

“Smart Attendance System Using Face Recognition”

:- The Extreme

Team Details

S.No.	Names	Roles
1.	Tanmaya Chaudhary	Team Leader
2.	Mukul Sharma	Project Associate
3.	Vipin Gupta	Project Associate

Problem Statement

- As we can see that there is lot of time wasted in marking attendance of employees, students of schools & colleges.
- Take an example as there is a conference organised by Google then there are lot of people coming from different places to attend it.
- At the time of the Conference they generally mark attendance by scanning the ID of the employees & it creates a crowd at the place where attendance is marked.
- Similarly same in the colleges faculties waste so much time in marking attendance of students via pen & paper.
- So to reduce this time & give a flexible and fast method for marking attendance we develop this project.

Solution Purposed

- The system consists of a camera that captures the images of employees/students and sends it to the image enhancement module.
- After enhancement the image comes in the Face Detection and Recognition modules.
- Then the attendance is marked on the database.
- At the time of enrolment, templates of face images of individual employees/students are stored in the Face database.
- Here all the faces are detected from the input image and the algorithm compares them one by one with the face database.

Working

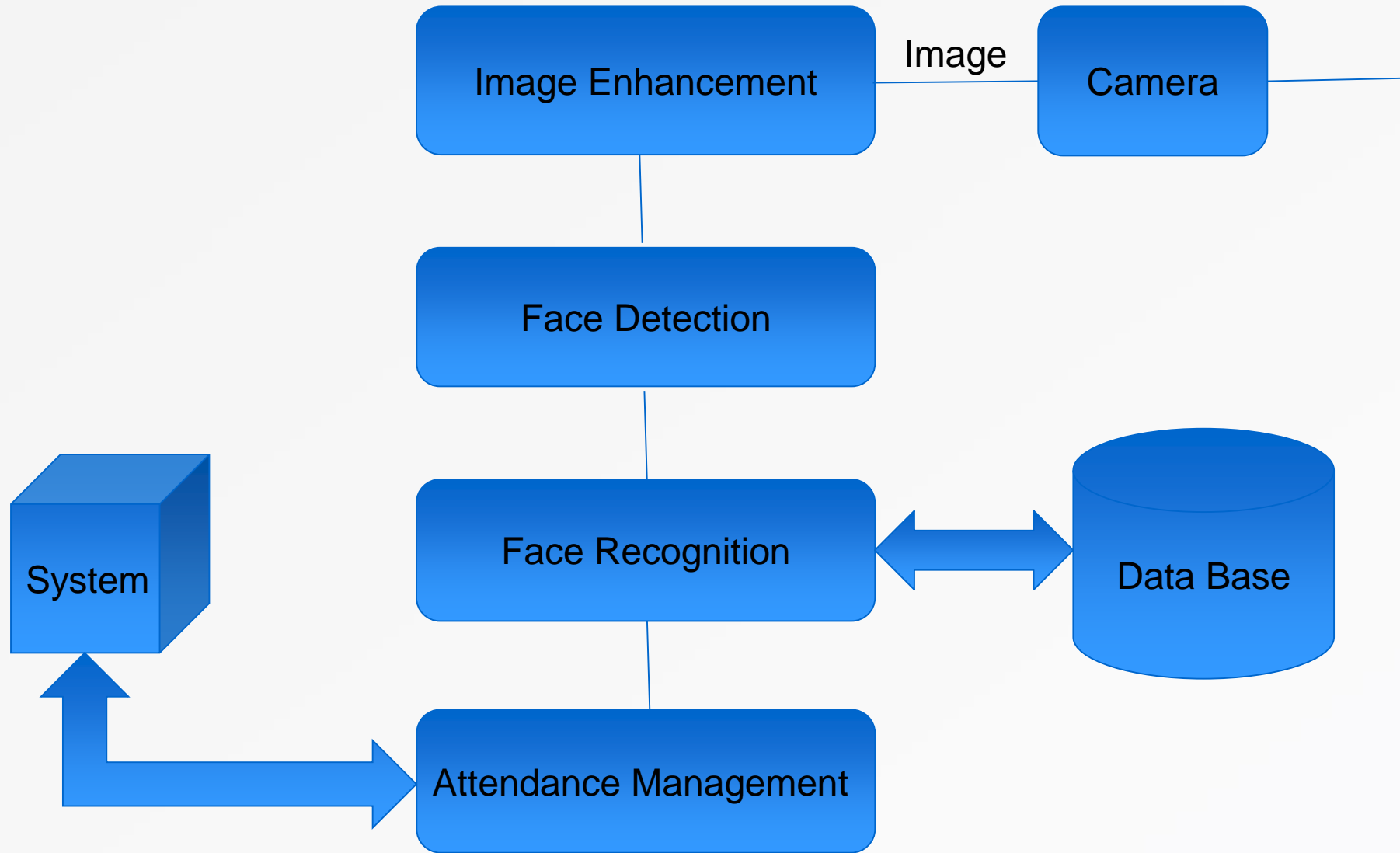



Figure 1

Working Steps

- In this, first the skin is classified and then only face skin embedding are taken remains and all other pixels in the image are not taken, this greatly enhance the accuracy of face detection process.
- Two databases are displayed in the experimental setup.
- Face Database is the collection of face images and extracted features at the time of enrolment process.
- Second attendance database contains the information about the employees/students and also uses to mark attendance.

Modules

1. Image Capture.
 2. Image Enhancement.
 3. Face Detection.
 4. Face Recognition.
 5. Attendance Management.
- 
- A decorative graphic on the right side of the slide, consisting of several overlapping, curved, wavy shapes in shades of light blue, yellow, and a darker blue at the bottom right corner.

Experimental Setup

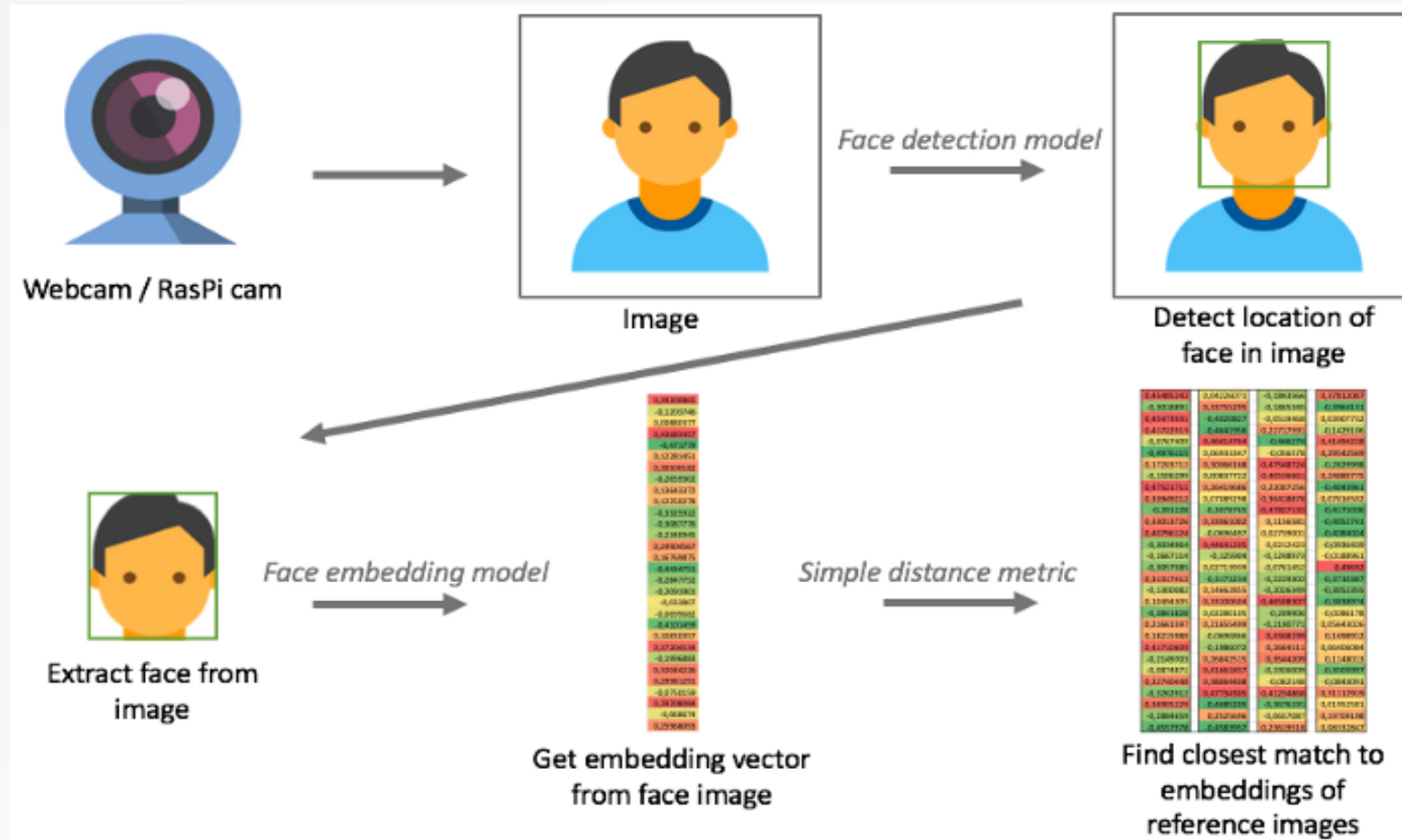


Figure 2

Technical Requirements:

Software Requirement

Software Used	Version	Used Because
Python 3 or Higher	3.7	It is Basic Need
Windows 10, Linux DPIN or higher or MacOS		Operating System

Hardware Requirement

A Computer System which have folllowing confugurations :

Name	Minimum Requirements	Optimal Requirements
Processor	Intel i5	Intel i5 or higher
RAM	4 GB	6 GB
Camera	5mp HD Cam	5mp or higher

Demonstration in Companies Like -

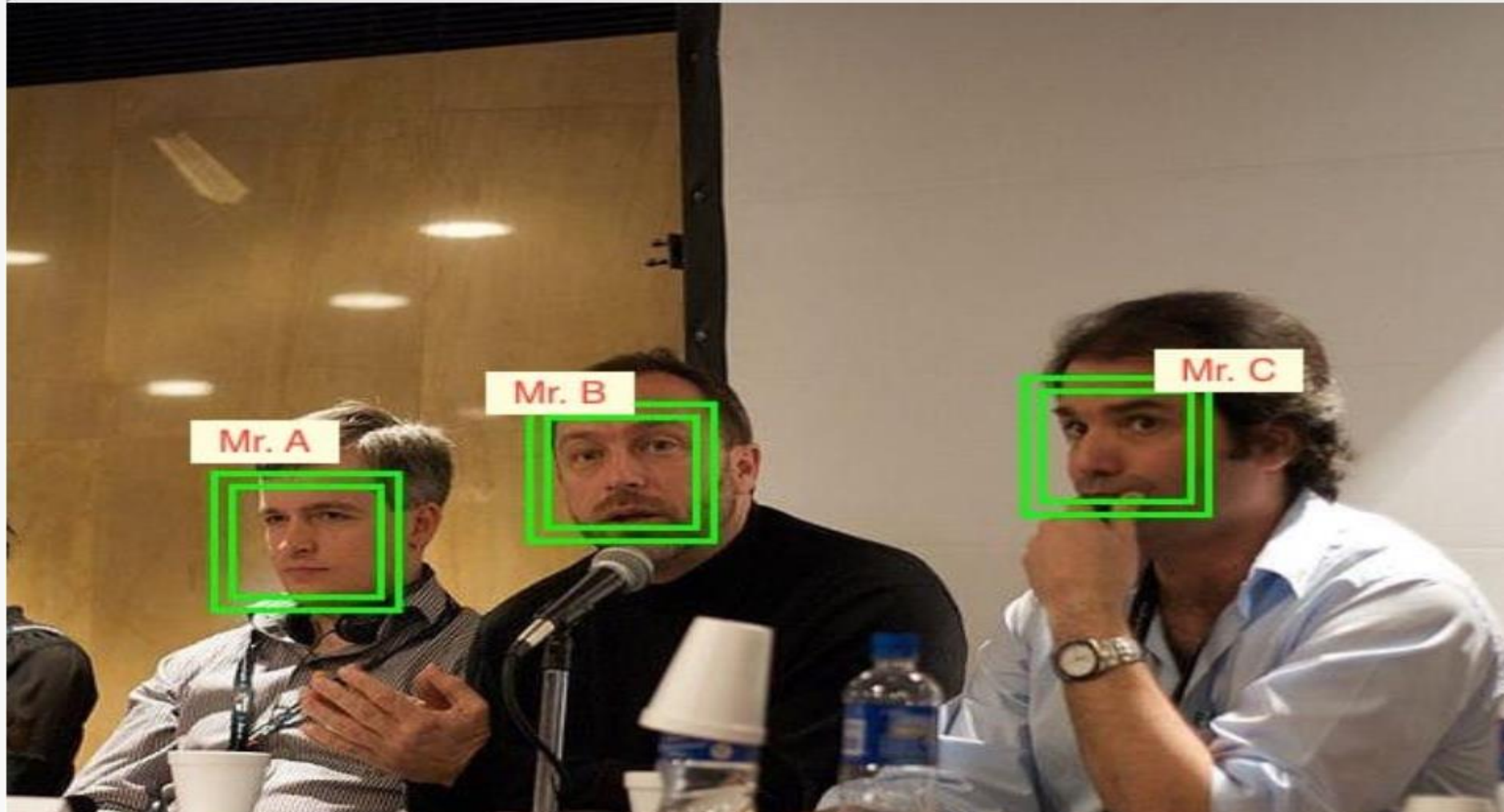


Figure 3

Model of Deep Learning

Facenet



Figure 4

Face Net

- This Face recognition/verification/clustering model learns a mapping from images to a compact Euclidean space where distances directly correspond to a measure of face similarity

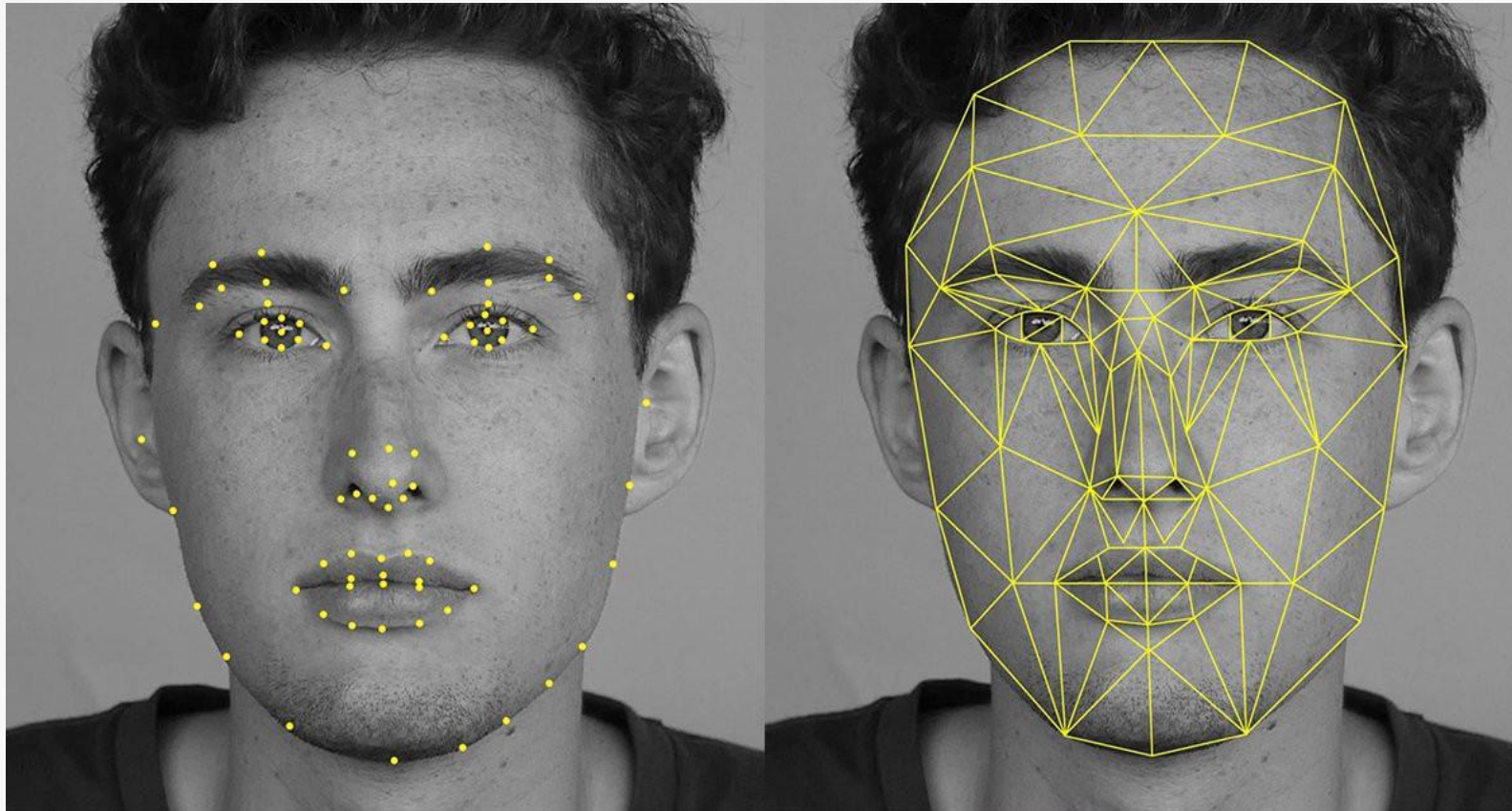
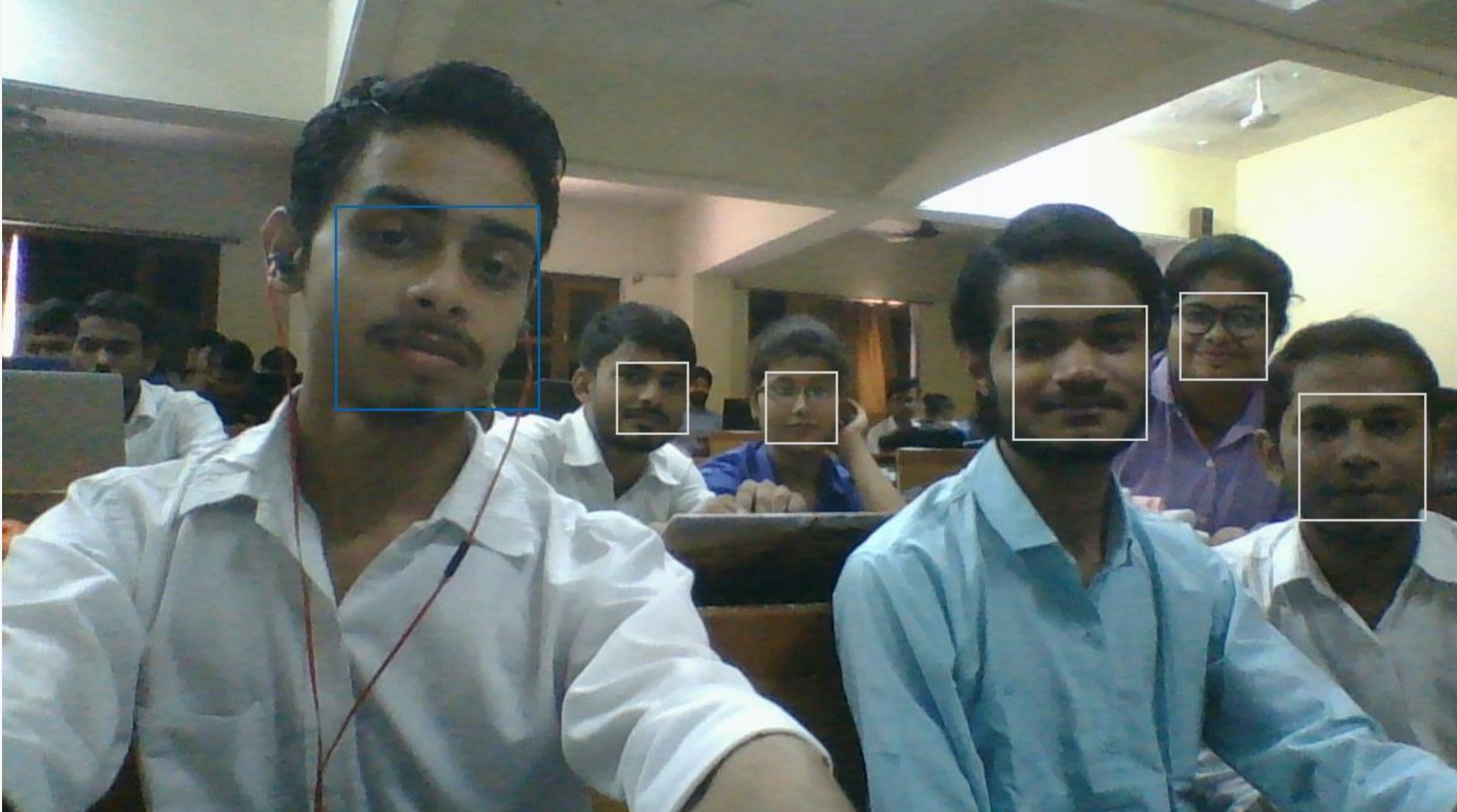


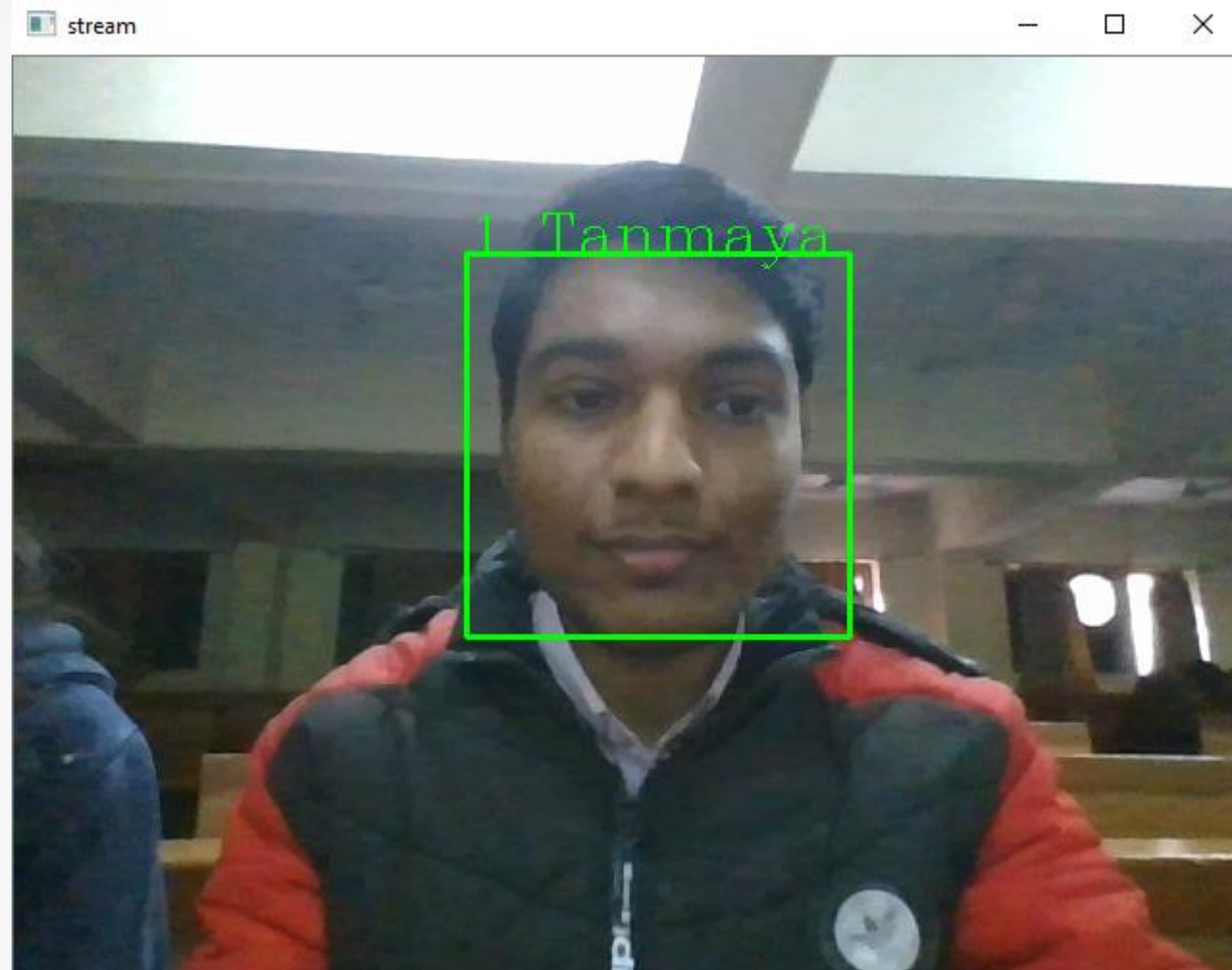
Figure 5

Working of our Live Face Detection Model



Screenshot: 1

Implementation Of Face Recognition With FaceNet Model



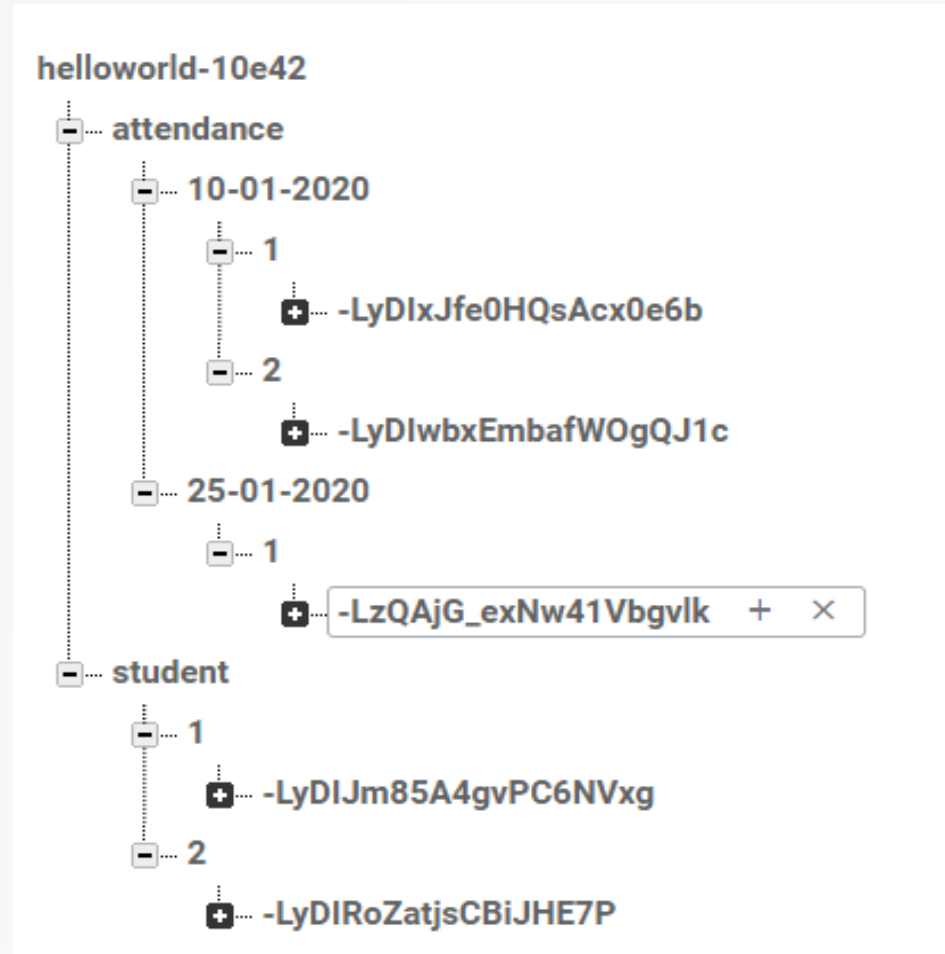
Screenshot: 2

Implementation of the code used for enrolling

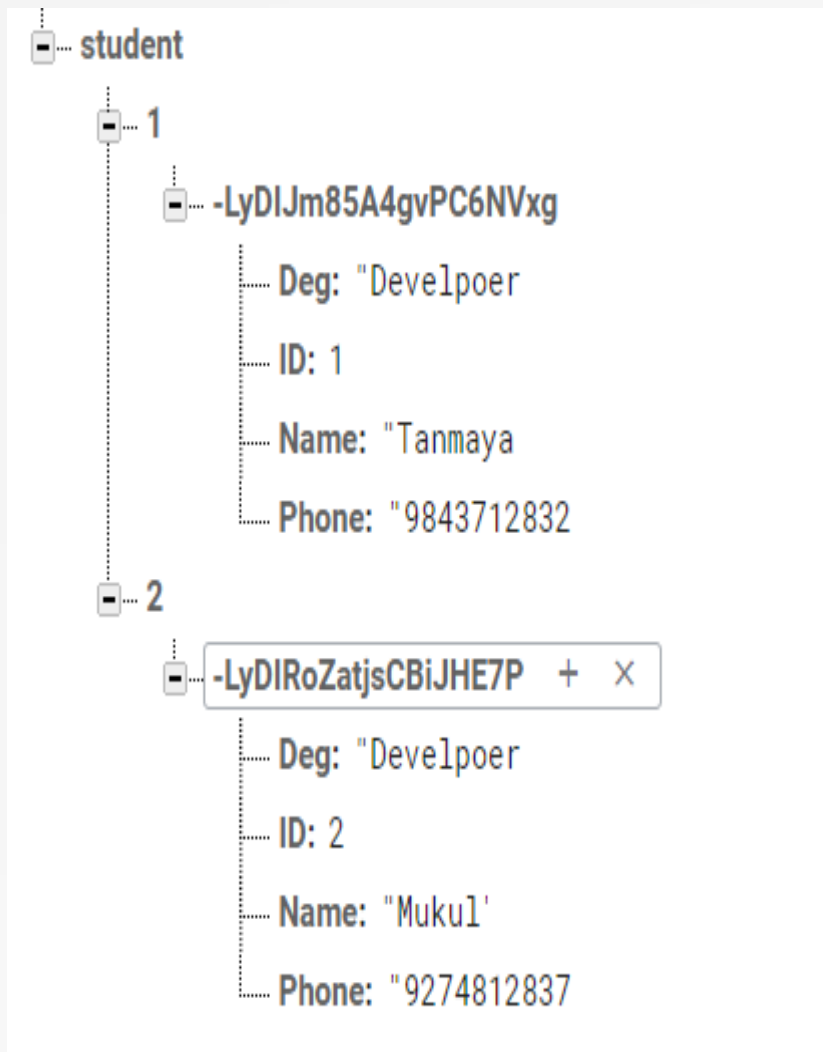
```
File Not Present
0
Press 1 for enroll new record & 0 for exit 1
Enter Name Tanmaya
Enter Designation Develpoer
Enter Contact No. 9843712832
samples collect sucessefully
1
Press 1 for enroll new record & 0 for exit 1
Enter Name Mukul
Enter Designation Develpoer
Enter Contact No. 9274812837
samples collect sucessefully
2
Press 1 for enroll new record & 0 for exit 0
```

Screenshot: 3

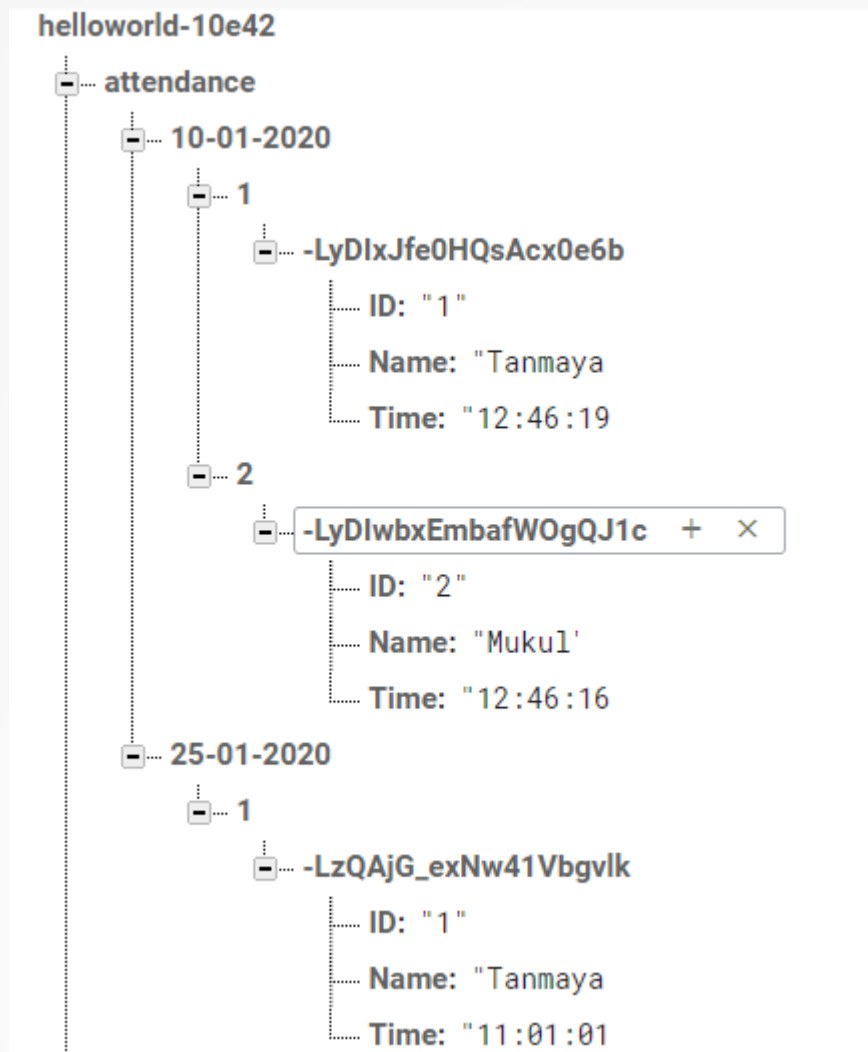
Screenshot of database with it's structure



Screenshot: 4



Screenshot: 5

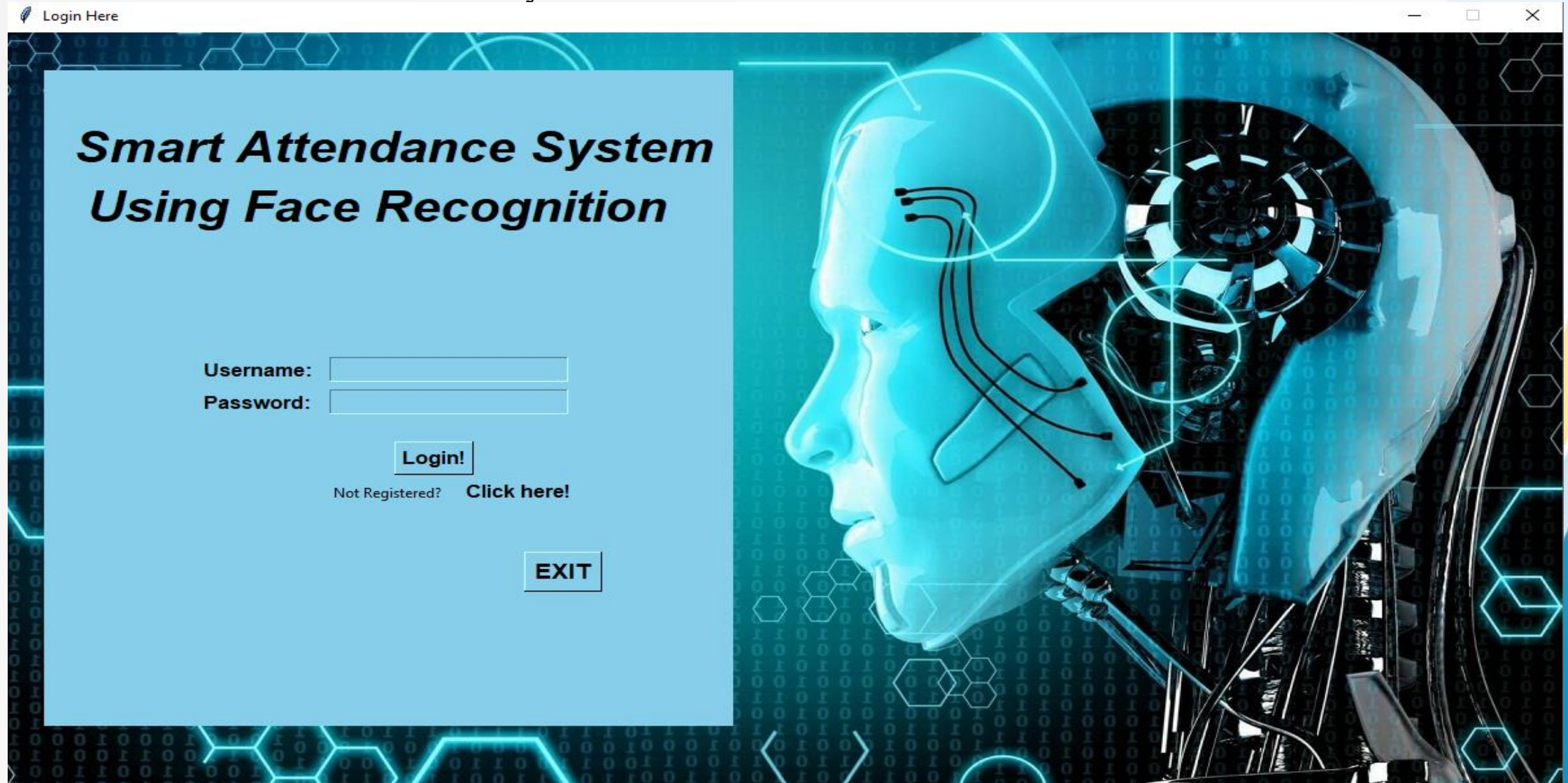


Screenshot: 6

A Brief Introduction of GUI

Main Application login

- In this user have to enter the already created Username and Password.



The screenshot shows a web application window titled "Login Here". The main heading is "Smart Attendance System Using Face Recognition". Below the heading, there are two input fields: "Username:" and "Password:". A "Login!" button is positioned below the password field. To the left of the "Login!" button is the text "Not Registered?", and to its right is a link "Click here!". At the bottom right of the login area is an "EXIT" button. The background of the application is a futuristic blue and black design featuring a stylized human head profile with glowing lines and a circular mechanical element on the right side.

Login Here

Smart Attendance System Using Face Recognition

Username:

Password:

[Login!](#)

Not Registered? [Click here!](#)

[EXIT](#)

Screenshot: 7

New Admin Sign Up

- In this window New Admin will be able to sign up to the application.



Signup Page

NEW REGISTRATION FOR ADMIN

Name:-

Email:-

Password:-

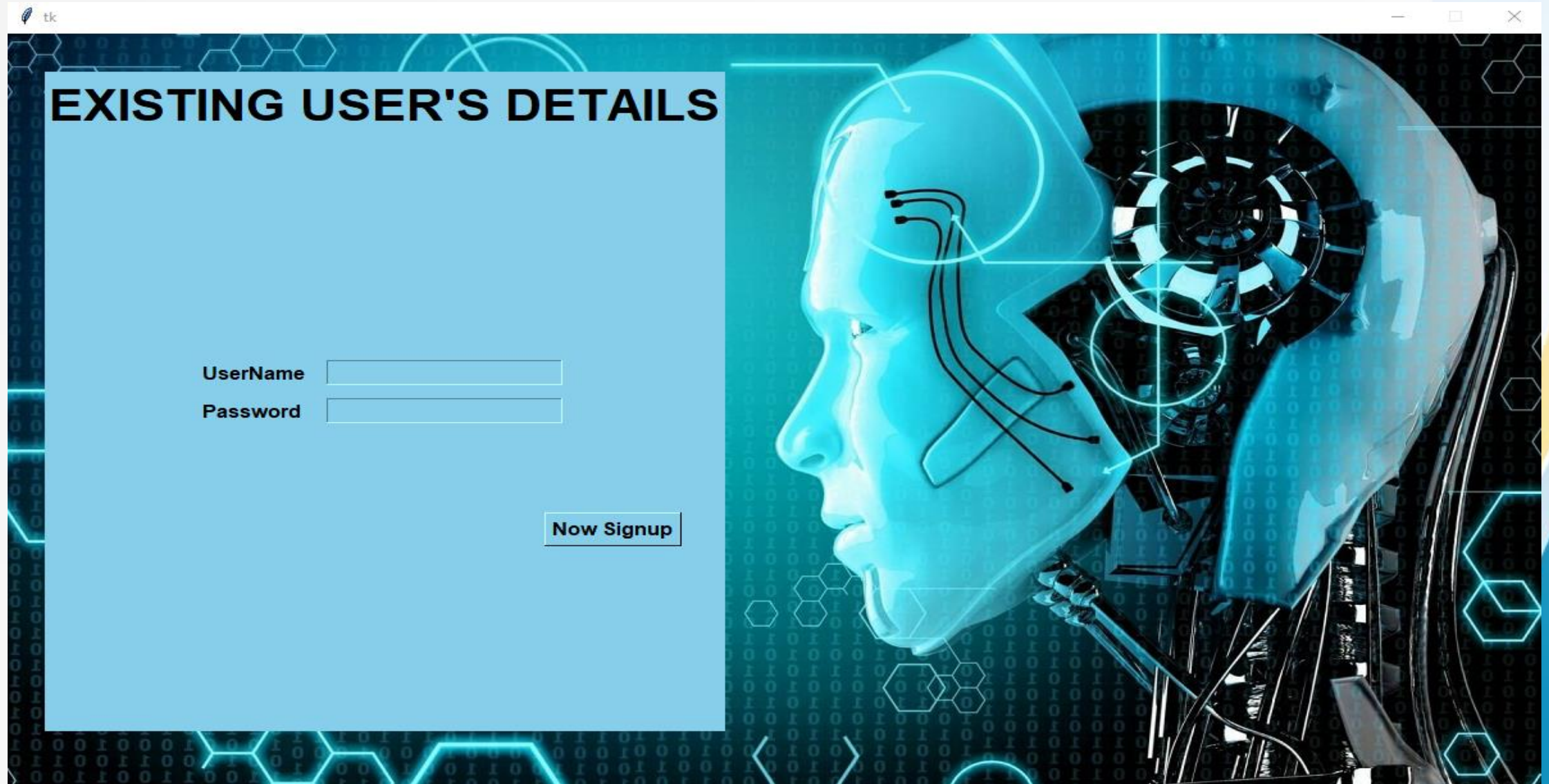
Confirm Password:-

Mobile:-

Signup *EXIT*

Screenshot: 8

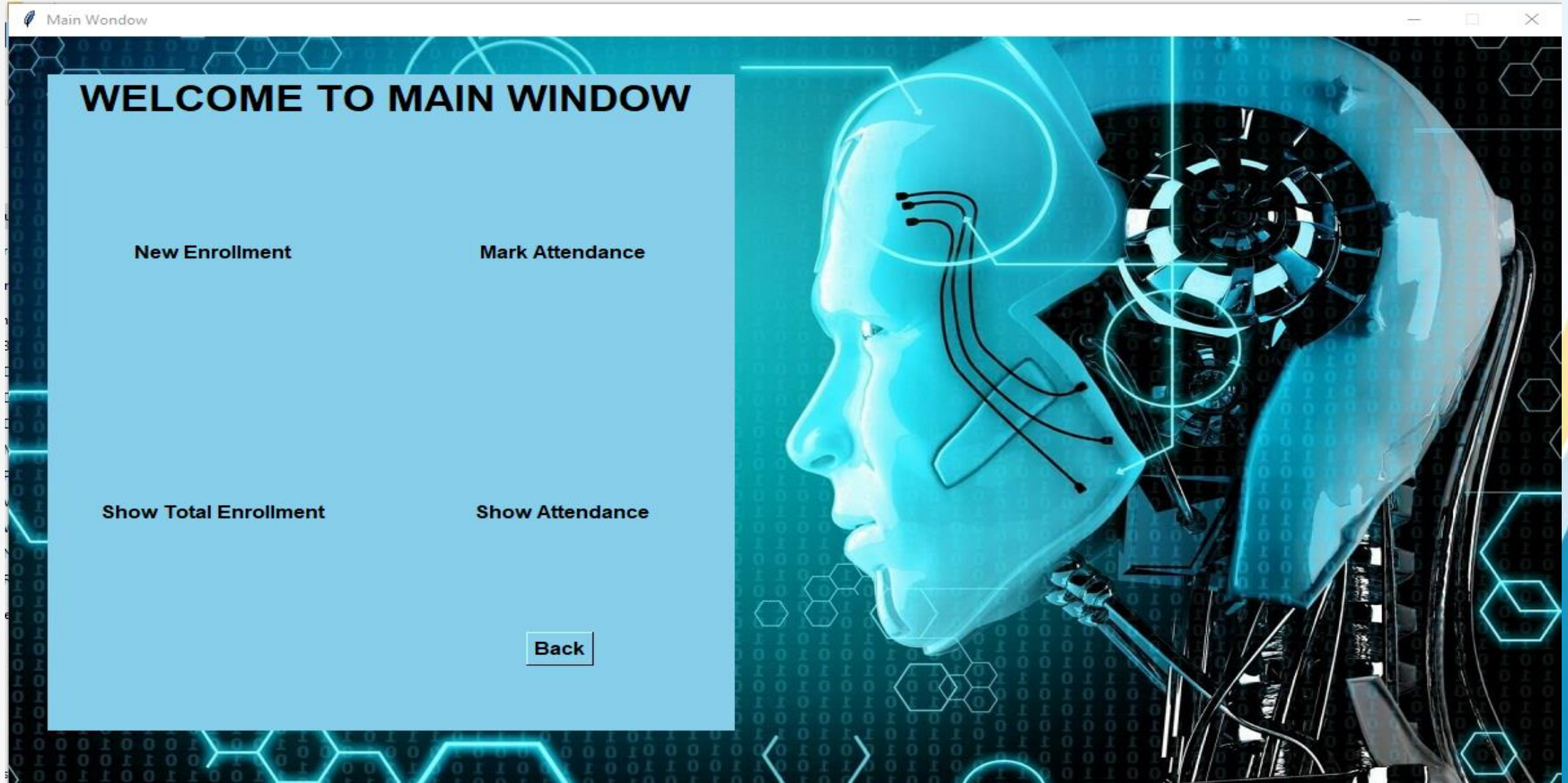
- After the signup for admin, the signup button takes the user to this GUI for the security purpose for sign up for new admin.



Screenshot: 9

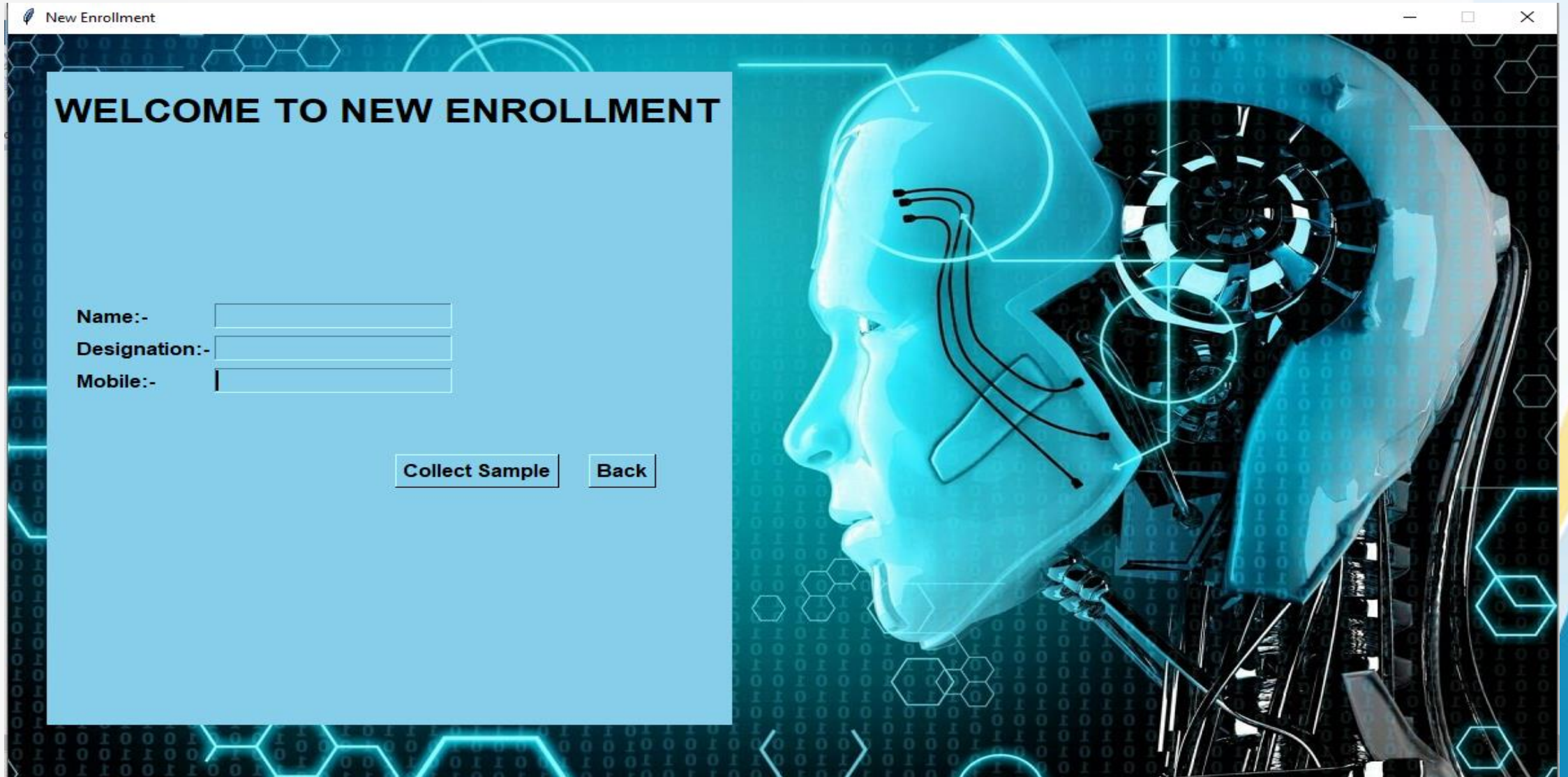
Welcome To Main Window

- All the features are present in this window.



Screenshot: 10

New Enrollment



The screenshot shows a web browser window titled "New Enrollment". The page has a dark blue background with a futuristic, glowing robot head on the right side. The robot head is white with blue glowing lines and a large circular sensor on its forehead. The left side of the page is a light blue rectangular area containing the following text and form elements:

WELCOME TO NEW ENROLLMENT

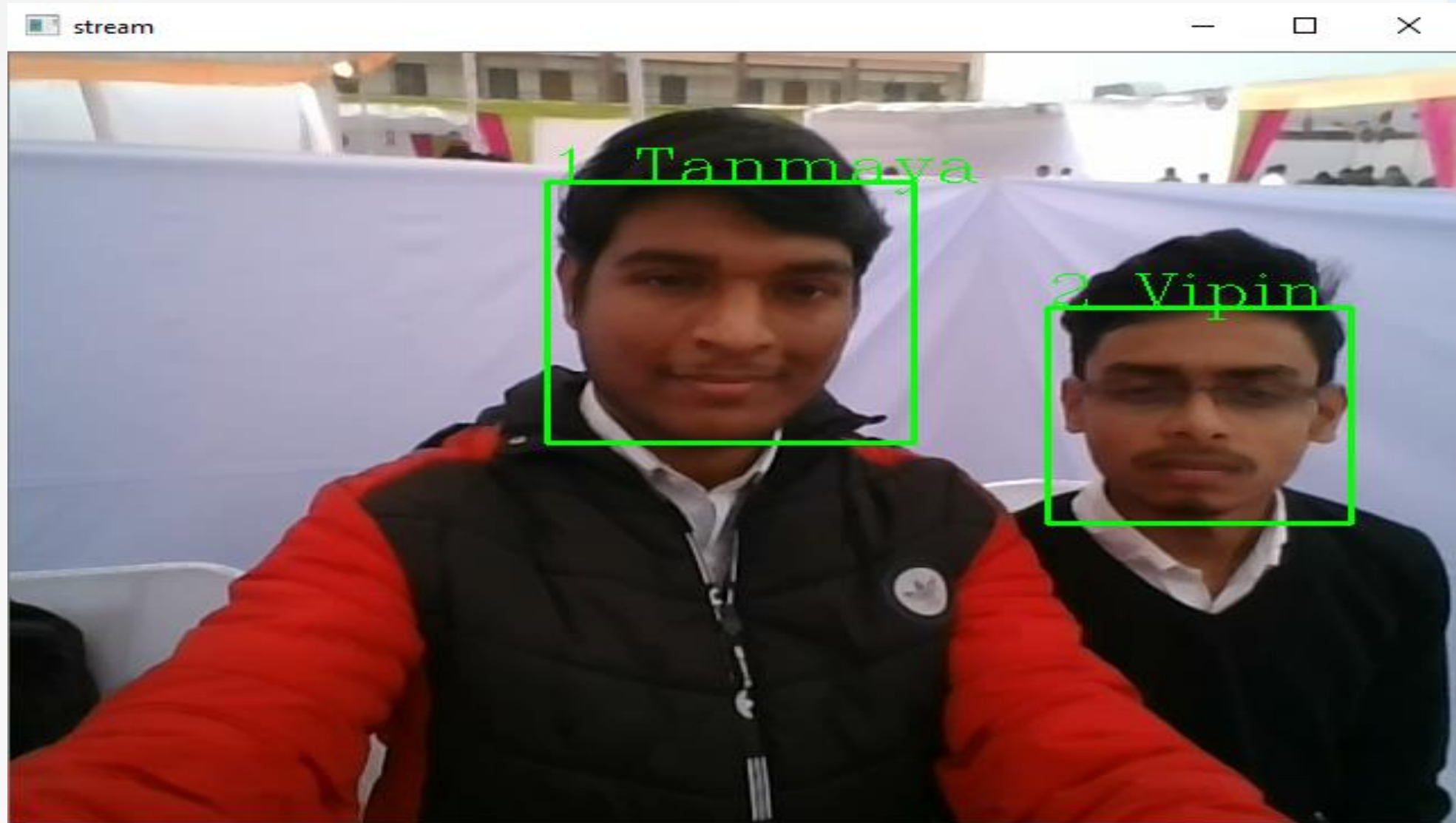
Name:-

Designation:-

Mobile:-

Screenshot: 11

Mark Attendance



Screenshot: 12

Liveness Detection

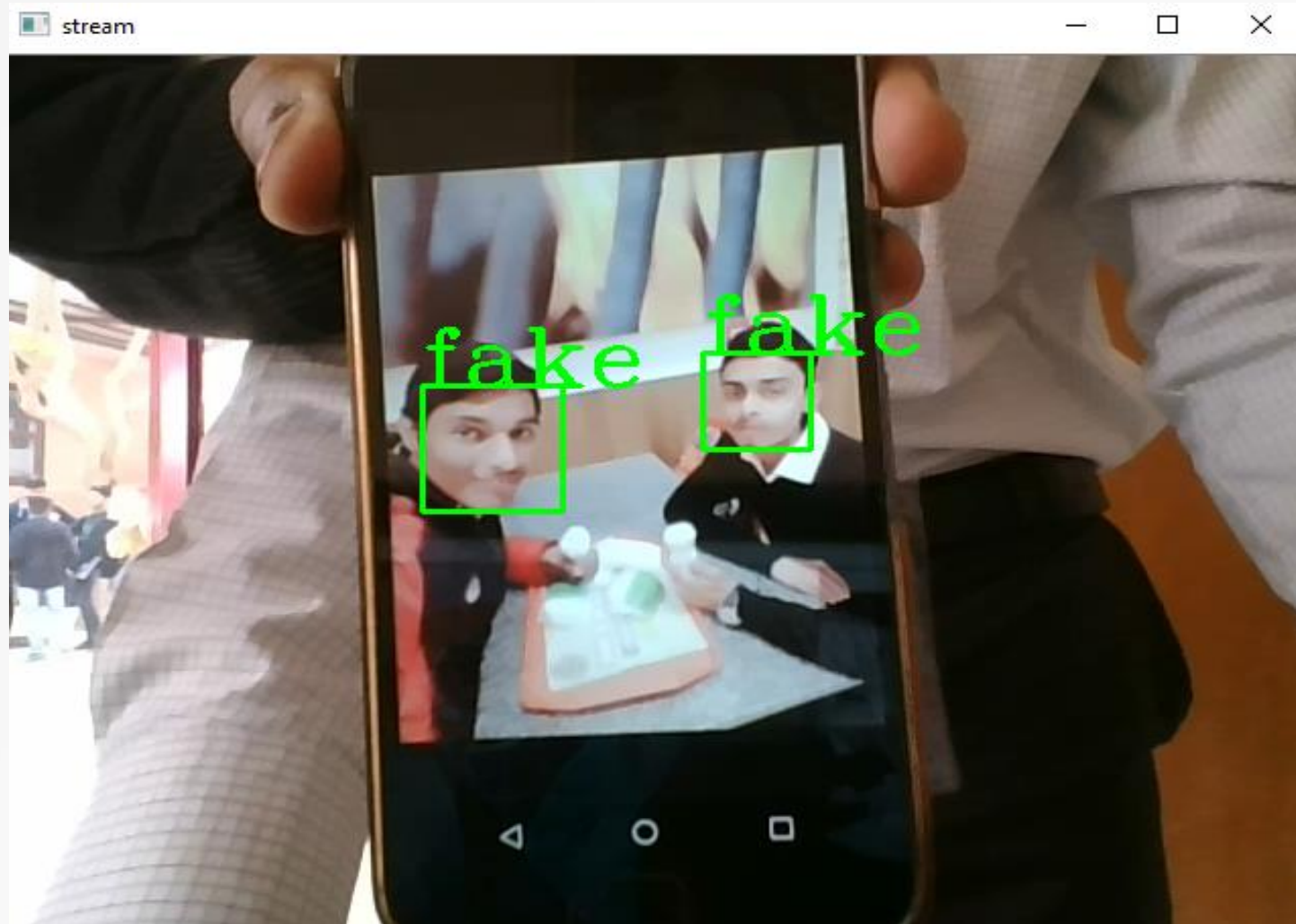
Via Paper Pic :-



Screenshot: 13

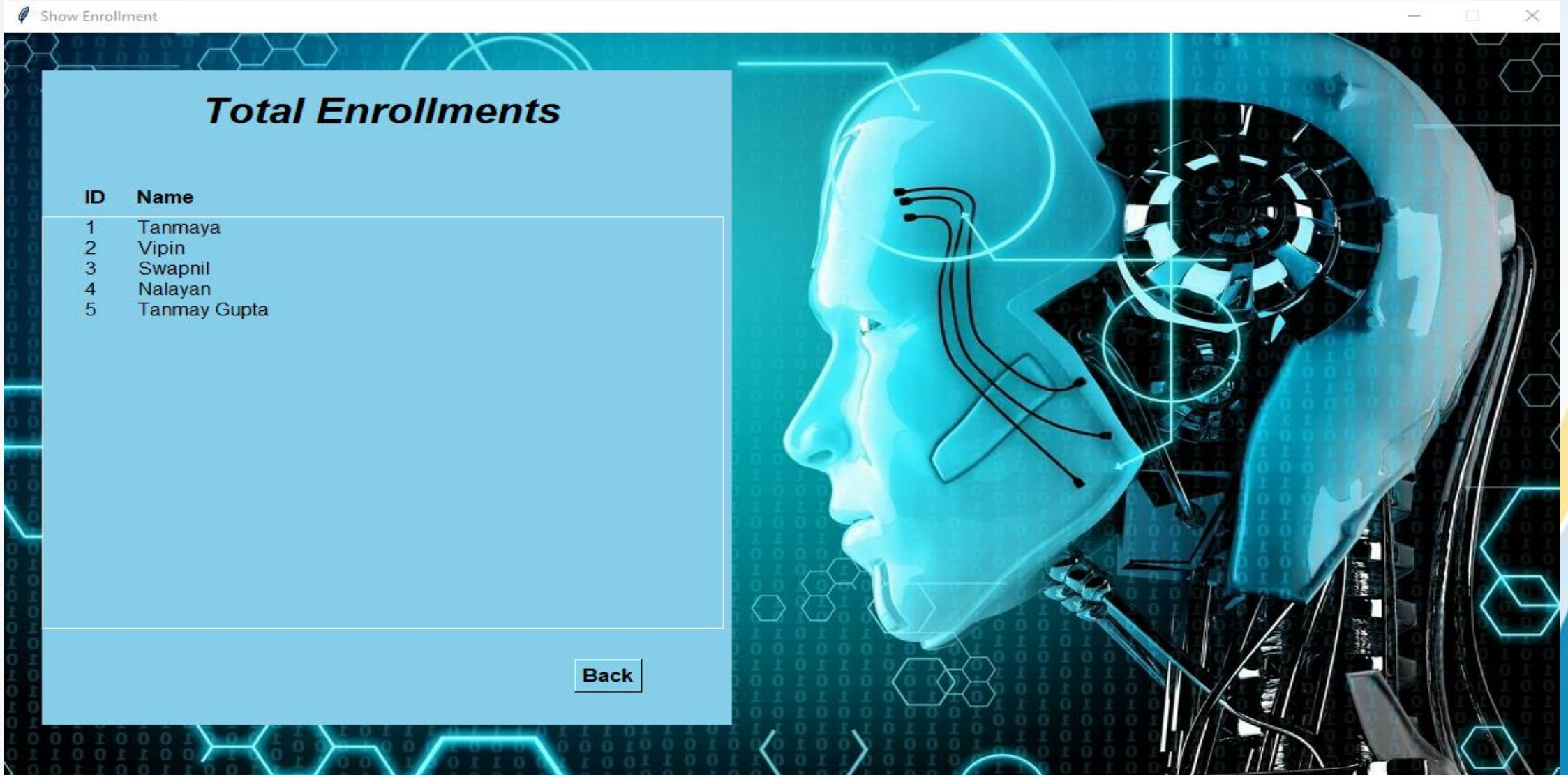
Liveness Detection

Via Cell Phone Pic :-



Screenshot: 14

Total Enrollment



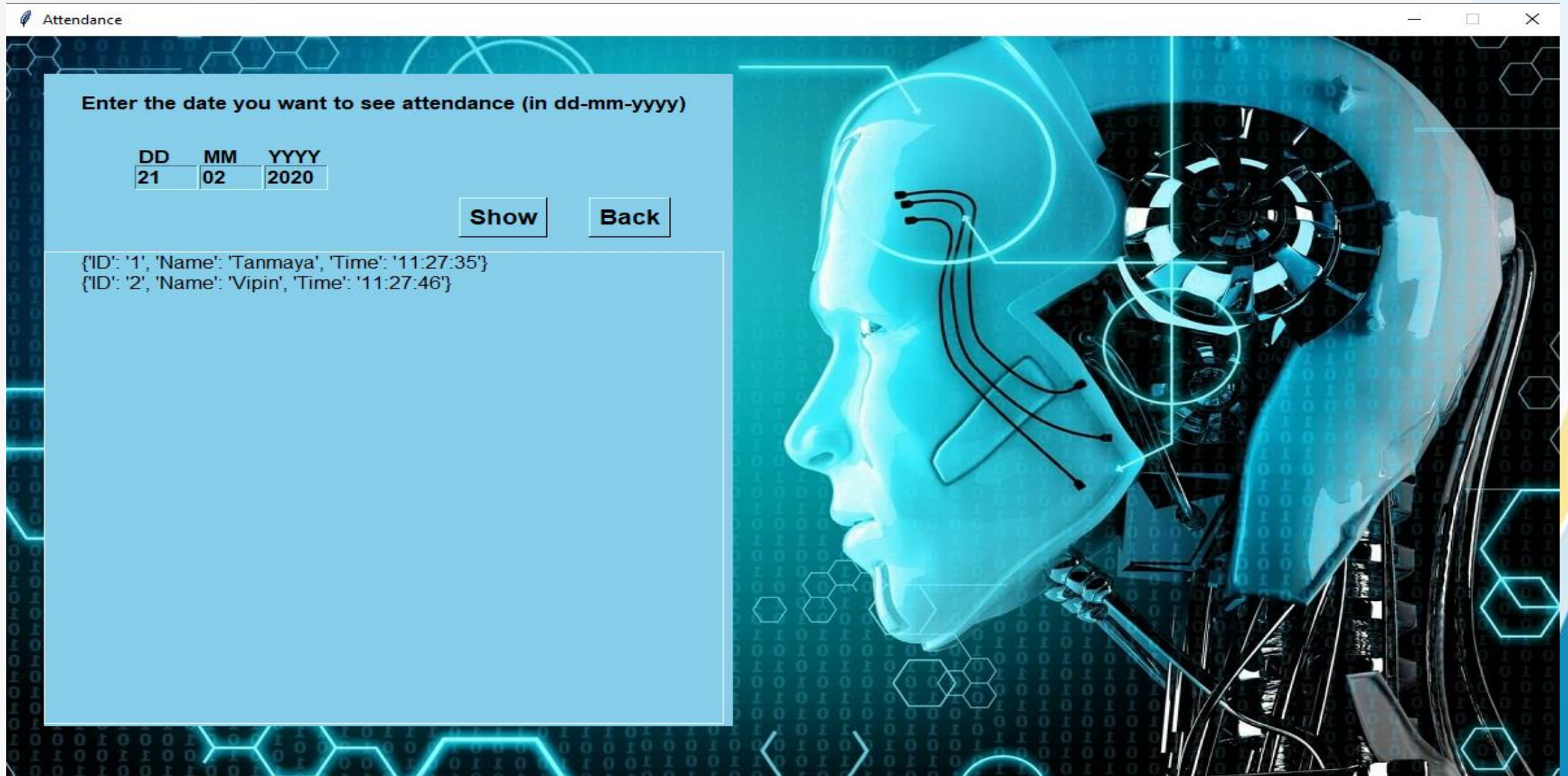
The screenshot shows a web application window titled "Show Enrollment". The main content area has a light blue background with the title "Total Enrollments" in bold. Below the title is a table with two columns: "ID" and "Name". The table contains five rows of data. A "Back" button is located at the bottom right of the table area. The background of the application window features a futuristic, high-tech design with a blue and black color scheme, including a stylized human head profile with circuitry and a large circular fan-like structure.

ID	Name
1	Tanmaya
2	Vipin
3	Swapnil
4	Nalayan
5	Tanmay Gupta

Back

Screenshot: 15

Show Attendance



The screenshot shows a web application window titled "Attendance". The background features a futuristic, blue-toned image of a robot head with glowing circuitry and binary code. The application interface is a light blue panel on the left. It contains a text prompt "Enter the date you want to see attendance (in dd-mm-yyyy)", a date selection table with columns DD, MM, and YYYY, and two buttons labeled "Show" and "Back". Below the buttons, a list of JSON objects represents attendance records.

Enter the date you want to see attendance (in dd-mm-yyyy)

DD	MM	YYYY
21	02	2020

Show Back

```
{ID: '1', Name: 'Tanmaya', Time: '11:27:35'}  
{ID: '2', Name: 'Vipin', Time: '11:27:46'}
```

Screenshot: 16

Competitive Analysis

- It is not in the Indian market yet so we are easily able to compete in market.
- As it is more safe & secure then previous methods so it have the ability to sold in the market easily.
- The cost of the project is also very effective so every company easily want to adapt it.

Fund Details

S.No.	Components Name	Cost
1.	Camera (Night Vision)	3000 INR
2.	Raspberry Pi 4 Model B	4000 INR
3.	Web Hosting	2000 INR
4.	Domain	500 INR
5.	Memory Card (64 GB)	1000 INR
	Total Cost =>	10500 INR

Contribution from other sources

- Stack Overflow.
- Python Documentation.
- Facenet Documentation.

*Thank You Very
Much*

