FACE RECOGNITION SYSTEM

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ABSTRACT

This project presents the development of a web-based Face Recognition System using Python, Flask, OpenCV, and SQLite. The system detects and counts faces from uploaded images. It provides user authentication, image upload functionality, and accurate face detection using Haar Cascade Classifier. The results are stored securely in a SQLite database. The system has been tested under different lighting conditions and orientations to ensure reliability and performance.

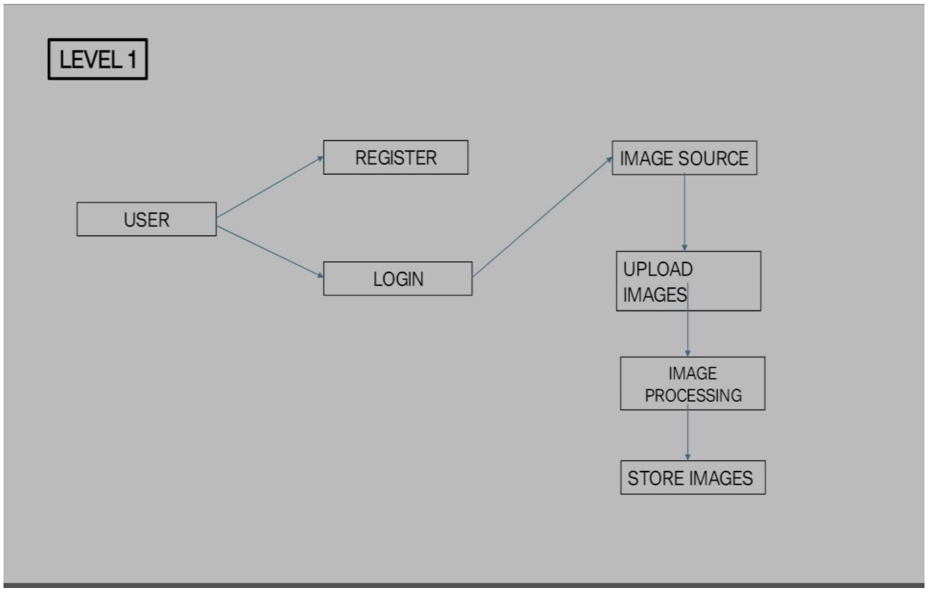
INTRODUCTION

Face recognition and detection are important applications of computer vision. This system is designed to detect and count faces in static images using Python and OpenCV. The web interface is developed using Flask, HTML, and CSS, while SQLite is used for database management. The application ensures secure login and smooth image processing.

SYSTEM ARCHITECTURE

The system follows a three-tier architecture:

1. Presentation Layer – HTML and CSS for UI.
2. Application Layer – Flask backend with OpenCV processing.
3. Database Layer – SQLite for storing user data and results.



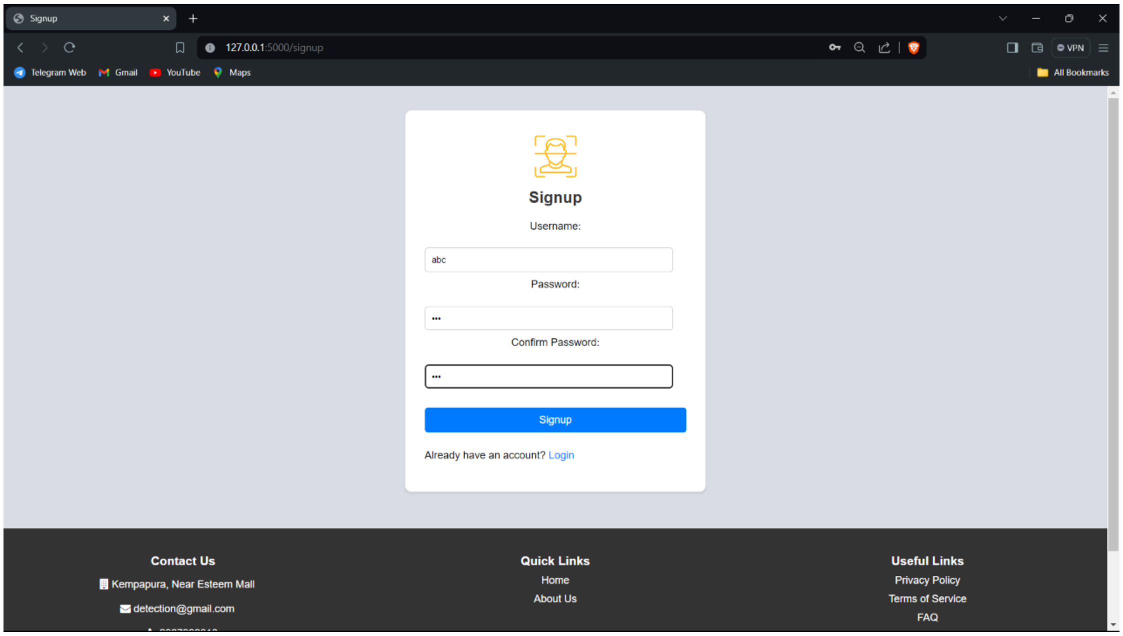
METHODOLOGY

Step 1: User uploads an image.
Step 2: Image is saved in the uploads folder.
Step 3: Image is converted to grayscale.
Step 4: Haar Cascade classifier detects faces.
Step 5: Number of faces detected is stored in database.
Step 6: Results are displayed to the user.

RESULTS

The system was tested with various images including single face, group photos, and low-light images. The application successfully detected faces in most test cases. Accuracy depends on lighting, clarity, and face orientation. Processing time is efficient for static images.

Signup Page:



Signup

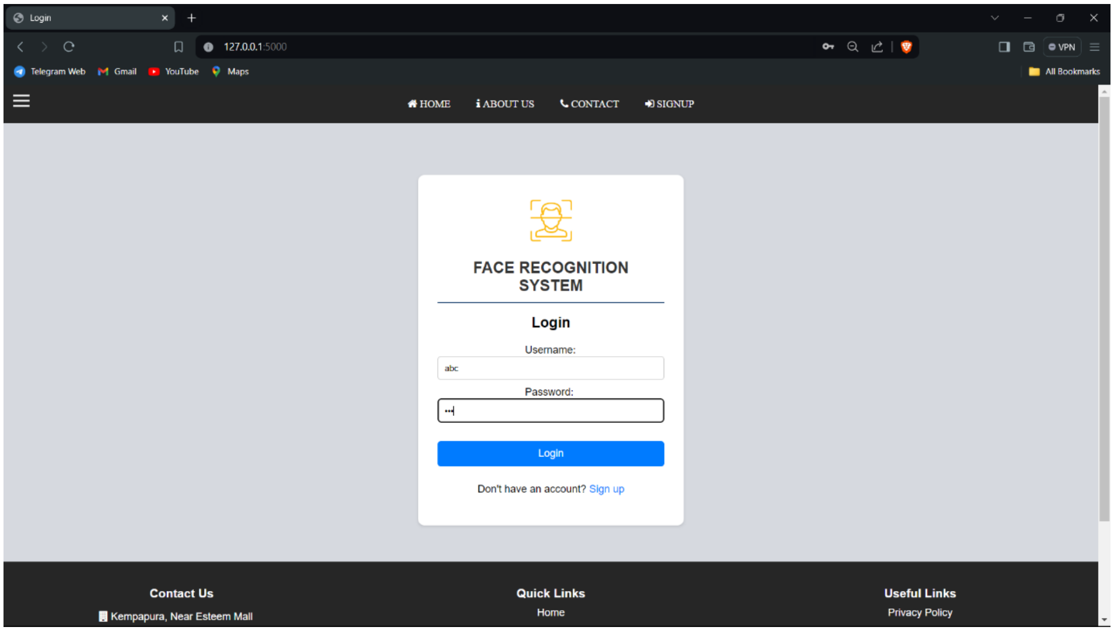
Username: abc

Password: •••

Confirm Password: •••

Already have an account? Login

Login Page:



FACE RECOGNITION SYSTEM

Login

Username: abc

Password: •••

Login

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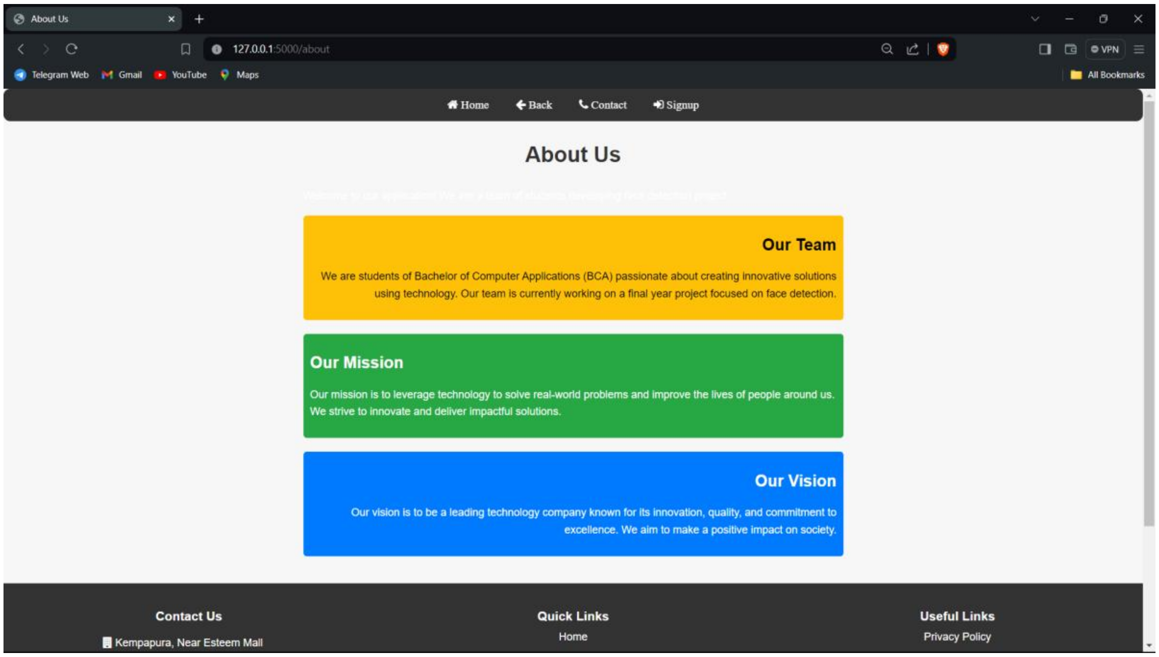

About Us

Welcome to our application! We are a team of students developing face detection project.

Our Team

We are students of Bachelor of Computer Applications (BCA) passionate about creating innovative solutions using technology. Our team is currently working on a final year project focused on face detection.

Our Mission

Our mission is to leverage technology to solve real-world problems and improve the lives of people around us. We strive to innovate and deliver impactful solutions.

Our Vision

Our vision is to be a leading technology company known for its innovation, quality, and commitment to excellence. We aim to make a positive impact on society.

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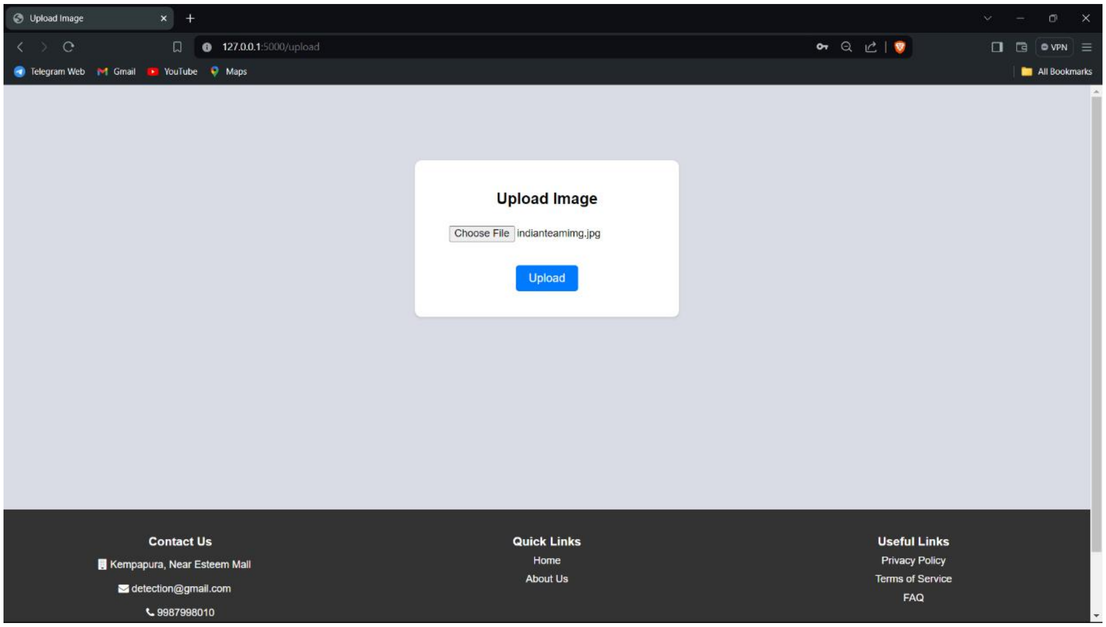
Upload Page :



Upload Image

Choose File indianteamimg.jpg

Upload

Contact Us

Kempapura, Near Esteem Mall

detection@gmail.com

9987998010

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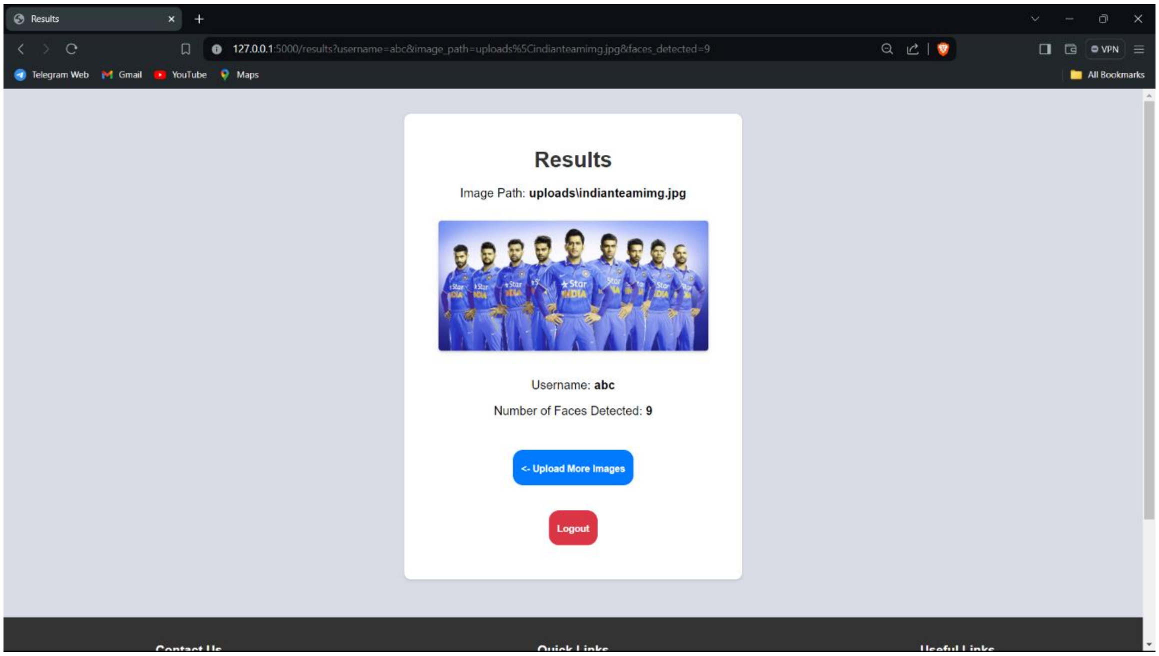
Result Page:


Results
127.0.0.1:5000/results?username=abc&image_path=uploads%5Cindianteamimg.jpg&faces_detected=9
Telegram Web
Gmail
YouTube
Maps
All Bookmarks
VPN

Results

Image Path: **uploads\indianteamimg.jpg**

Username: **abc**

Number of Faces Detected: **9**

<- Upload More Images

Logout

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CHALLENGES

- NumPy and OpenCV compatibility issues.
- Handling file upload errors.
- Managing sessions securely.
- Ensuring database updates correctly.
- Handling multiple face detection accuracy.

FUTURE ENHANCEMENTS

- Integrate deep learning-based face recognition.
- Add real-time webcam detection.
- Implement password hashing for security.
- Deploy system online.
- Improve user interface design.

CONCLUSION

The Face Recognition System successfully demonstrates the integration of web development and computer vision. The system is user-friendly, secure, and efficient in detecting faces from static images. It serves as a strong foundation for advanced AI-based recognition systems.