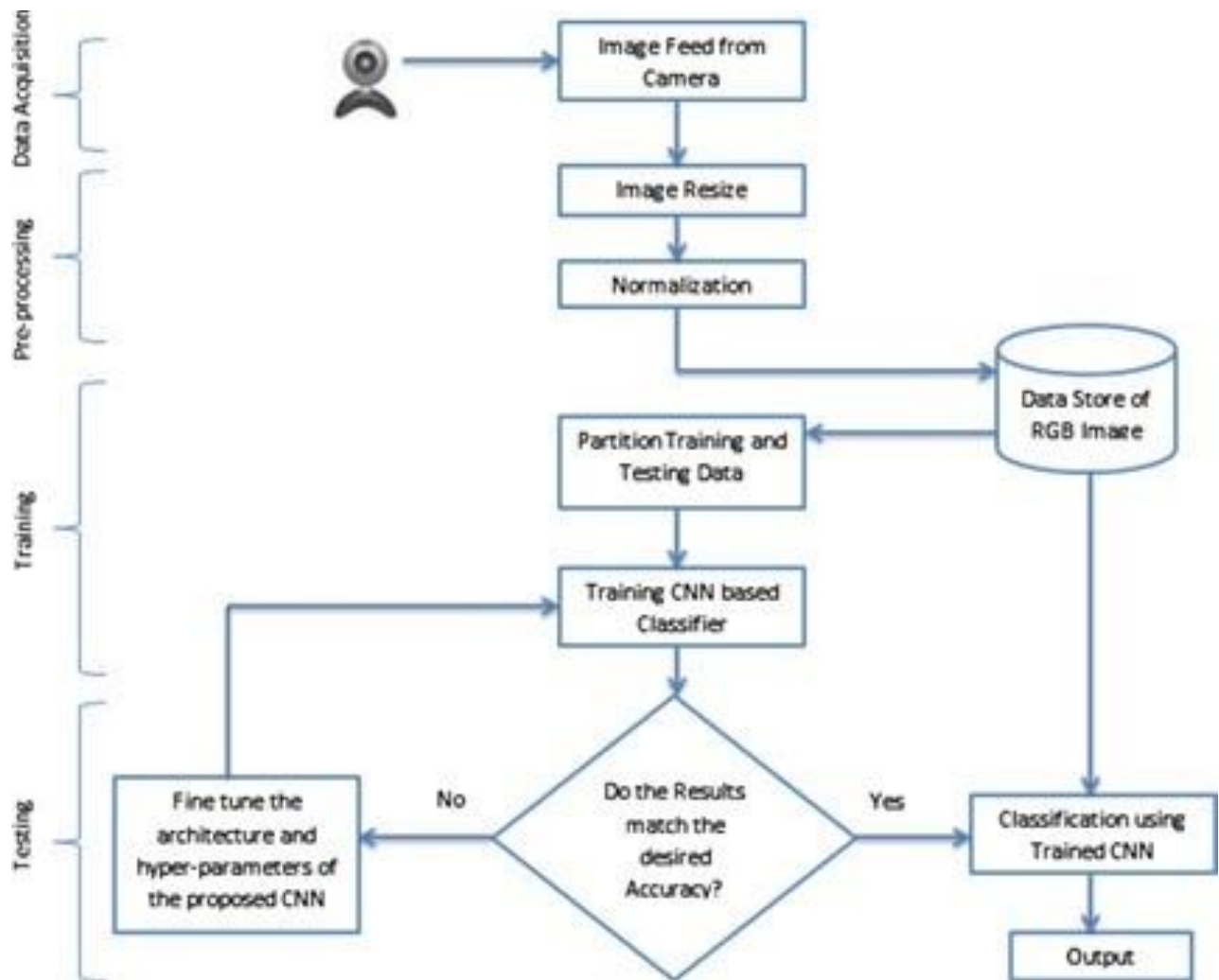


Chapter 3: DESIGN

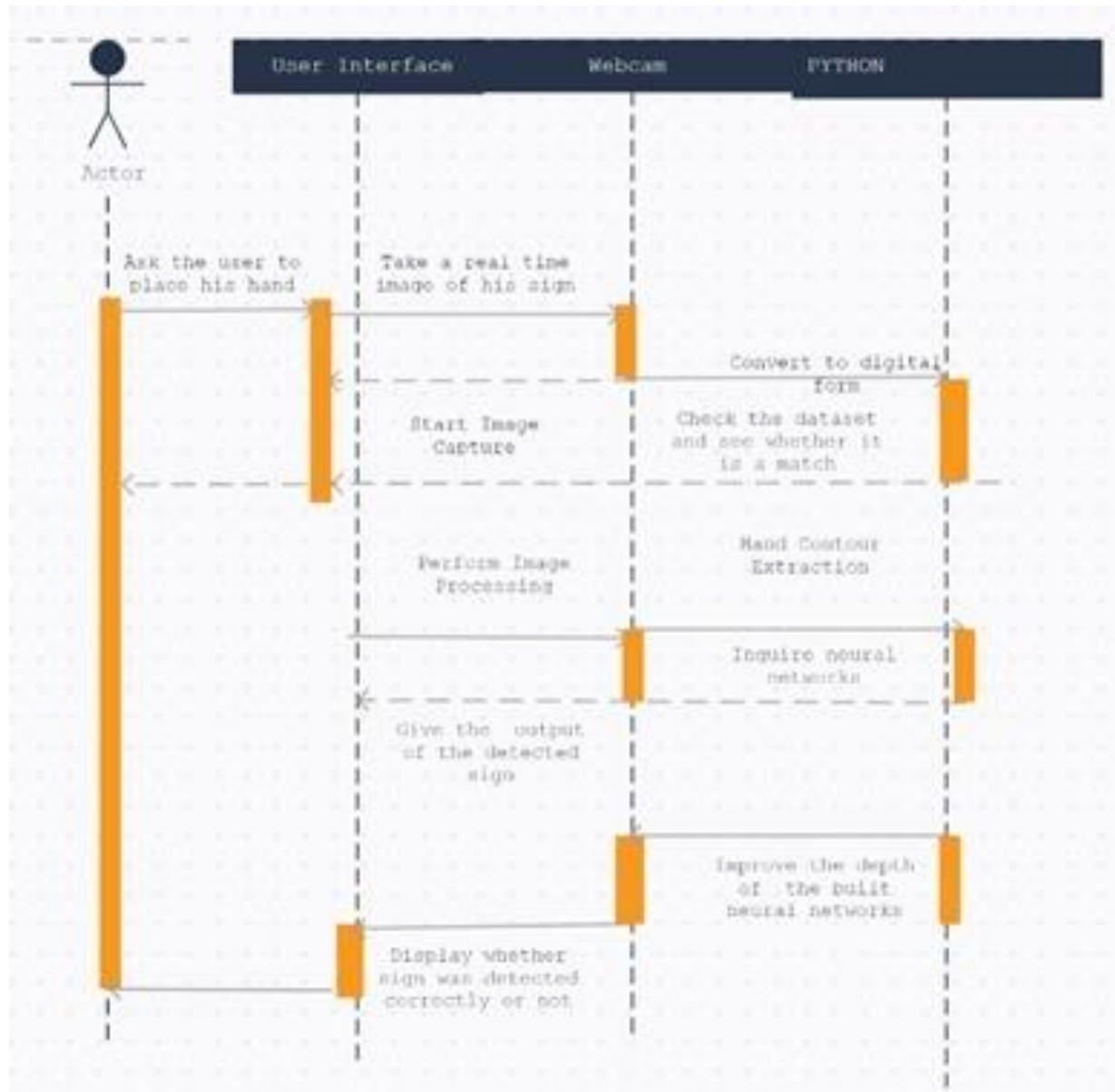
3.1 Database Design



3.2 Activity diagrams

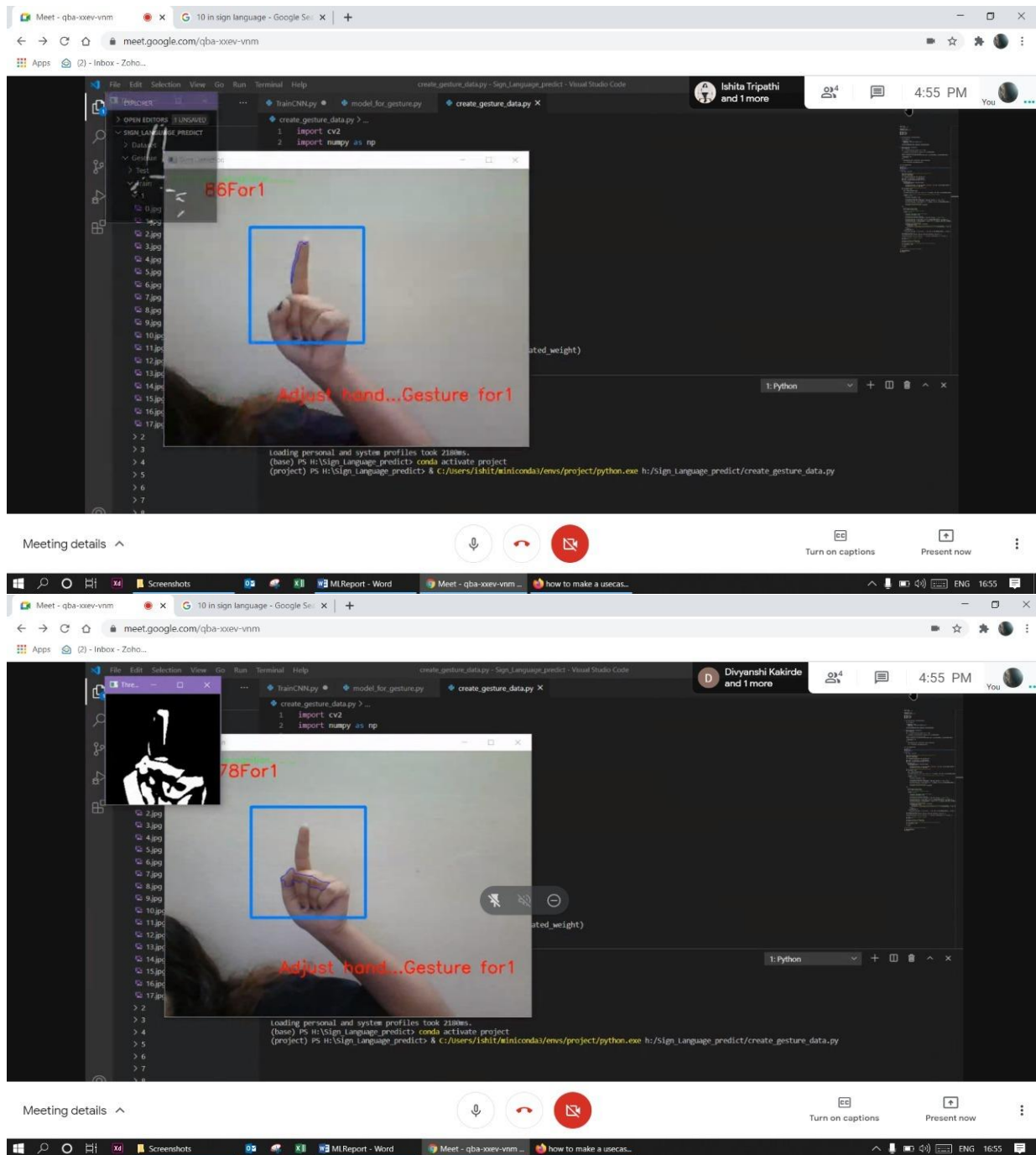


3.3 Sequence diagrams



Chapter 4: EXPERIMENT AND TESTING

4.1 Testing



Meet - qba-xxev-vnm

10 in sign language - Google Search

meet.google.com/qba-xxev-vnm

Apps (2) - Inbox - Zoho...

File Edit Selection View Go Run Terminal Help

create_gesture_data.py - Sign_Language_Predict - Visual Studio Code

trainCNN.py model_for_gesture.py create_gesture_data.py

create_gesture_data.py > ...

```
1 import cv2
2 import numpy as np
```

04

3 images for 1

Loading personal and system profiles took 2180ms.
(base) PS H:\Sign_Language_Predict> conda activate project
(project) PS H:\Sign_Language_Predict> & C:/Users/ishit/miniconda3/envs/project/python.exe h:\Sign_Language_Predict\create_gesture_data.py

Python

4:55 PM

ishita Tripathi and 1 more

4

Stop sharing

Meet - qba-xxev-vnm

how to make a usecas...

Windows taskbar: Search, Task View, Edge, Word, Meet - qba-xxev-vnm, how to make a usecas...

Meet - qba-xxev-vnm

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19

18 images for 1

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Python

4:55 PM

ishita Tripathi and 1 more

4

Turn on captions

Present now

Meeting details

Windows taskbar: Search, Task View, Edge, Screenshots, Word, Meet - qba-xxev-vnm, how to make a usecas...

Chapter 5: CONCLUSION

5.1 Future extension

It's a scalable project, we can add more complex signs to it and expand it to fully comprehend all the gestures of sign language.