A MINI PROJECT REPORT-II
On
Hearing Aid

Submitted by

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Declaration

We hereby declare that the work which is being presented in the Mini Project

*"**Hearing Aid**", in partial fulfillment of the requirements for Mini- Project LAB, is an*

*authentic record of our own work carried under the supervision of **Mr. Pankaj***

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<u>CERTIFICATE</u>

*This is to certify that the project entitled **"Hearing Aid"** carried out in Mini Project – II Lab is a bonafide work done by **Vivek Goyal (161500631), Prakhar Saxena (161500390), Nikhil Shrivastava (161500357) and Arnav Gupta (161500122)** and is submitted in partial fulfillment of the requirements for the award of the degree Bachelor of Technology (Computer Science & Engineering).*

Signature of Supervisor:

Name of Supervisor: Mr. Pankaj Sharma

Date:

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the report of the B. Tech Mini Project undertaken during B. Tech. Third Year. This project in itself is an acknowledgement to the inspiration, drive and technical assistance contributed to it by many individuals. This project would never have seen the light of the day without the help and guidance that we have received.

*Our heartiest thanks to **Dr. (Prof). Anand Singh Jalal,** Head of Dept., Department of CEA for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal.*

*We owe special debt of gratitude to **Mr. Pankaj Sharma,** Assistant Professor Department of CEA, for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. He has showered us with all his extensively experienced ideas and insightful comments at virtually all stages of the project & has also taught us about the latest industry-oriented technologies.*

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind guidance and cooperation during the development of our project. Last but not the least, we acknowledge our friends for their contribution in the completion of the project.

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Abstract

This project deals with the detection and recognition of hand gestures. Images of the hand gestures are taken using Web Camera and matched with the images in the database and the best match is returned. Gesture recognition is one of the essential techniques to build user-friendly interfaces. For example, a robot that can recognize hand gestures can take commands from humans, and for those who are unable to speak or hear, having a robot that can recognize sign language would allow them to communicate with it. Hand gesture recognition could help in video gaming by allowing players to interact with the game using gestures instead of using a controller. However, such an algorithm needs to be more robust to account for the myriad of possible hand positions in three-dimensional space. It also needs to work with video rather than static images. That is beyond the scope of our project.

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Chapter 1

1. Introduction

This project focuses on the problem to understand the sign language of dumb person. It will be very helpful to all dumb persons, to express their feeling to other normal persons. As we are doing in this project is to change the sign language to text format on the screen of your computer using neural network**.**

1.1 Motivation

Since childhood we see many dumb people who are unable to express their feeling to other normal person. Once I saw a person who was dumb and he was trying to say something to the shop vender to know about a product but he was unable to ask and vender was unable to understand the sign language. From there only I got the motivation to develop this type of neural network which change sign language to text language using a camera and computer.

.1.2 Objective

"Hearing Aid" is a software designed especially for people who are mute but all other users can use it. The main function is to allow the user to use sign language in front of its Intel Creative camera and then the application is recognizing the gesture. Each movement recognized is translate to text. To run the software, the user will need Internet and a Intel Camera.

Chapter 2

2. Software Requirement Analysis

2.1 Problem Solved

The main functions of our application are divided in 2 different parts :

1. Recognition : Hand gesture are used to recognition what user want to say.
2. Translation : It is used to translate hand gesture to text, so that very normal person can understand what is trying to say.

2.2 Modules and Their Functionalities

2.2.1 Webcam Surface:

Where user are able to give the instruction to the program through web camera of system the user is using.

2.2.2 Threshold:

This is the window where the threshold is reflected through program on screen of the system\

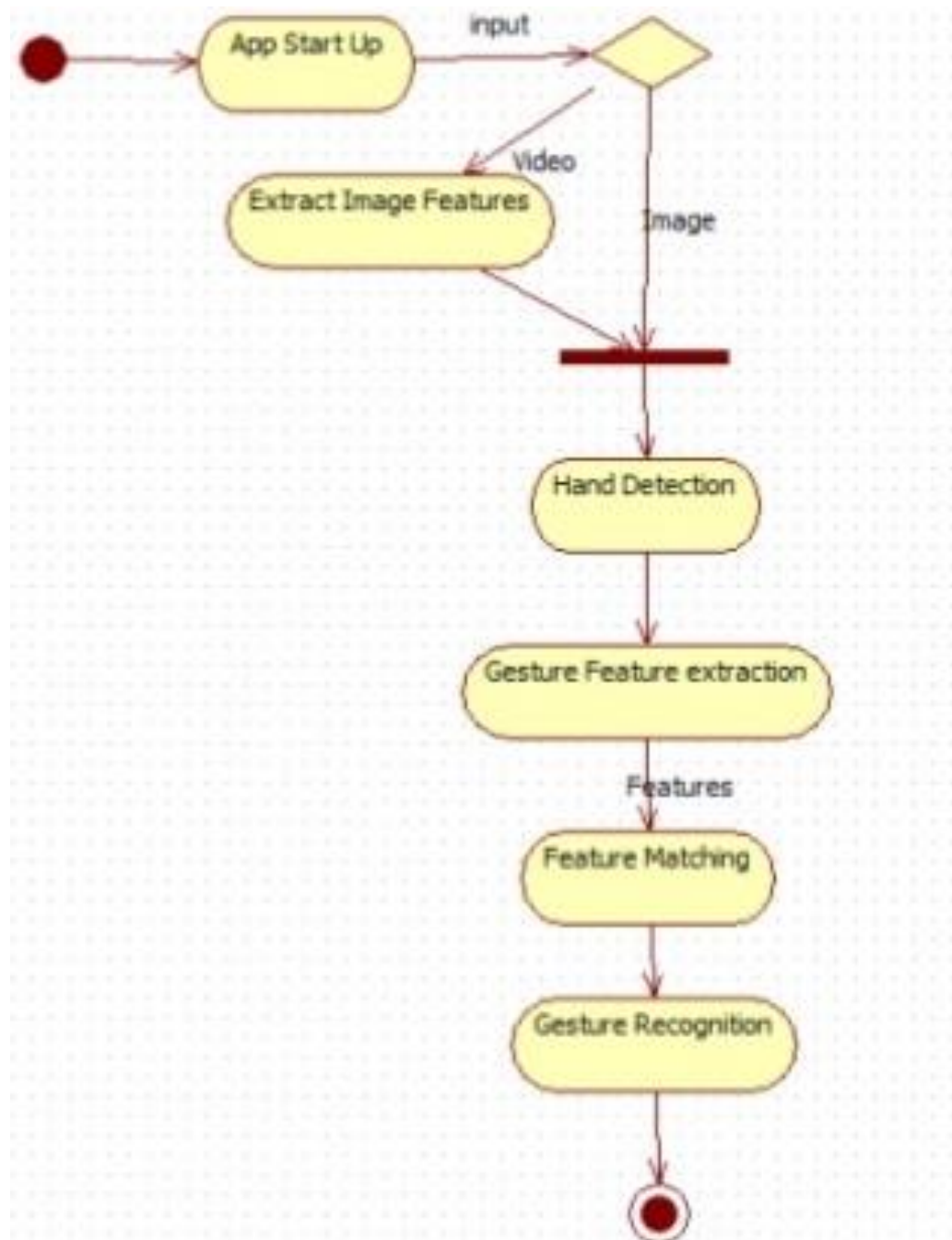and has to be settled just after opening of software "Hearing Aid"

2.2.3 Statistic:

Here user can see the accuracy of the system and the reply reflected from the program that how much the answer is accurate in term of gesture the system recognize.
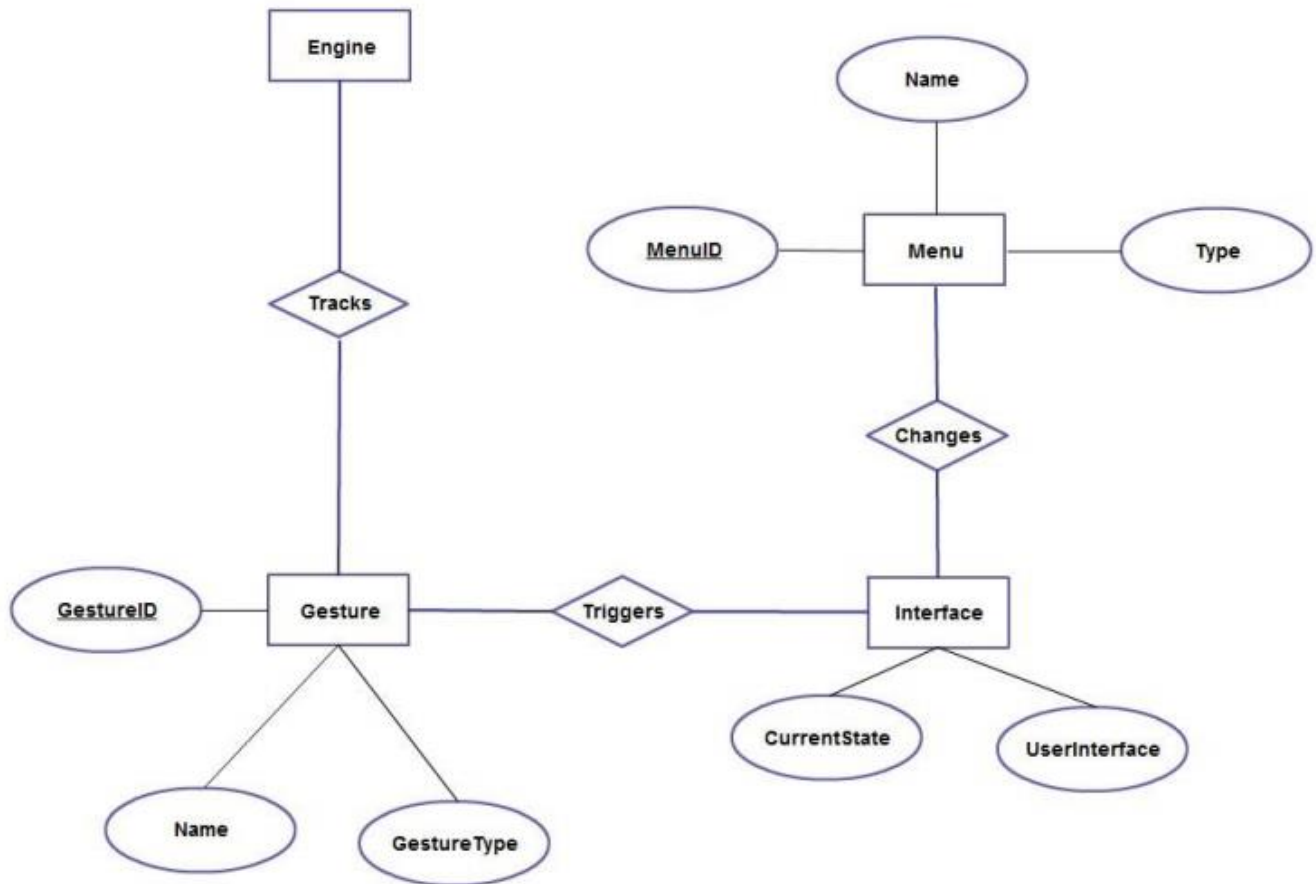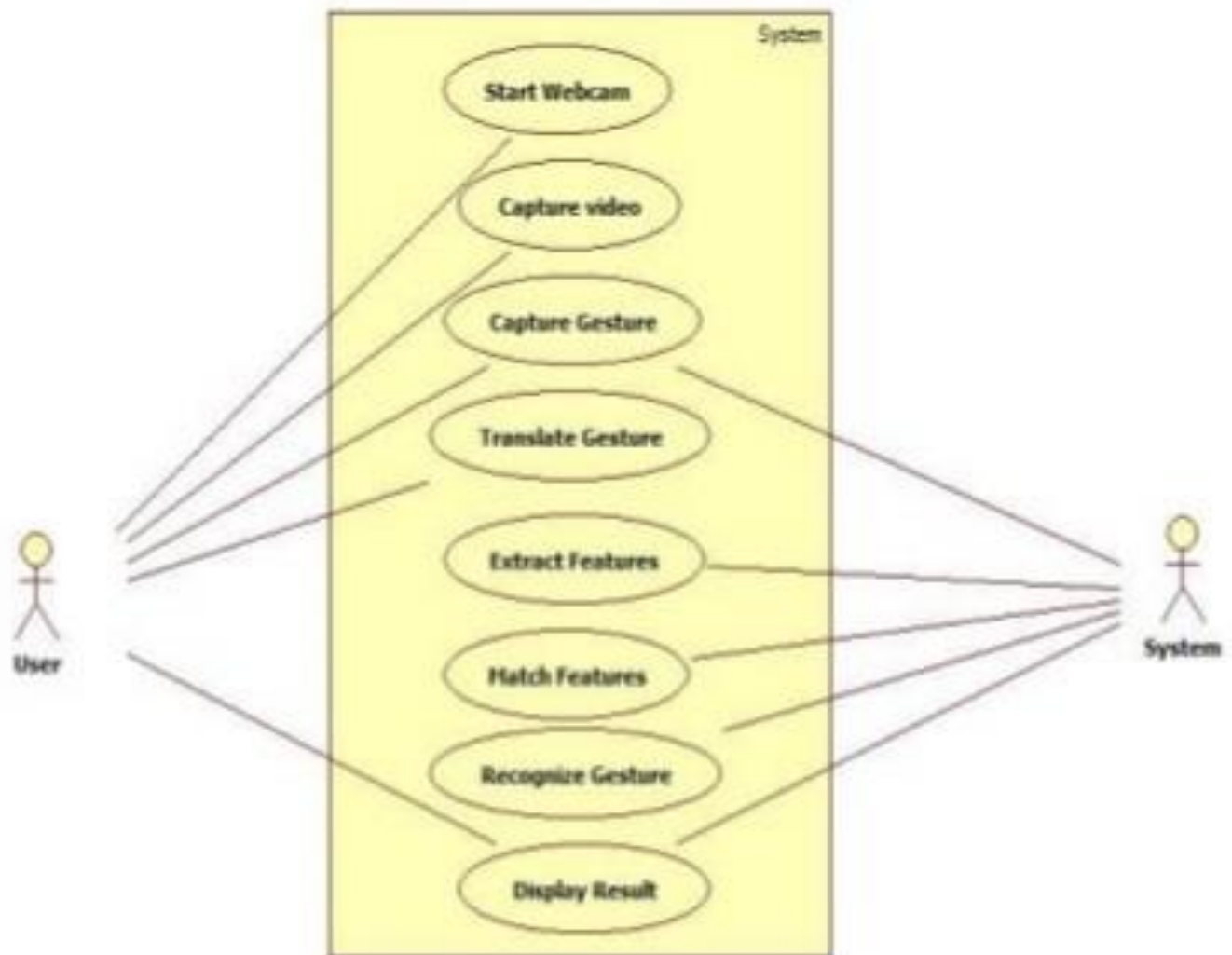
Chapter 3

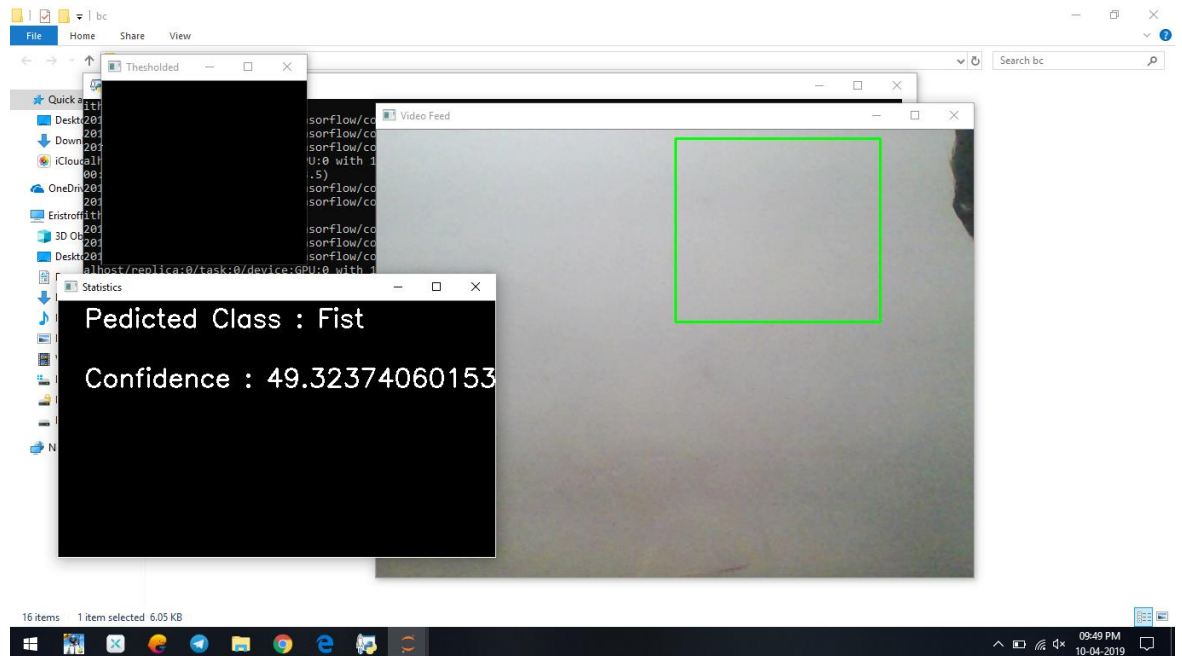## 3. Software Design

3.1 DFD(0-level)

3.2 ER-Daigram

Hearing Aid

3.3 Use Case Daigram

Hearing Aid

Chapter 4

4.1 If Gesture Did Not Recognized (Test Case 1)

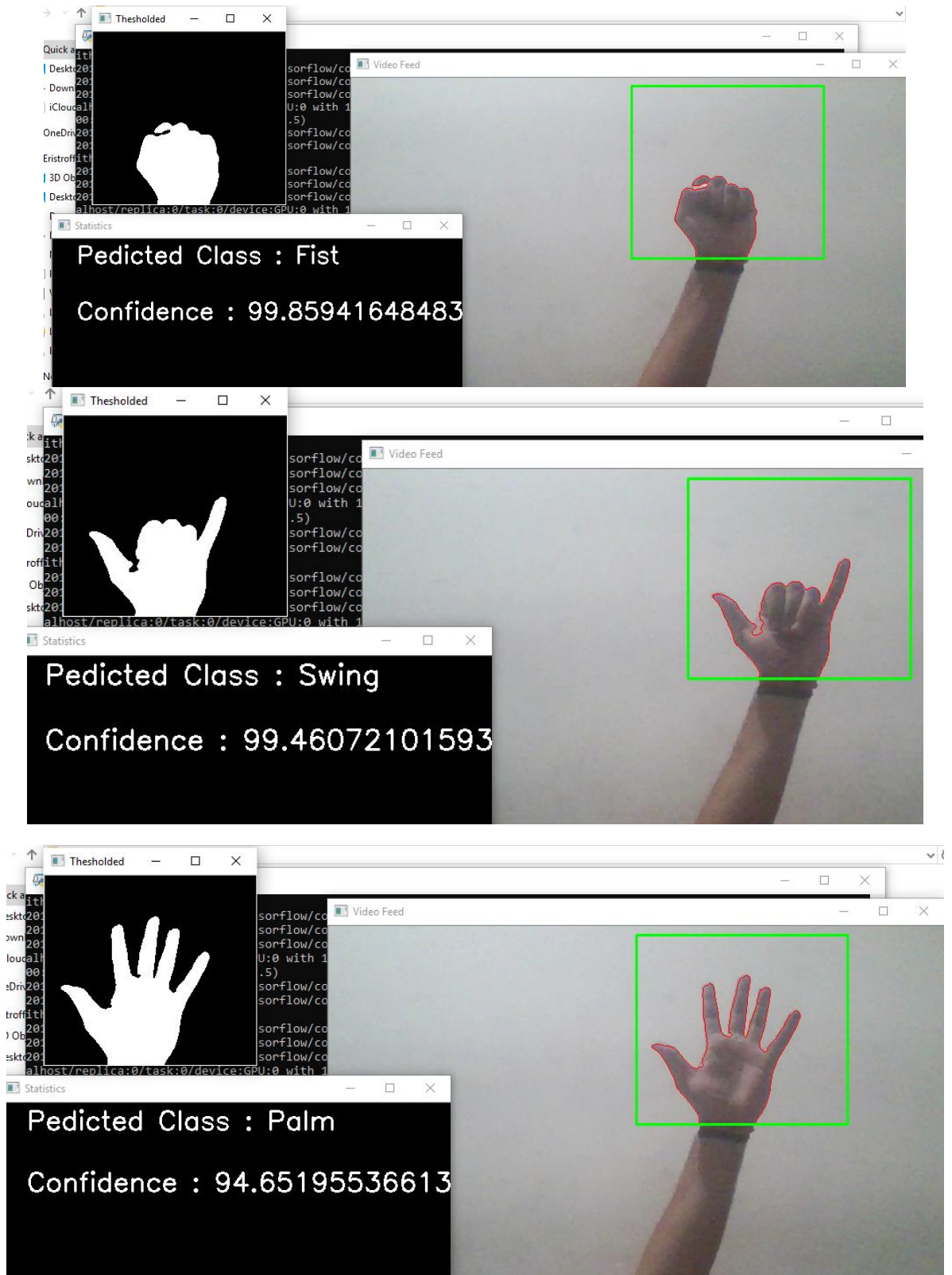It will not do any thing it will return garbage value out of dataset.

4.2 If The Gesture Is Not In Data Set (Test Case 2)

It Will Not Do Any Thing As The Machine Is Not   Trained For That Image Which Is Not In Data Set.

Chapter 5

5. User Interface

Chapter 6

6. References

1) Udemy : It is an online learning platform. It is aimed at professional adults.

2) https://gogul09.github.io/software/hand-gesture-recognition-p1

3) https://github.com/gogul09