

DESIGN & DEVELOPMENT OF GEN-AGE DETECTION SYSTEM

Presented by:

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Project Guide:

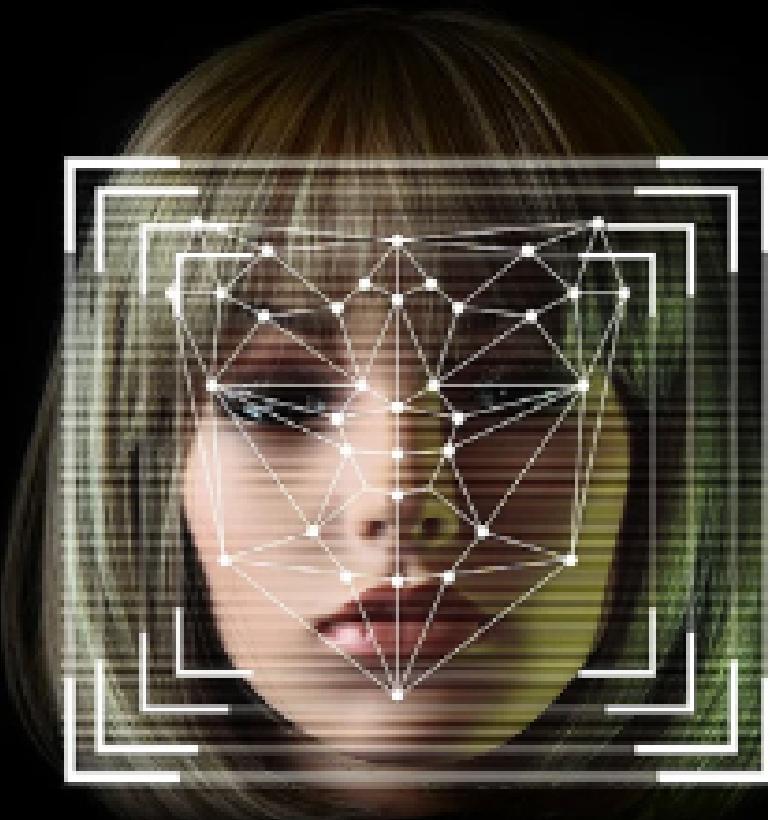
Dr. Vasima Khan

ABSTRACT

Automatic age and gender classification has become relevant to an increasing amount of applications, particularly since the rise of social platforms and social media.

Performance of existing methods on real-world images is still significantly lacking.

Through this project, an attempt has been made to determine gender and age based on the frame of the person.

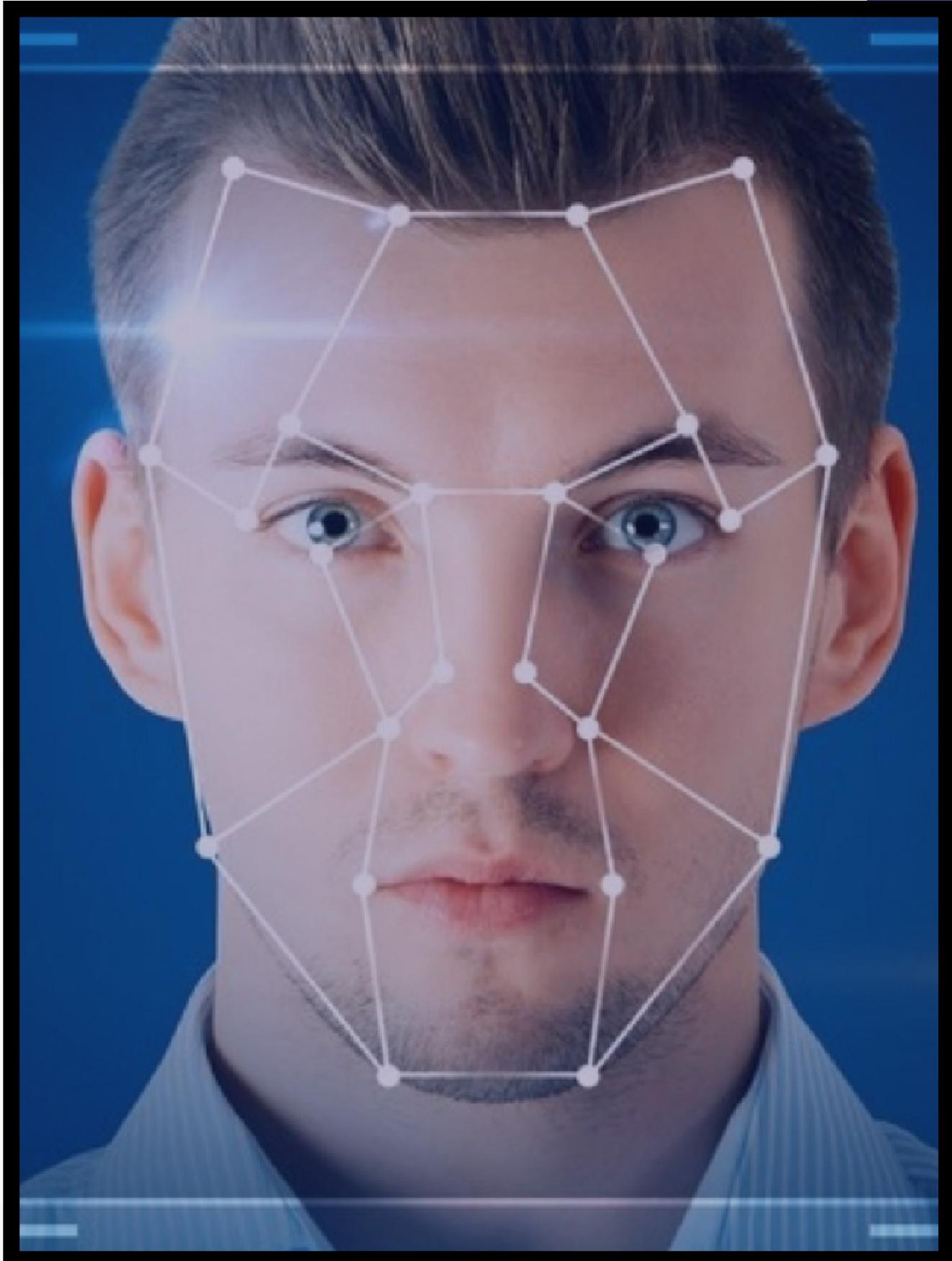


INTRODUCTION

Facial analysis from images has gained a lot of interest because it helps in several different problems like better ad targeting for customers, better content recommendation system, security surveillance, and other fields as well.

Age and gender are a very important part of facial attributes and identifying them are the very basic of facial analysis and a required step for such tasks.

Many companies are using these kinds of tools for different purposes making it easier for them to work with customers, cater to their needs better and create a great experience for them.



TECHNOLOGIES & TOOLS



Python
Flask Framework
Visual Studio IDE



Libraries included:
OpenCV (Image Detection)
Pandas
NumPy etc.



FUNCTIONAL REQUIREMENTS

Image Processing:

- The system should be able to accept images in various formats (JPEG, PNG, etc.).

Age Prediction:

- The model should output the estimated age within a reasonable range (e.g., 0-100 years).

Gender Prediction:

- The model should classify gender into categories (e.g., male, female, non-binary).

Web Interface:

- Create a user-friendly web interface accessible via browsers.



NON-FUNCTIONAL REQUIREMENTS

Performance:

- Ensure the system responds promptly to user requests, with minimal latency in predicting age and gender.

Usability:

- Design the web interface to be intuitive and easy to navigate, catering to users with varying levels of technical expertise.

Compatibility:

- Ensure compatibility with a wide range of devices and browsers to maximize accessibility for users.

BRIEF DESCRIPTION

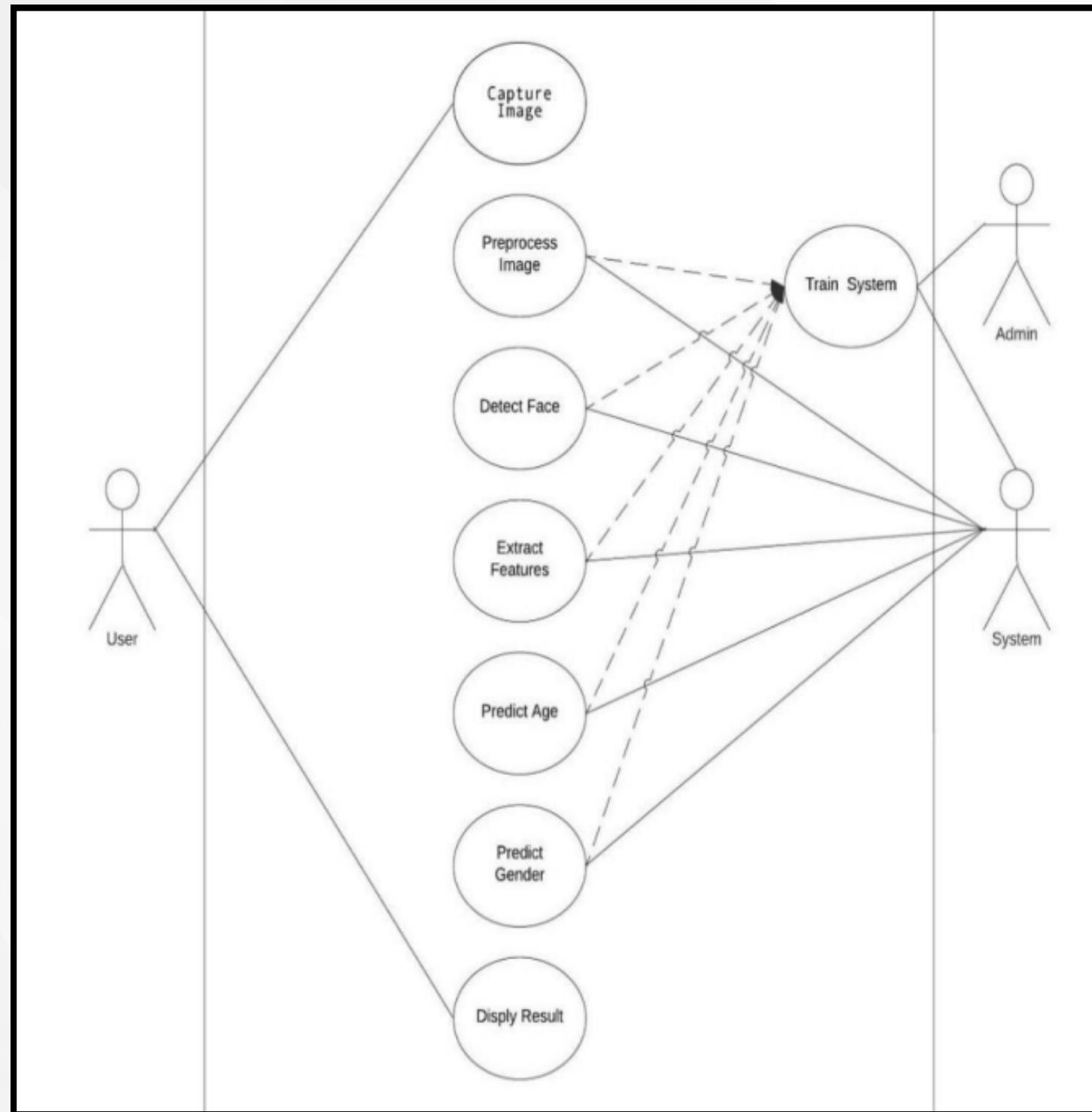
- In this project, we are using "Convolution and Subsampling Layers" to accurately identify the gender and age single image of a face.
- Our proposed model is originally trained on age and gender labeled - Adience dataset which contains 26580 images of 2284 subjects of different age groups and gender.
- We are using the models trained by Tal Hassner and Gil Levi and consider a CNN architecture than traditional algorithms like "Fisherfaces" and "Eigenface" which are created for face recognition and feature relation methods, but these do not work as well as needed.
- The predicted gender may be one of 'Male' and 'Female', and the predicted age may be one of the following ranges- (0-2), (4-6), (8-12), (15-20), (25-32), (38-43), (48-53), (60 100) (8 nodes - in the final layer).
- The Accuracy achieved in Age Prediction is 53.96%(exact) and 86.72%. of Gender Prediction
- 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 are making this a classification problem instead of making it one of regression.



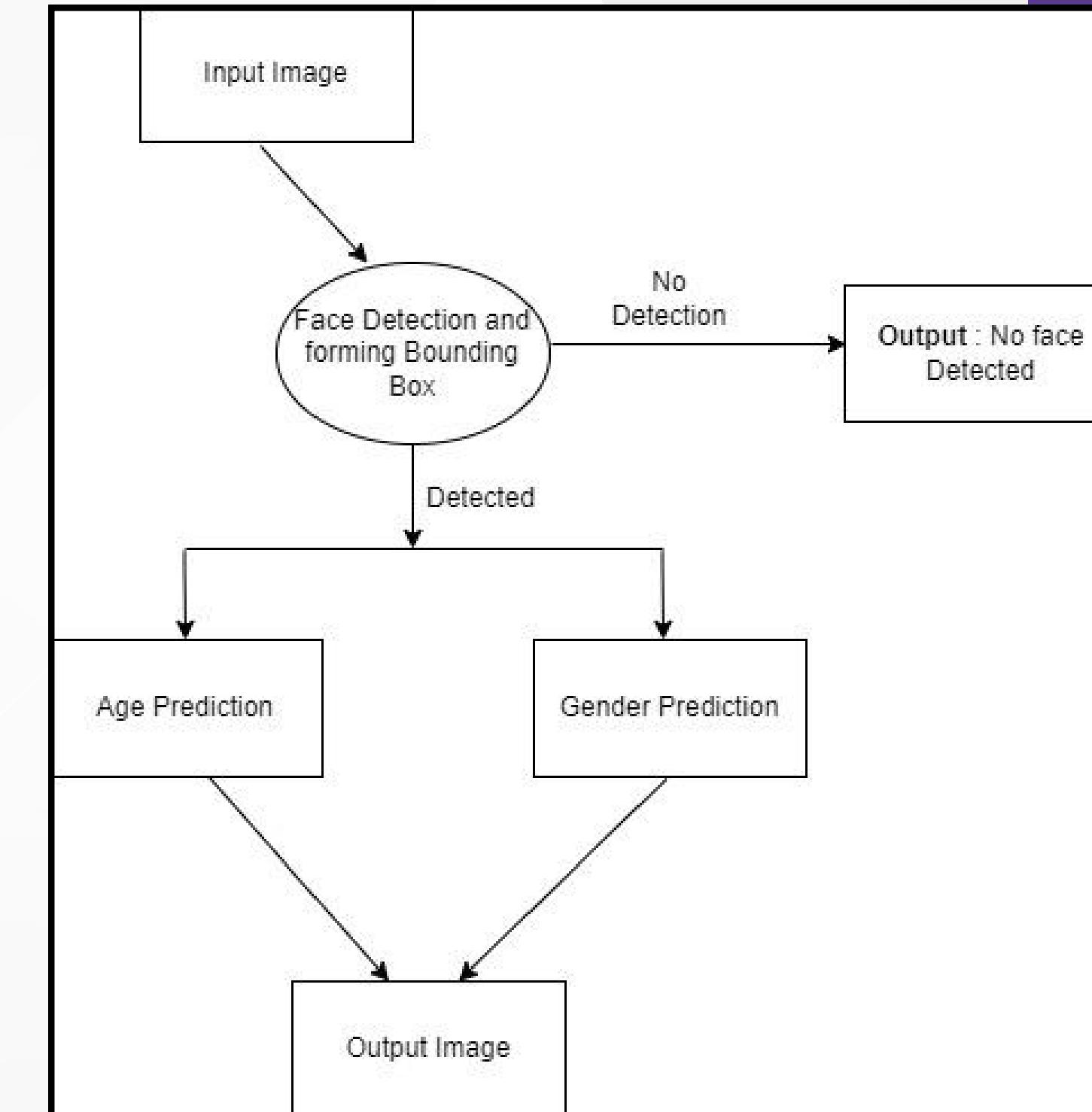
Age Group	True Male	False Male	True Female	False Female
(0-2)	55	32	88	12
(3-9)	561	221	793	138
(10-19)	784	216	645	70
(20-29)	1701	222	1484	53
(30-39)	1157	166	1752	44
(40-49)	641	105	1062	26
(50-59)	382	65	645	22
(60-69)	190	56	249	6
(70+)	90	28	69	5

DESIGN

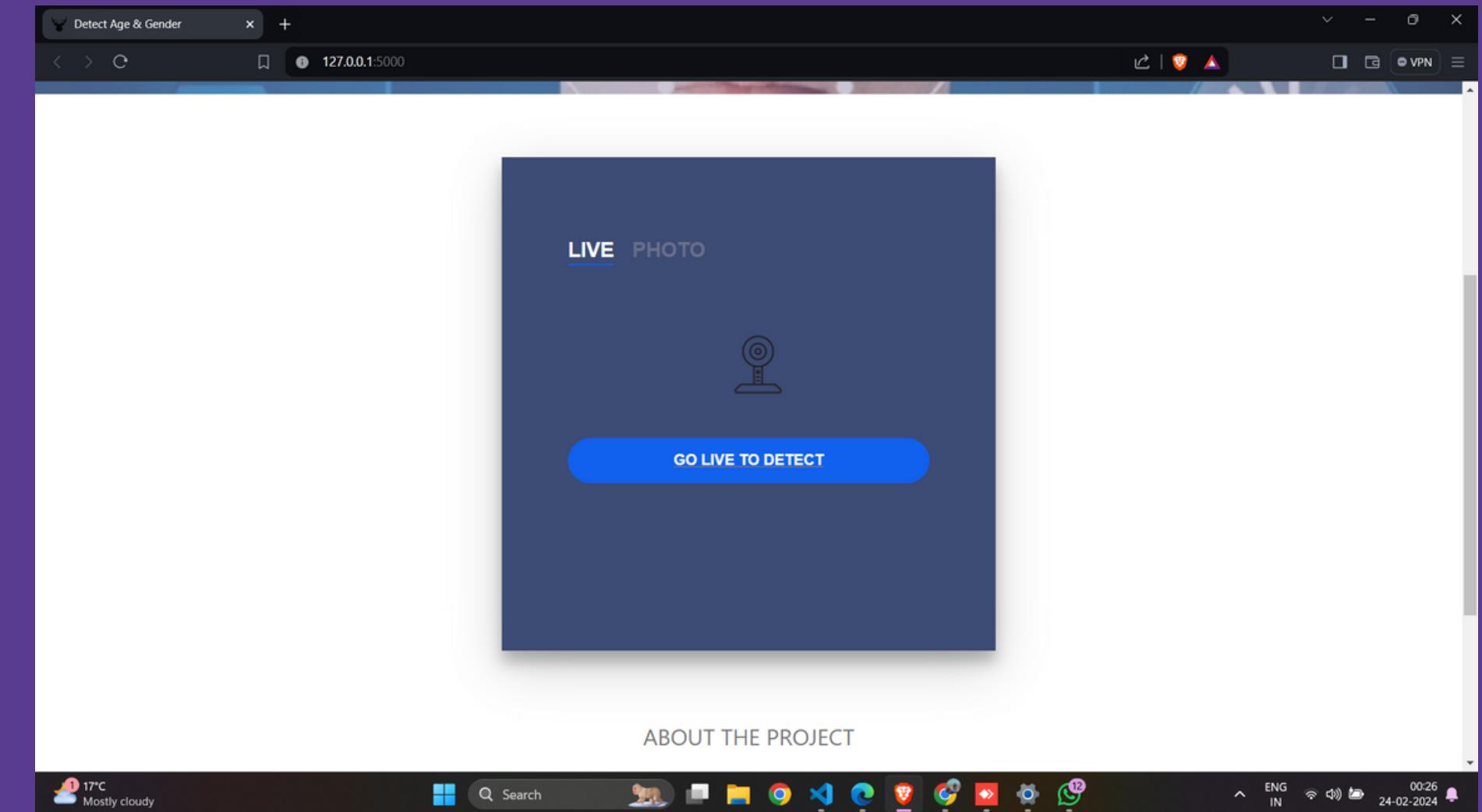
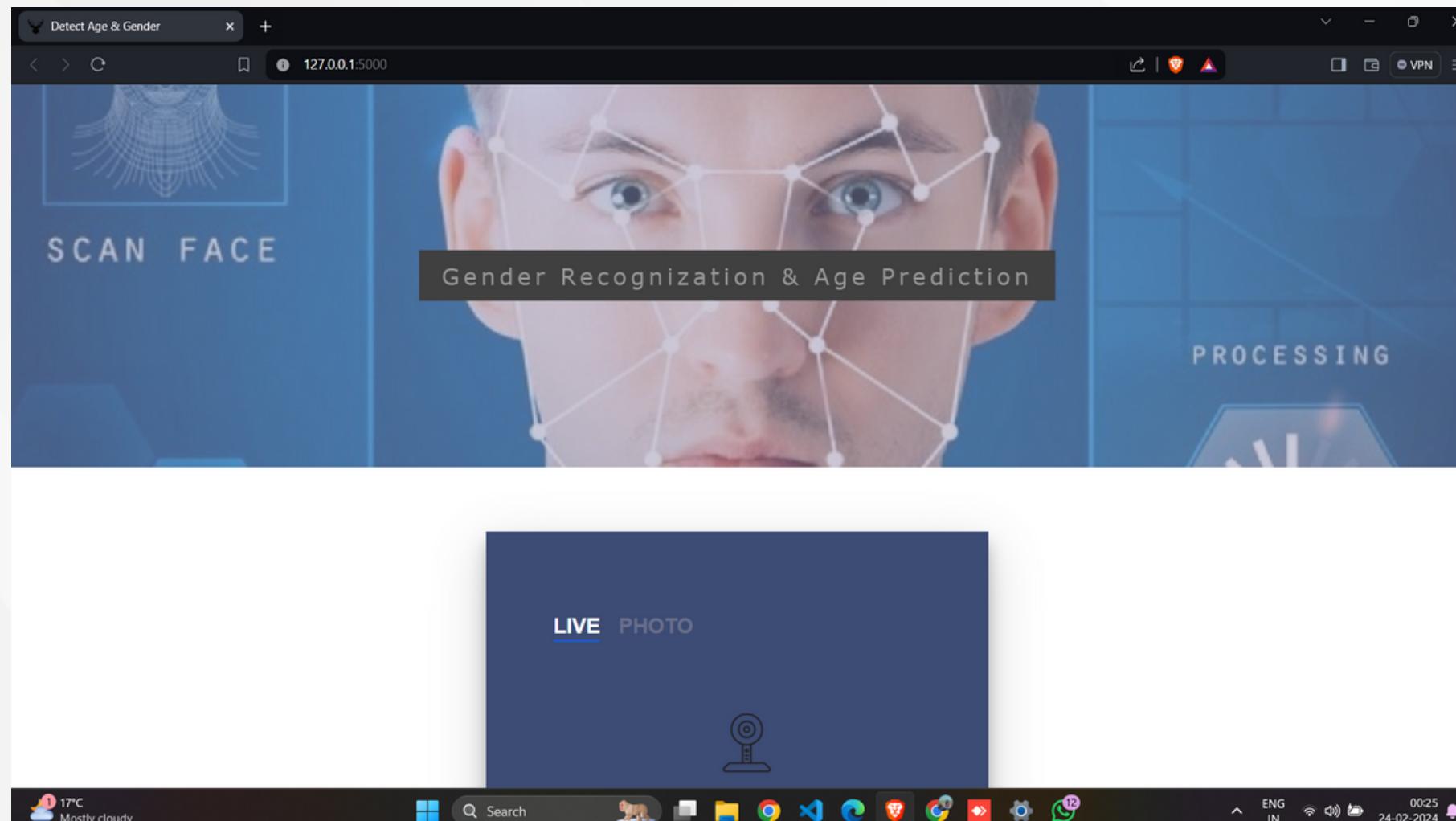
USE CASE DIAGRAM



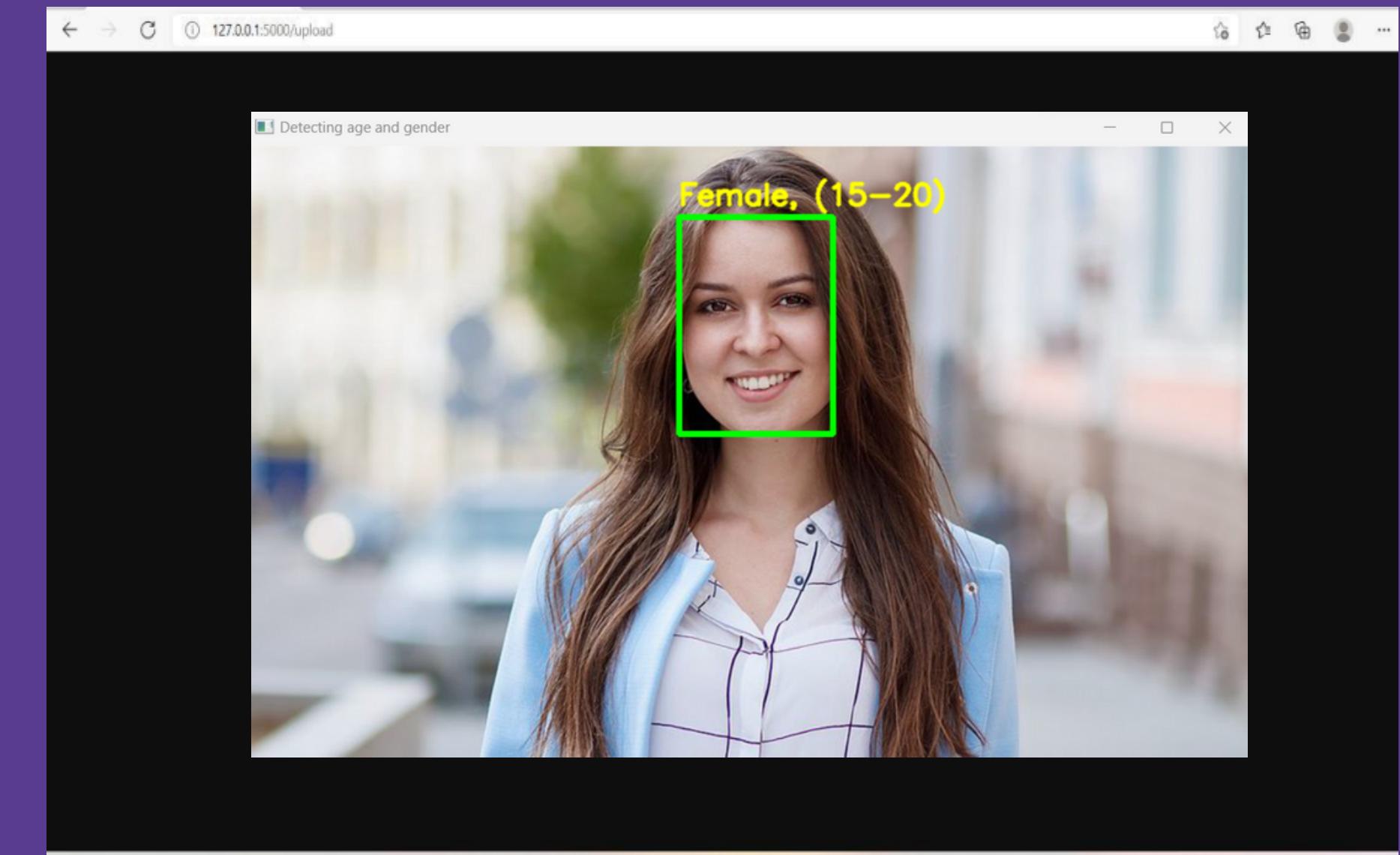
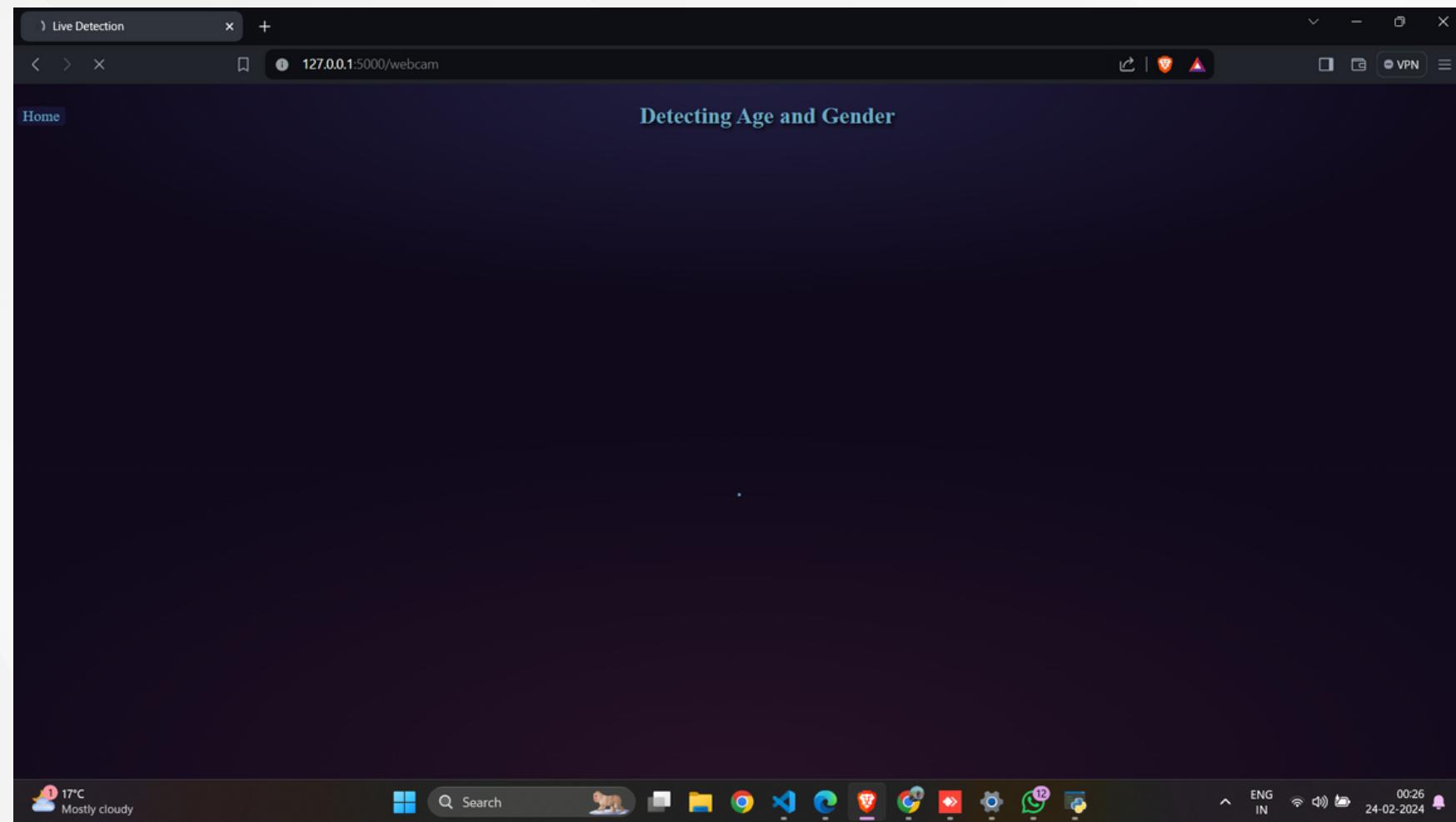
DATA FLOW DIAGRAM

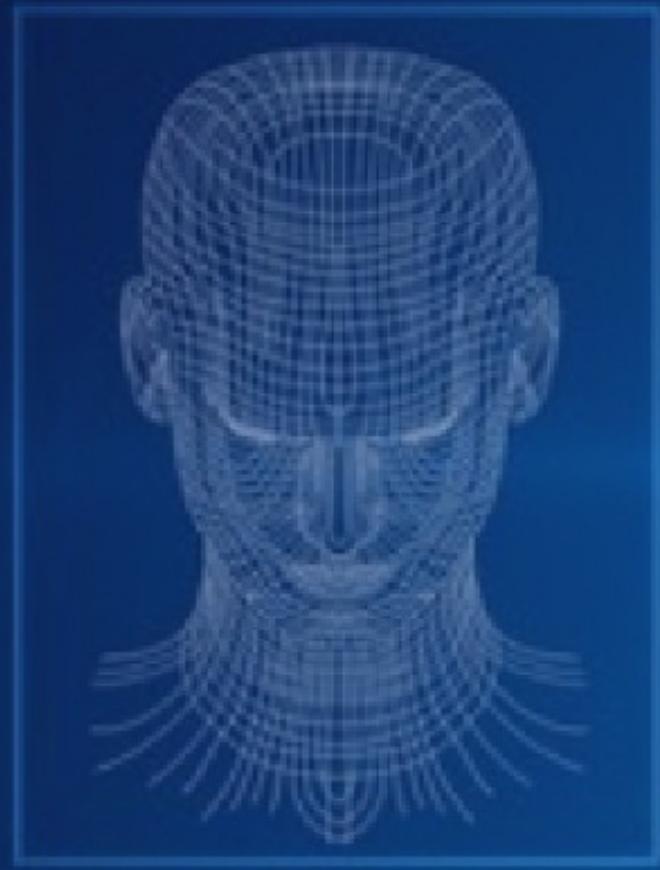


OUTPUT SCREENS

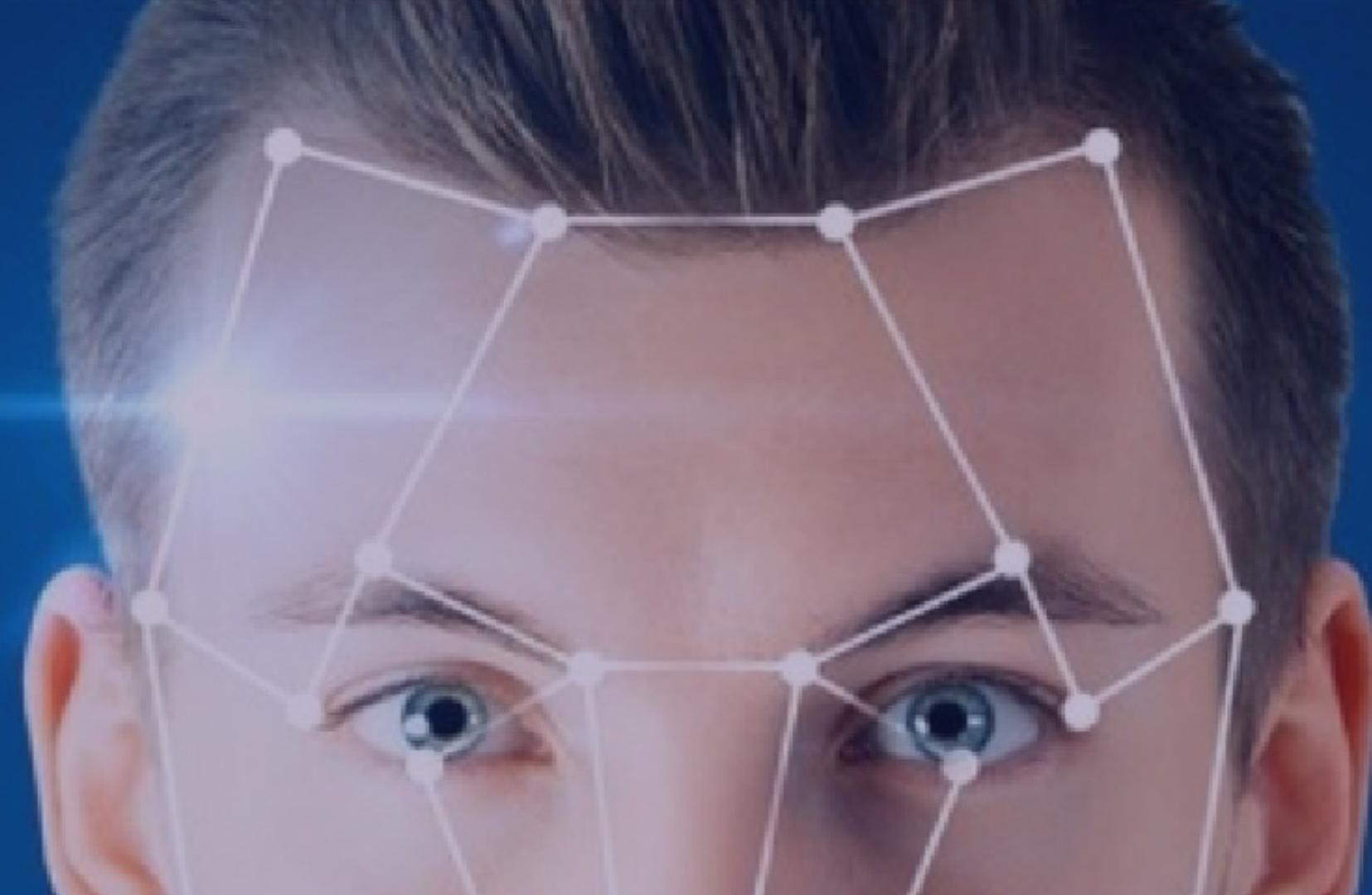


OUTPUT SCREENS





SCAN FACE



PROCESSING

THANK YOU

Sagar Institute of Science & Technology (SISTec), Bhopal

Department of CSE-Artificial Intelligence & Data Science