

AGE AND GENDER PREDICTION

PROJECT GUIDE: MATHEW SIR

GROUP NUMBER : 10

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1. INTRODUCTION

- Automatic age and gender prediction has become relevant to an increasing amount of applications , particularly since the size of social platforms and social media.
- In this project , I had used deep learning to accurately identify the gender and age of a person from a single image of a face . The predicted gender may be one of 'Male' and 'Female' and the predicted age may be ranges(0-2),(4-6),(8-12),(15-20),(25-32),(38-43),(48-53),(60-100)(8 modes of final softmax layer).
- It is very difficult to accurately guess an exact age from a single image because of factors like makeup , lighting , obstructions and facial expressions and so, I made this a classification problem instead of making it one of regression.

2.LITERATURE SURVEY

2.1 Existing System

- In existing system we can perform only face detection.
- There are few applications available on Google play store to recognize Age or Gender.
- There is no medium for automatic age and gender detection together.
- To gain personal information like age and gender we have to contact persons either directly or by making contact with the person.

Disadvantages

- We have to install the applications for finding the age or gender of human beings.
- Time Consuming Process.
- Slow
- Take Extra Space

3.PROPOSED SYSTEM

3.1 Objective

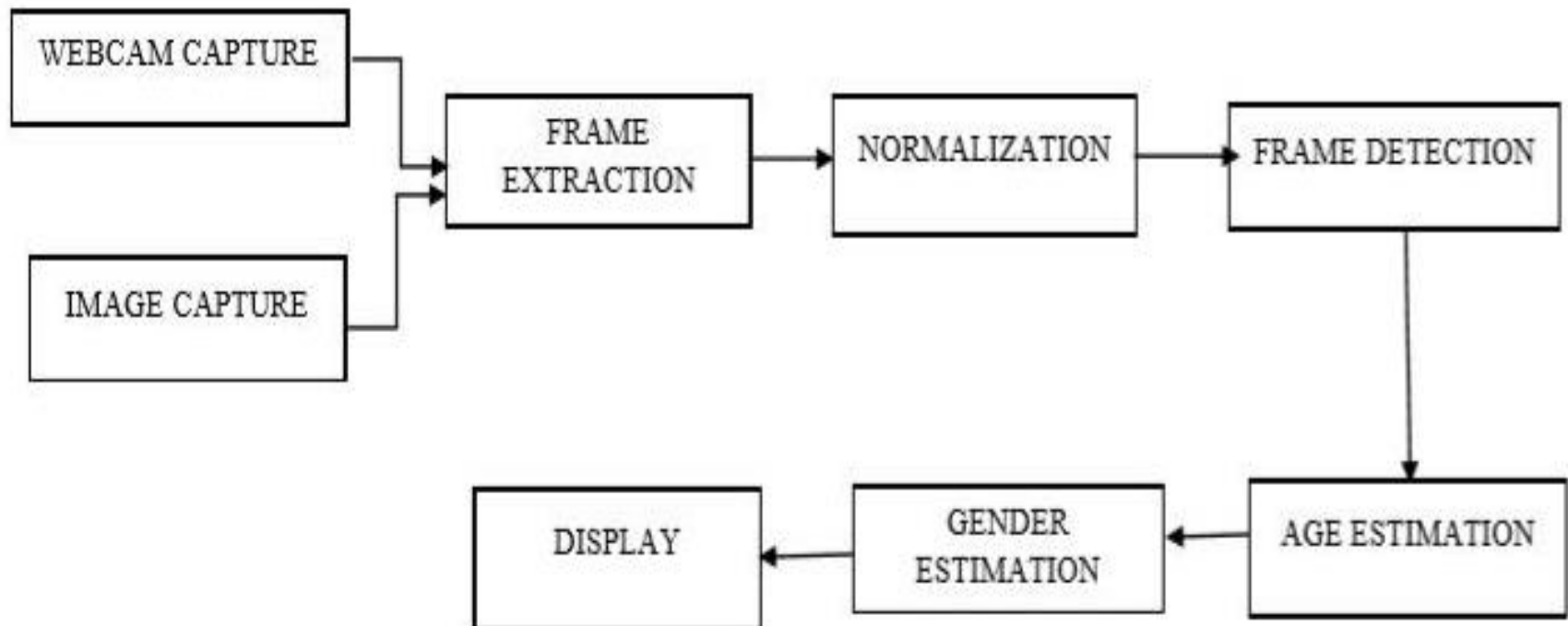
- In proposed system, we will use the concept of Deep Learning to accurately identify the gender and age of a person from a single image of a face.
- We are trying to make more interactive and understandable system.
- It is very difficult to accurately guess an exact age from a single image because of factors like makeup , lighting , obstructions and facial expressions .And so we make this a classification problem instead of making it one of regression.
- For this project, we will use the **Adience Dataset** servers as a benchmark for face photos and is inclusive of various real world imaging conditions like noise , lighting , pose and appearance.

- Age and Gender Prediction System demonstrates better results of predict age and gender than traditional systems and shows robustness to changes. The system can be used world wide at
 - Social Media Platform
 - Product selling
 - Patient monitoring system.

3.2 Advantages

- User Friendly
- Efficient
- Helpful for information gathering
- Less time consuming

3.3 System Architecture



4.MODULE DESCRIPTION

- “ **AGE AND GENDER PREDICTION** ” has the following modules .
 1. Web cam Capture.
 2. Image Capture
 3. YouTube URL.
 4. Extract Frame
 5. Normalization
 6. Face detection
 7. Age Prediction.
 8. Gender Prediction.

1. Webcam capture :

Using the web cam of our system real time video is recorded.

2. Image capture:

Using the images of our system ,age and gender will be predicted.

3. Youtube url:

Using the url of the YouTube , age and gender will be predicted.

4. Extract frame:

From the real time video or image a frame is extracted.

5. Normalization:

First we contrast the image. Then we perform normalization.

6. Face detection

- Face detection is the ability of computer technology to identify people's faces within digital images.
- In order to work, face detection applications use machine learning algorithms to detect human faces within images of any size.
- Facial detection technology was previously associated with only security sector but today there is active expansion into other industries including retail, marketing, healthcare etc.
- Face detection algorithms often begin by searching for human eyes. Once eyes are detected, the algorithm might then attempt to detect facial regions including eyebrows, the mouth, nose, nostrils, and the iris. Once the algorithm surmises that it has detected a facial region, it can then apply additional tests to validate whether it has, in fact, detected a face.

7. Gender Detection

- I have used the CNN models to detect the gender of the person. We are going to use the OpenCV's DNN package which stands for "Deep Neural Networks".
- In the DNN package, OpenCV has provided a class called Net which can be used to populate a neural network. Furthermore, these packages support importing neural network models from well known deep learning frameworks like caffe, tensorflow and torch. The researchers I had mentioned above have published their CNN models as caffe models. Therefore, we will be using the CaffeImporter import that model into our application.

8. Age Detection

- This is almost similar to the gender detection part except that the corresponding prototxt file and the caffe model file are “`deploy_agenet.prototxt`” and “`age_net.caffemodel`”. Furthermore, the CNN’s output layer (probability layer) in this CNN consists of 8 values for 8 age classes (“0–2”, “4–6”, “8–13”, “15–20”, “25–32”, “38–43”, “48–53” and “60–100”)
- A caffe model has 2 associated files,

1 .prototxt — The definition of CNN goes in here. This file defines the layers in the neural network, each layer’s inputs, outputs and functionality.

2 .caffemodel — This contains the information of the trained neural network (trained model).

5. IMPLEMENTATION

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5.1 Functional Requirements

- **Face detection**

We must have a clear image or a system with good quality of webcam.

TECHNIQUE:

opencv_face_detector.pbtxt

opencv_face_detector_uint8.pb

METHOD:

Neural network

For face detection, we have a .pb file- this is a protobuf file (protocol buffer); it holds the graph definition and the trained weights of the model. We can use this to run the trained model. And while a .pb file holds the protobuf in binary format, one with the .pbtxt extension holds it in text format. These are TensorFlow files.

- **Age detection**

Technique:

age_deploy.prototxt

age_net.caffemodel

- **Gender detection**

Technique:

gender_deploy.prototxt

gender_net.caffemodel

For age and gender, the .prototxt files describe the network configuration and the .caffemodel file defines the internal states of the parameters of the layers.

a few pictures to try the project on.

5.2 Software and Library Requirements

SOFTWARE REQUIREMENTS

Operating system	: Windows 10
Coding Language	: Python 3.7
Tools	: Opencv , CNN
Dataset	: Adience Dataset
Platform	: Python IDLE, windows command prompt

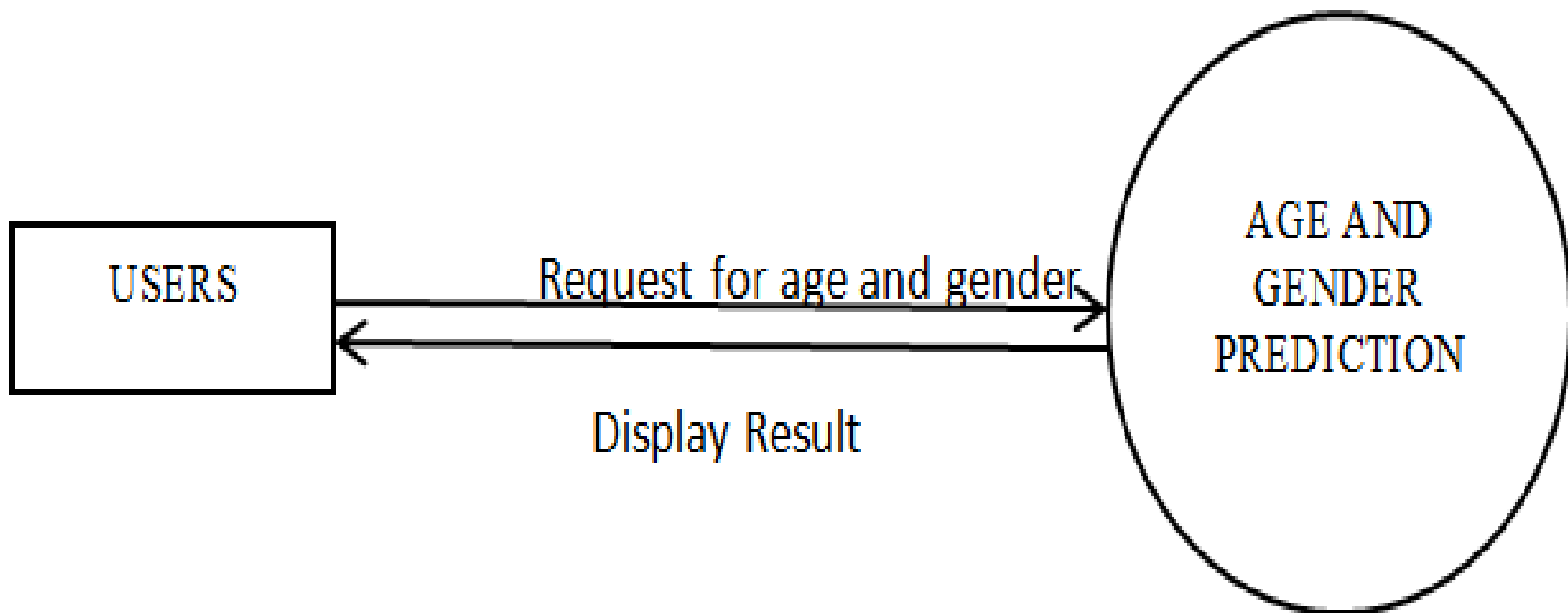
LIBRARY REQUIREMENTS

Libraries : cv2 , os , tkinter ,Math , argparse

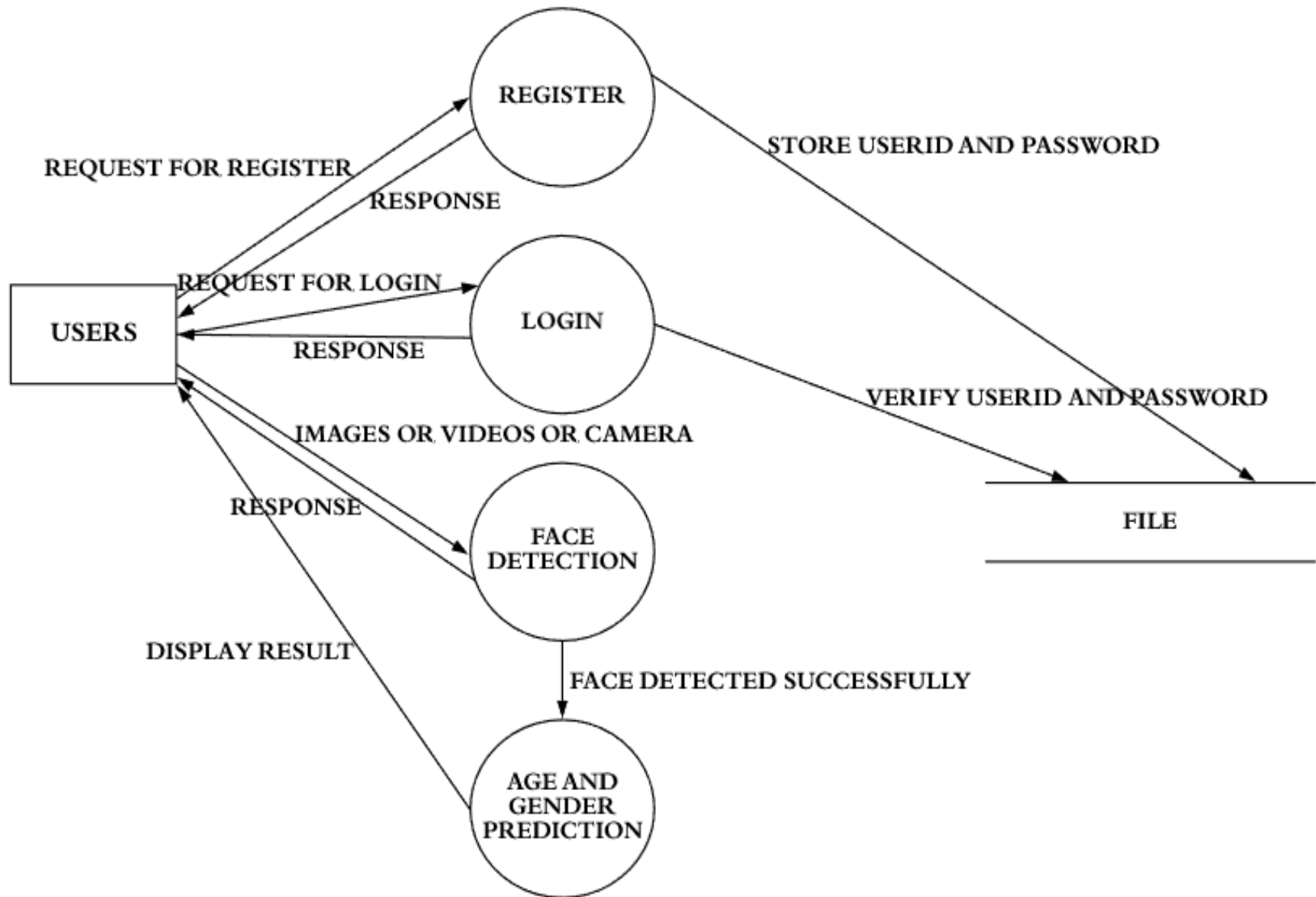
6. DESIGN

6.1 DFD

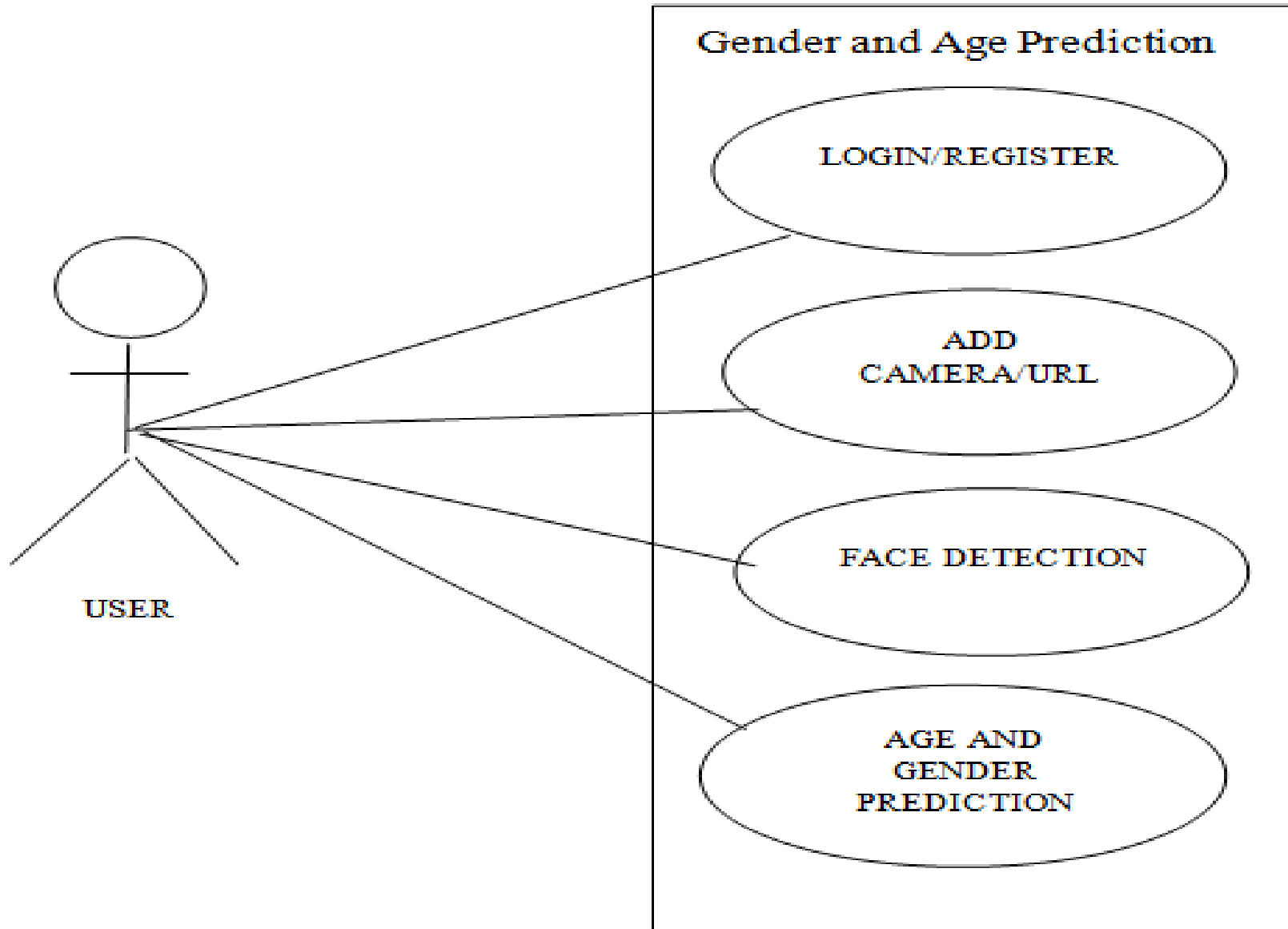
LEVEL 0



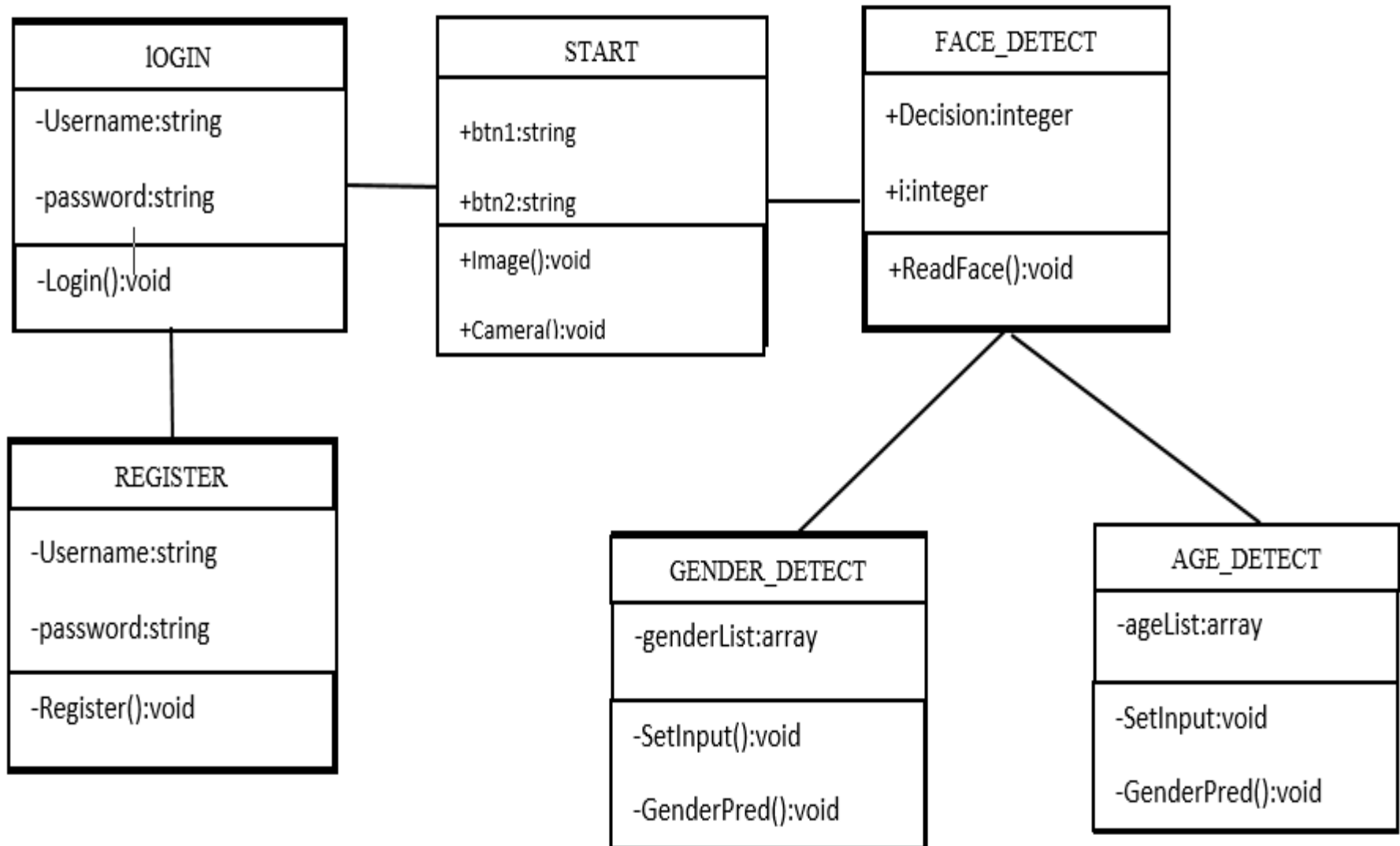
- **LEVEL 1 :**



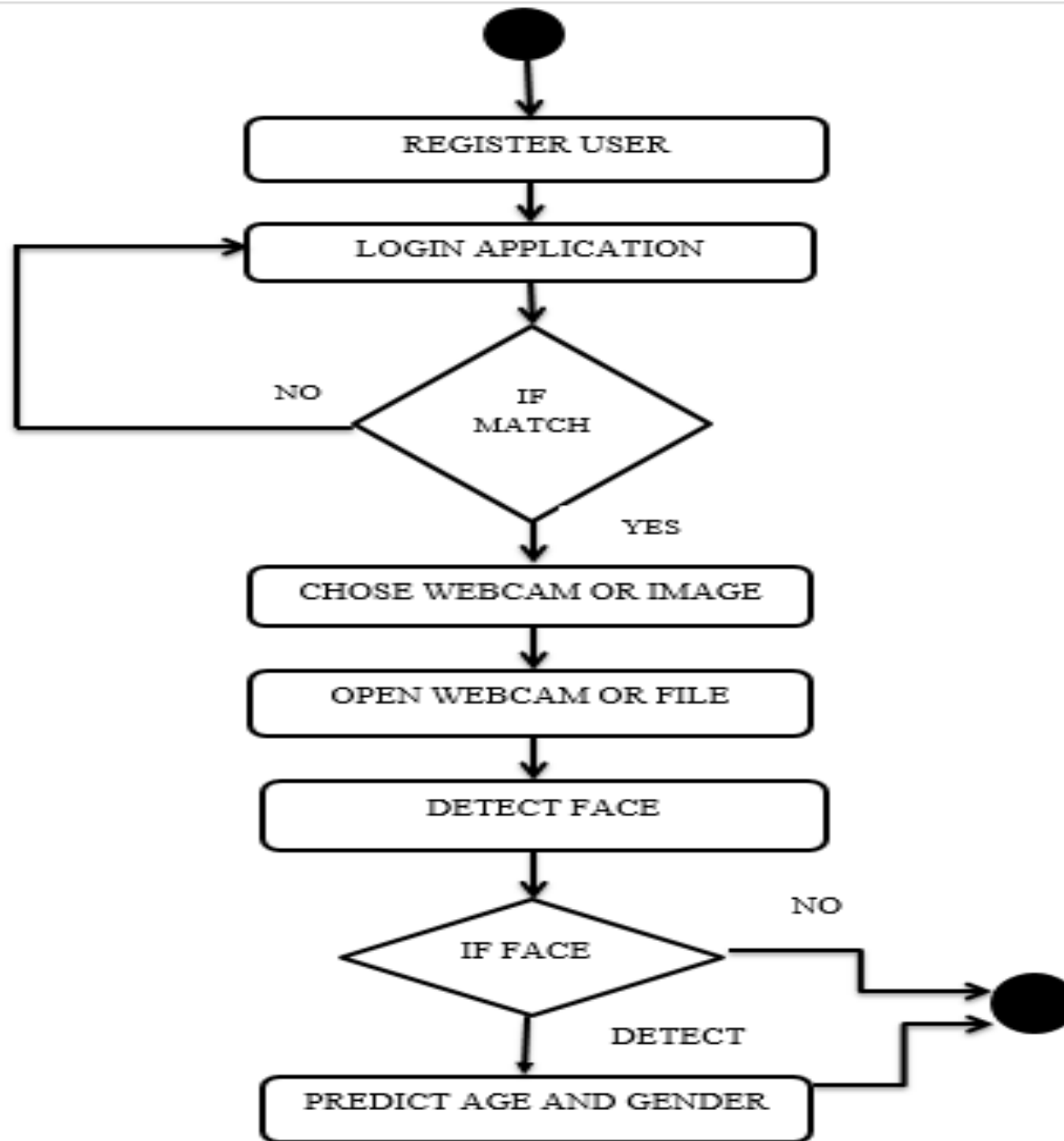
6.2 Use Case Diagram



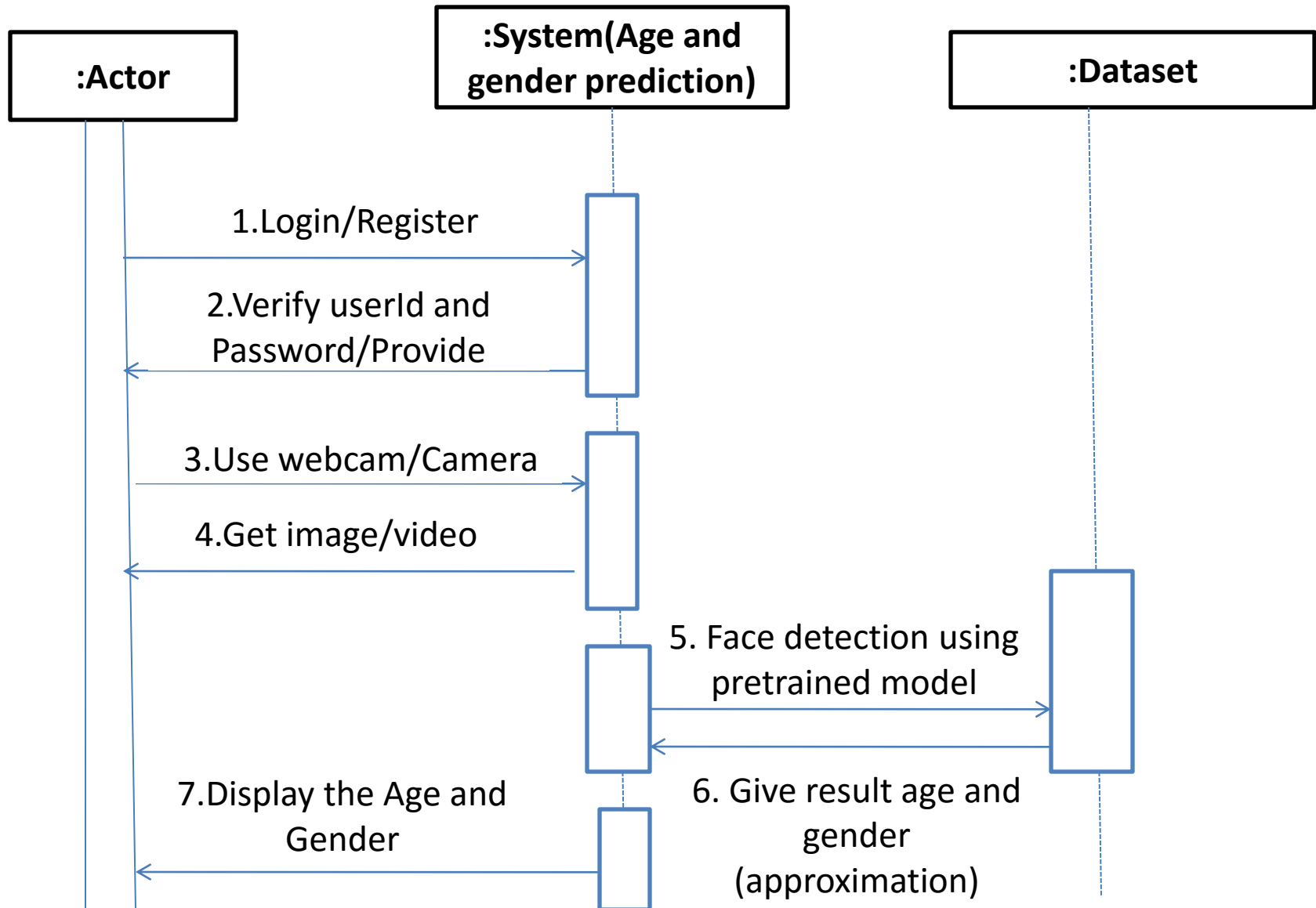
6.3 Class Diagram



6.4 Activity Diagram



6.5 Sequence Diagram



7.RESULT ANALYSIS

Model	Accuracy (In Percent)
PROJECT COMPLETION	100
Face Detection	100
Age Detection	70 (APPROX)
Gender	70 (APPROX)
RESULT	70

8.CONCLUSION

8.1 Conclusion

- This project “ age and gender Prediction “ even offer a special mode that Predict age and gender by detecting the face using webcam or youtube url. So it is more interesting and very useful for users .
- Any users can easily find the customers age and gender and using this ,they easily find the choice of the same age and gender of customer and improve his business.

Drawback:

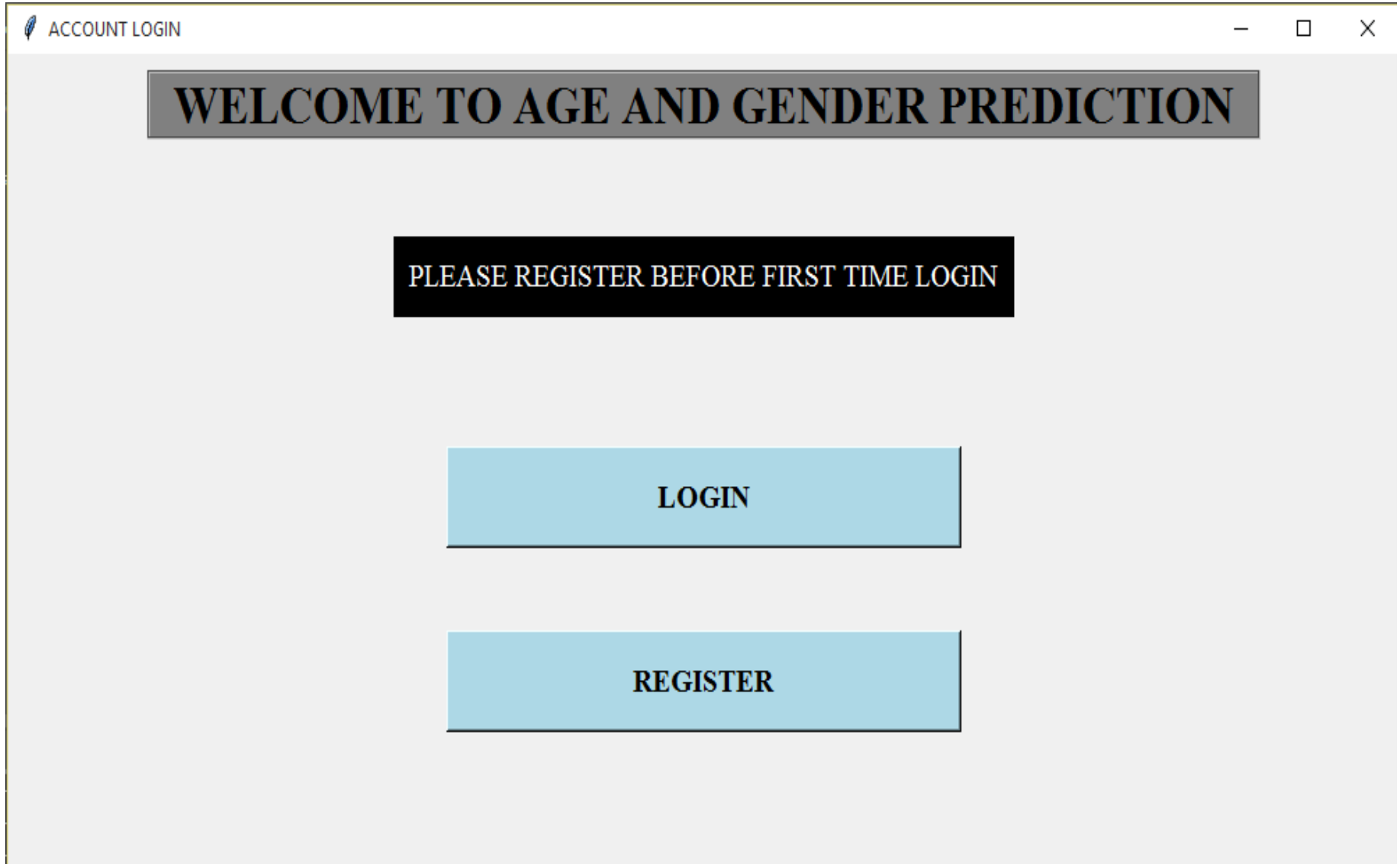
- It is not giving the 100 % accurate result.
- It is very difficult to accurately guess an exact age from a single image because of factors like makeup , lighting , obstructions and facial expressions.
- It is not work with large file .
- It will take some time for opening the webcam and YouTube.

8.2 Future Scope

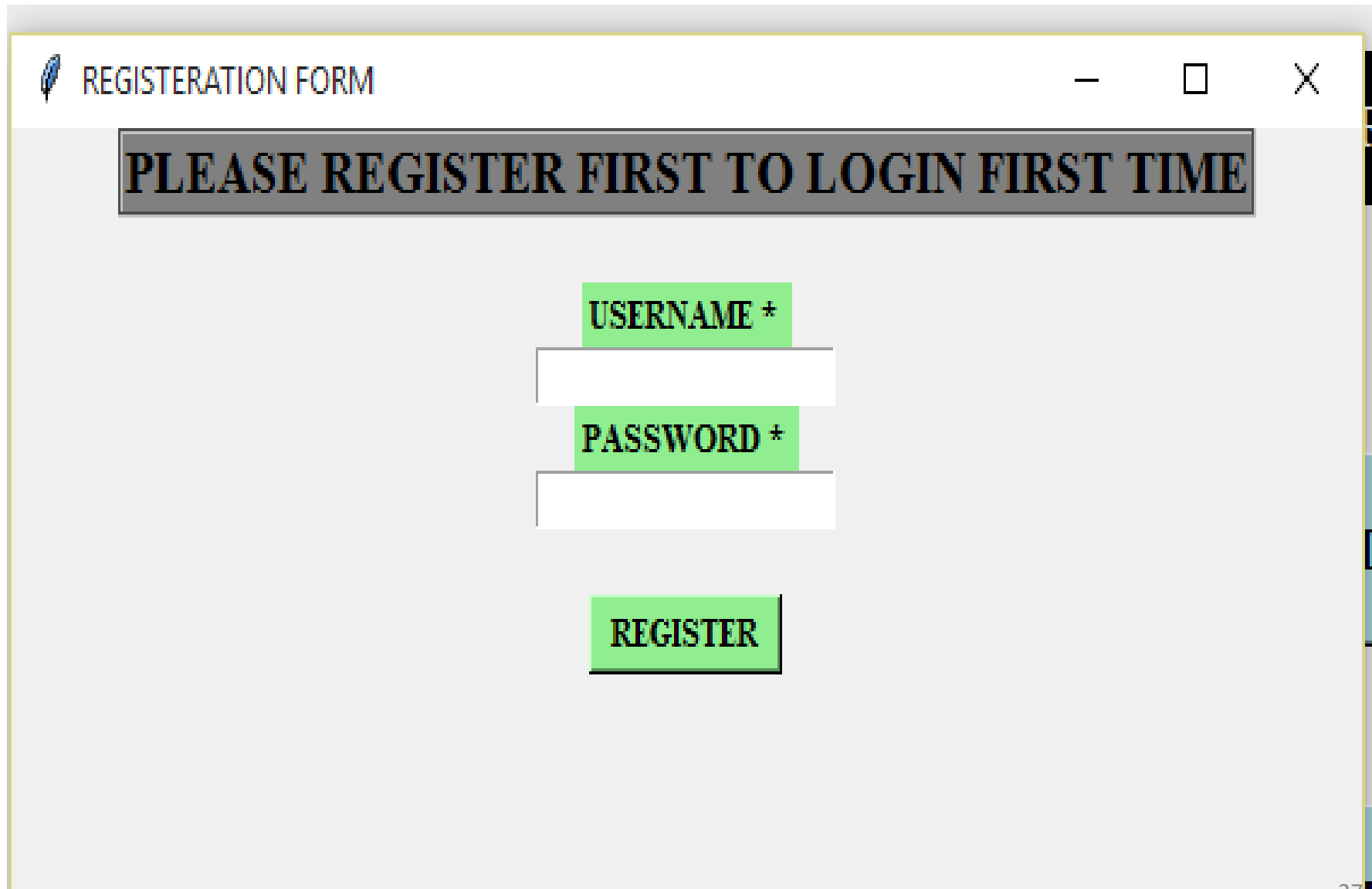
- We can also show face expression .
- Saving All the data in tabular format.
- To get more accuracy in this project.

9. SCREEN SHOTS

9.1 Main Page



9.2 Registration Form



REGISTRATION FORM

PLEASE REGISTER FIRST TO LOGIN FIRST TIME

USERNAME *

PASSWORD *

REGISTER

9.3 Login Form

LOGIN SYSTEM

PLEASE ENTER THE DETAILS

USERNAME *

a

PASSWORD *

*

LOGIN

SUCCESS

OK

PLEASE REGISTER BEFORE FIRST TIME LOGIN

9.4 Main Menu

WELCOME TO AGE AND GENDER PREDICTION

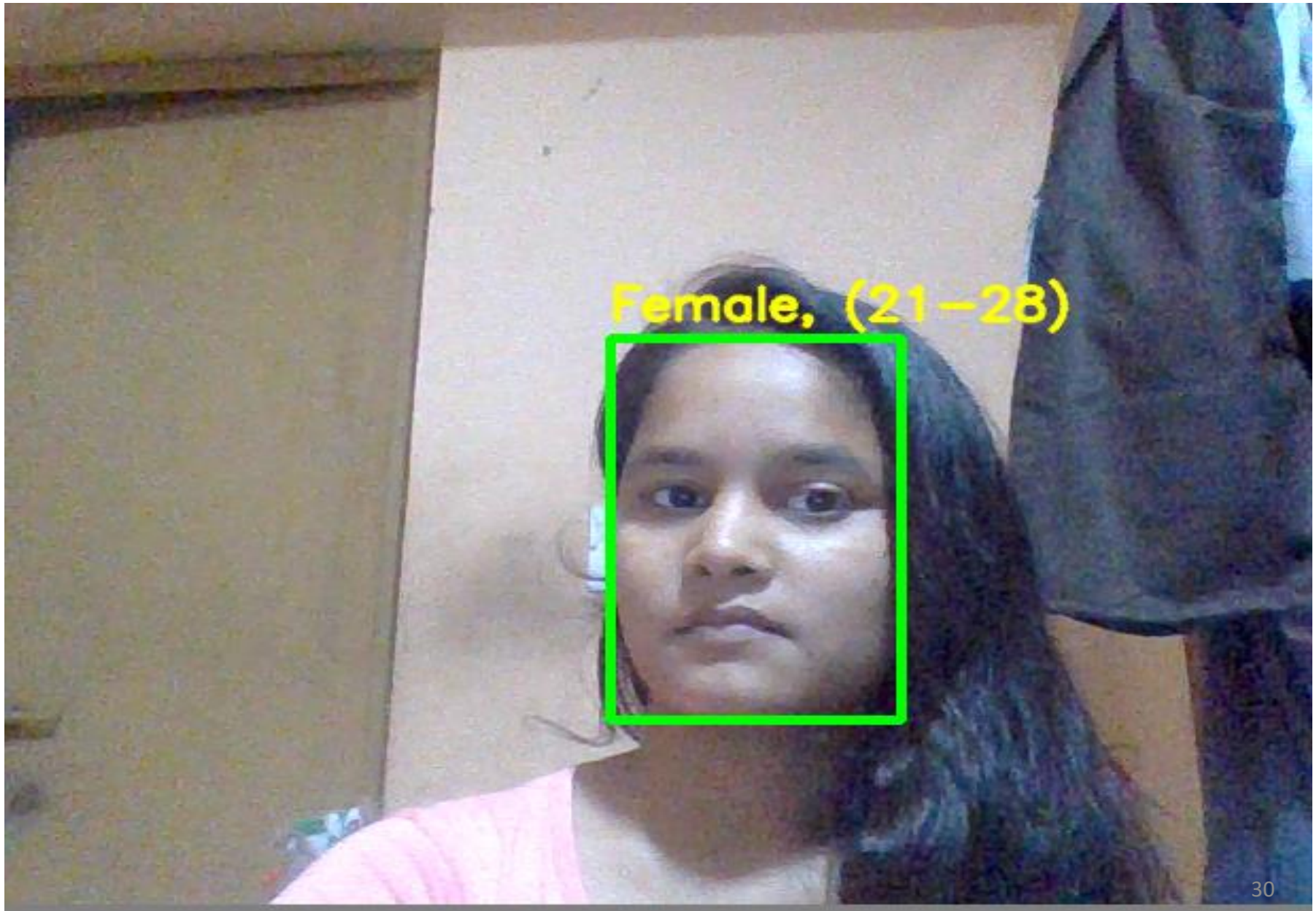
PLEASE ENTER YOUR CHOICE

WEBCAM

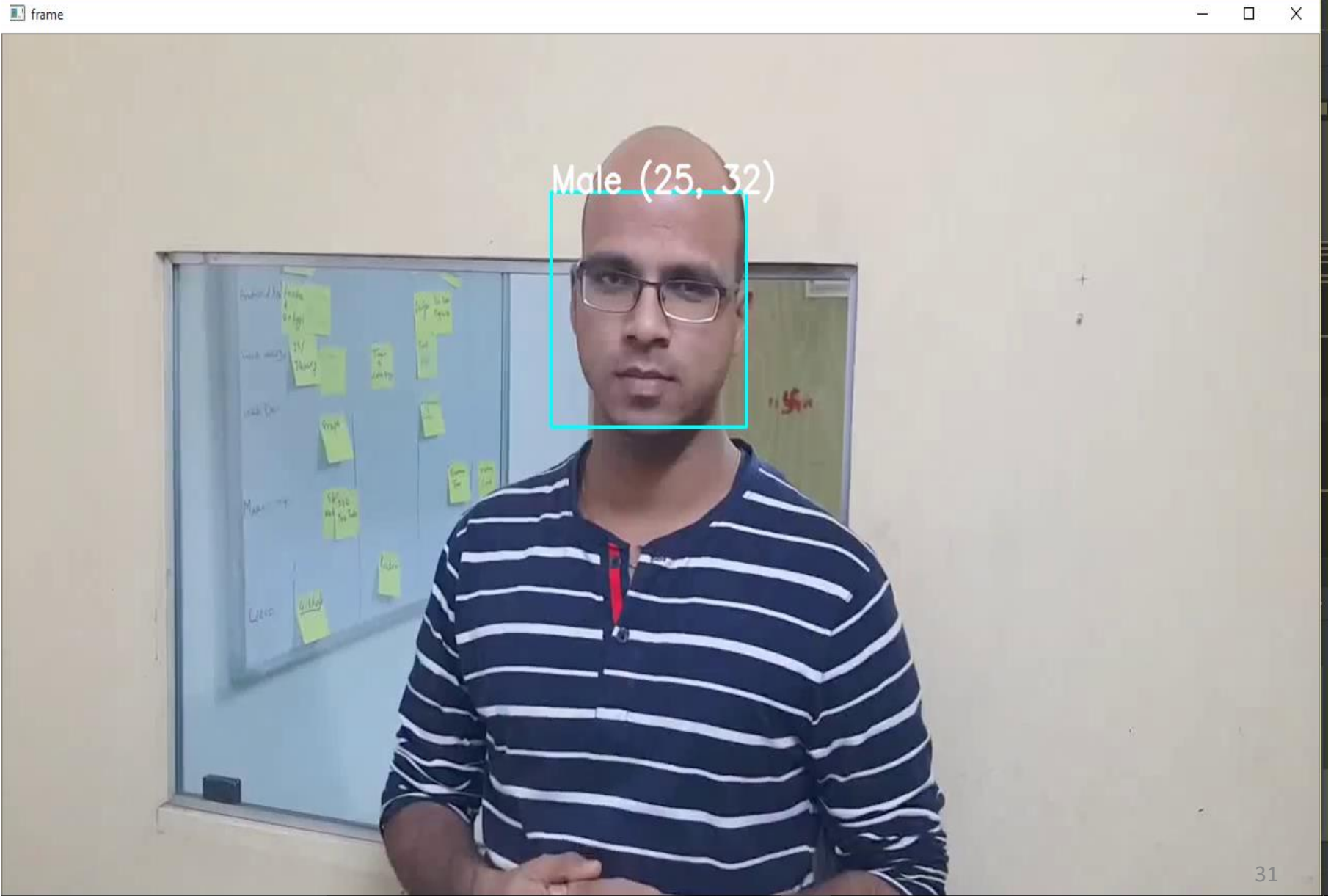
YOUTUBE URL

9.5 Output (Using Webcam)

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9.6 Output (Using YouTube)




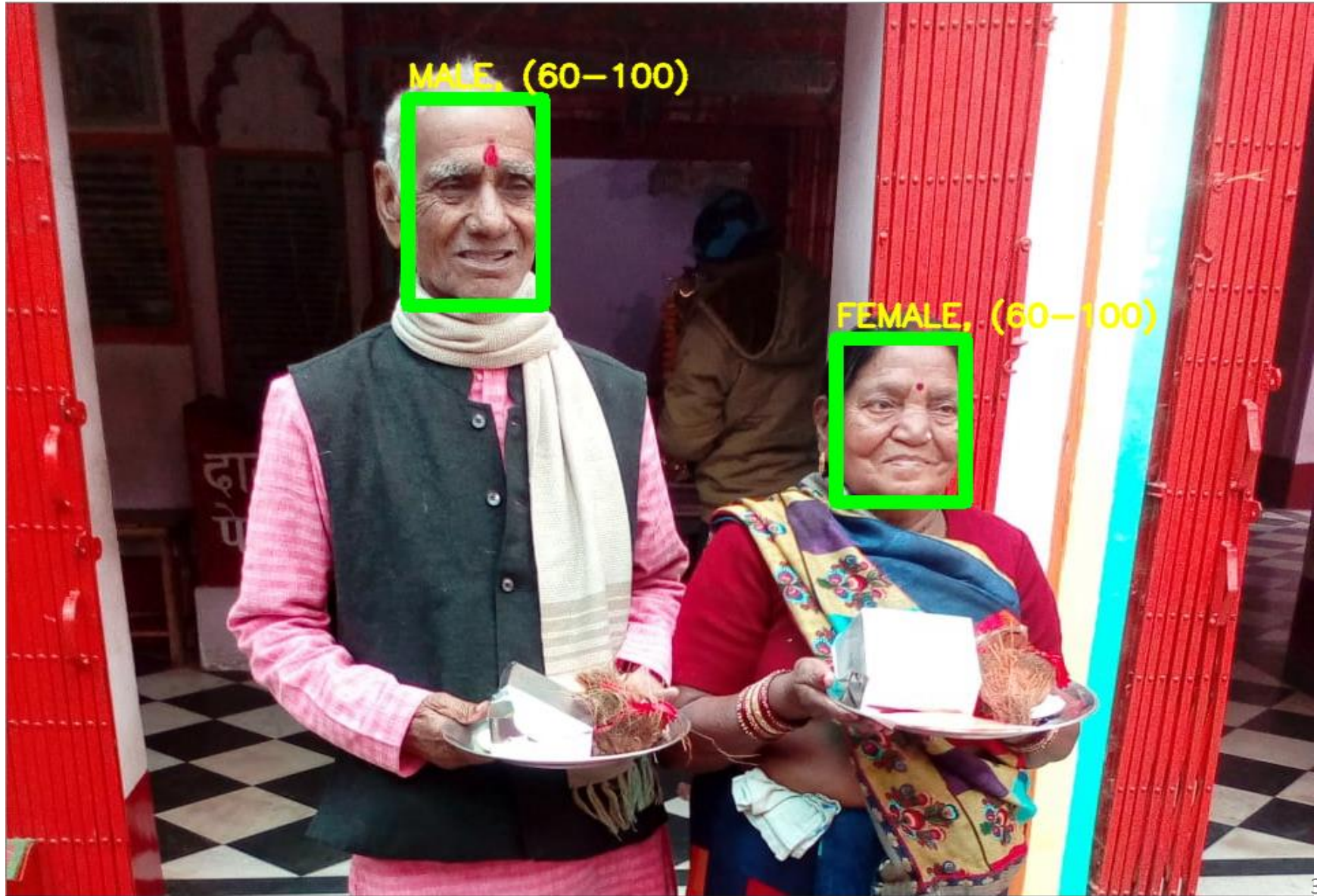
9.7 Output (Using Images)

Detecting age and gender



9.8 Output (Using Multiple Images)

 Detecting age and gender



THANKU!