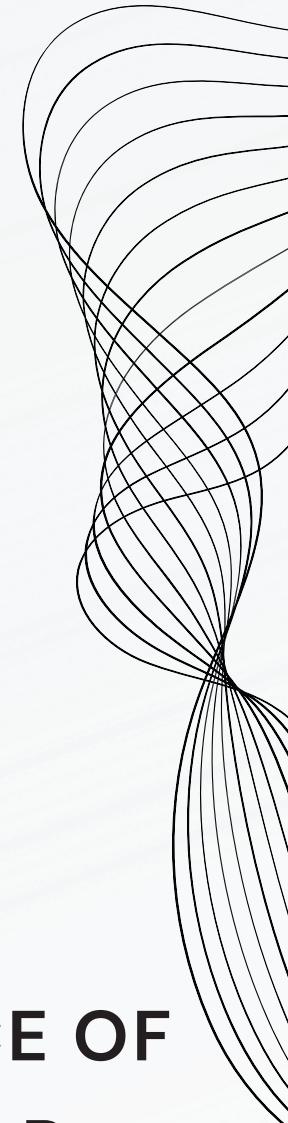
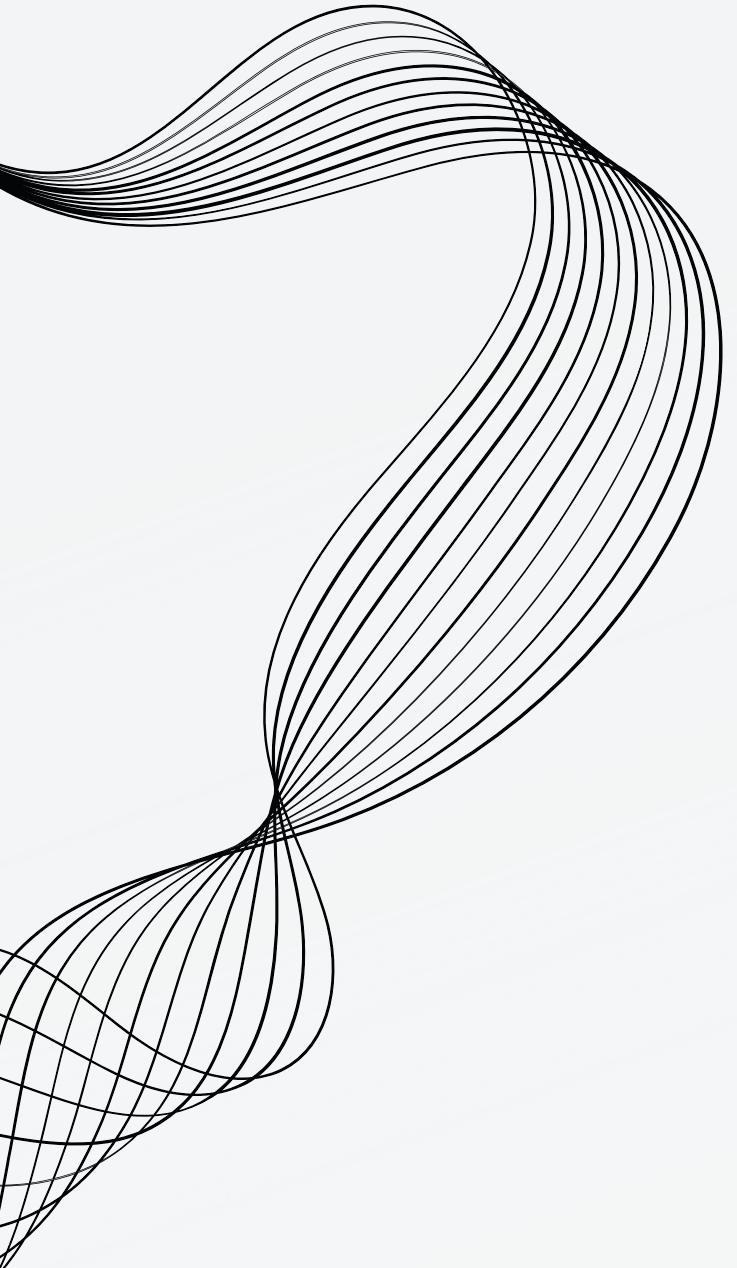




SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN

FACE RECOGNITION SYSTEM



Presented By

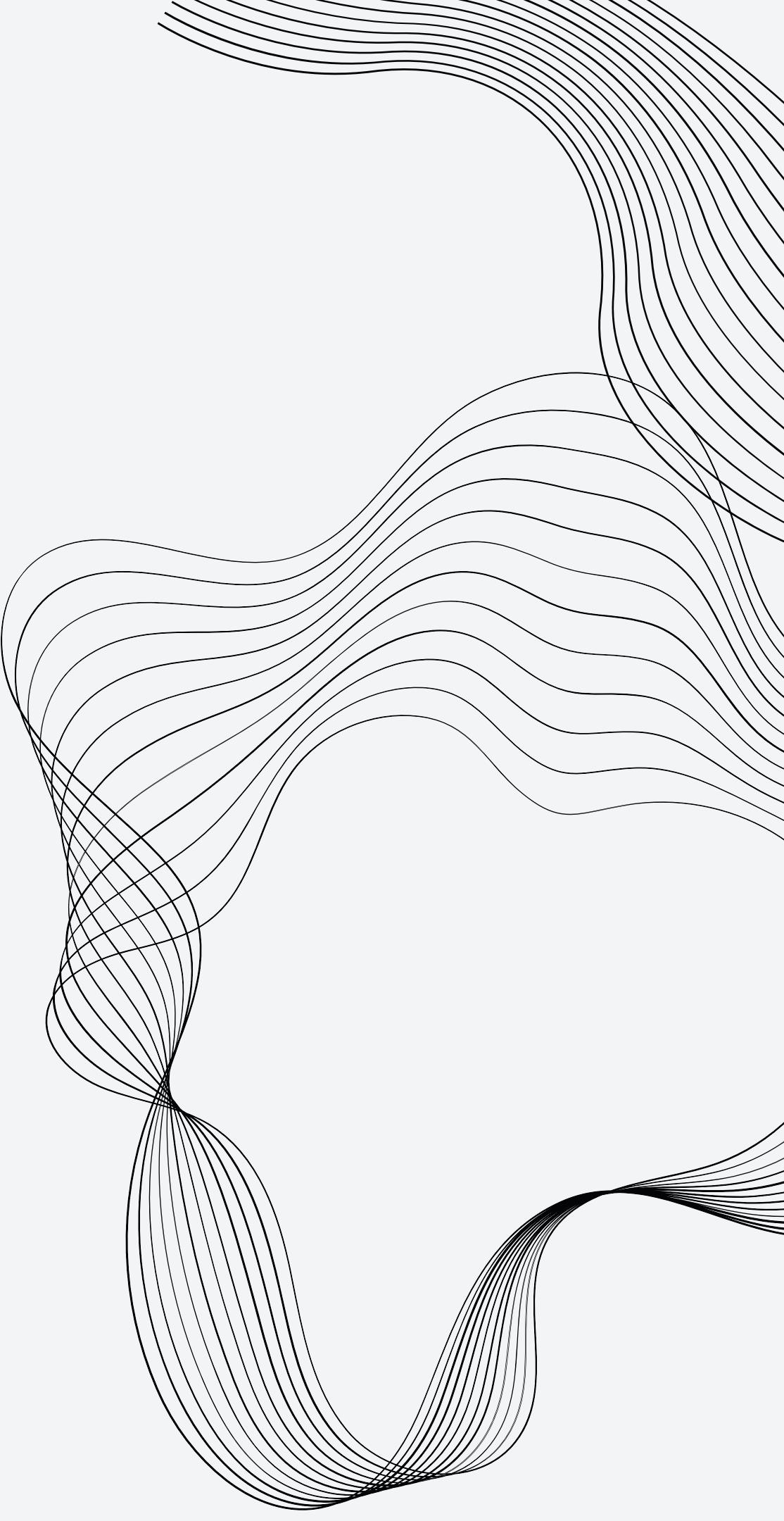
P.Sindhuja-22BO1AO5F7
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UNDER THE GUIDANCE OF

Dr K.Rama Chandra Rao
Dept of Computer Science
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Professor

INTRODUCTION

- It is a real-time solution for efficient face detection and recognition.
- The system uses Local Binary Patterns Histogram (LBPH) for accurate feature analysis.
- Ensures high accuracy even in varying lighting conditions.
- Combines lightweight design with OpenCV's powerful tools for seamless performance.
- Suitable for applications in security and authentication.
- Highlights the transformative potential of face recognition technology in modern systems.



LITERATURE SURVEY

Face Detection

Haar Cascade Classifier for real-time face identification

Face Recognition

LBPH algorithm for robust recognition under varying conditions.

Dataset Creation

Stores labeled face images linked to unique User IDs

Model Training

LBPHFaceRecognizer trained and saved as s_model.yml

Technologies

OpenCV, Tkinter, Pillow (PIL).



DESIGN



DATA COLLECTION

Capturing face images using a webcam and storing them in a structured dataset.

TRAINING THE MODEL

Preprocessing images and training the LBPH face recognizer on collected data.

FACE RECOGNITION

Using the trained model to detect and recognize faces in real-time.

USER INTERFACE

Designing a GUI for seamless interaction and launching face recognition functionalities.

ALGORITHMS

Haar Cascade Classifier

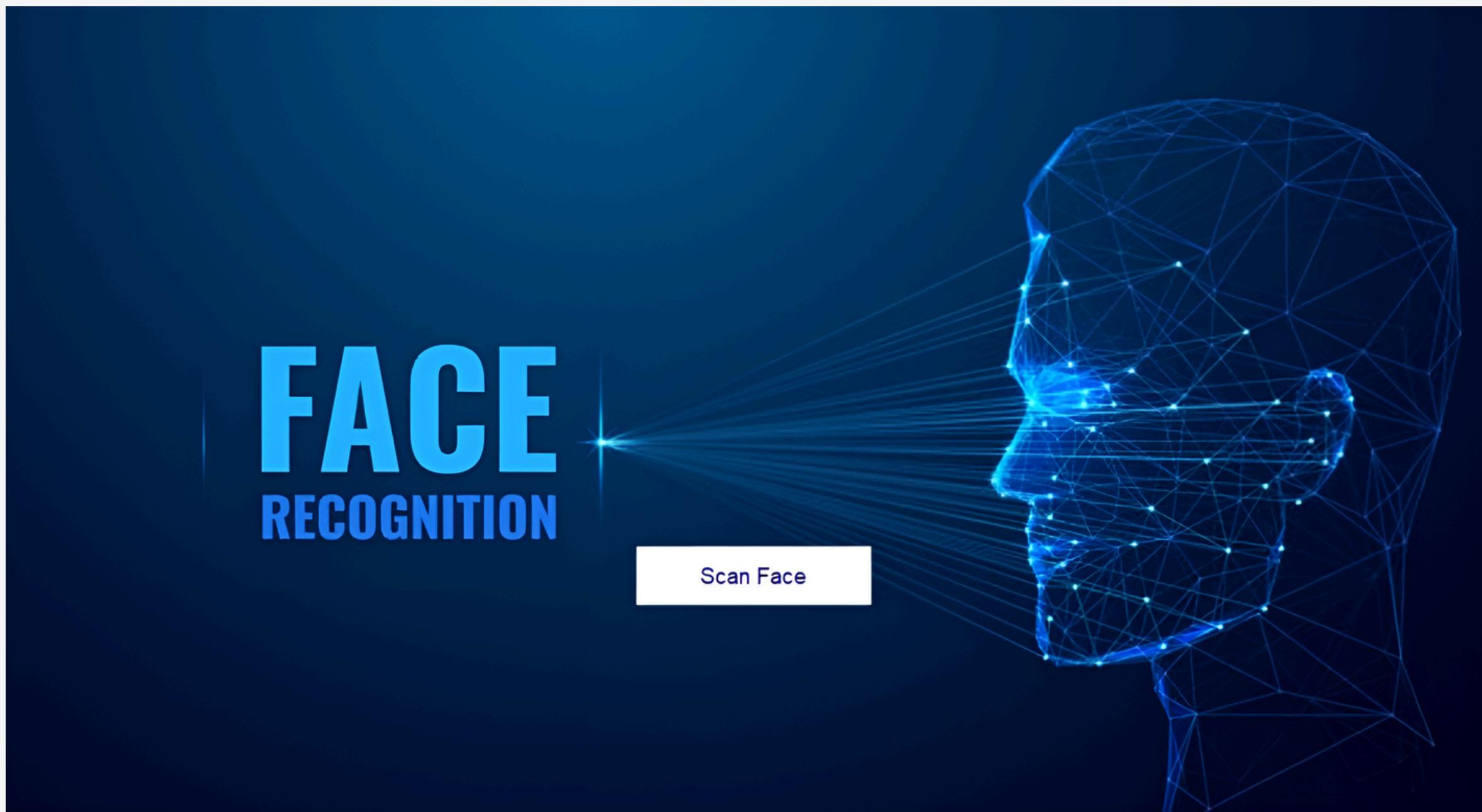
A machine learning-based approach used for real-time face detection. It identifies faces by detecting patterns and features in the image, such as edges and regions.

Local Binary Pattern Histogram

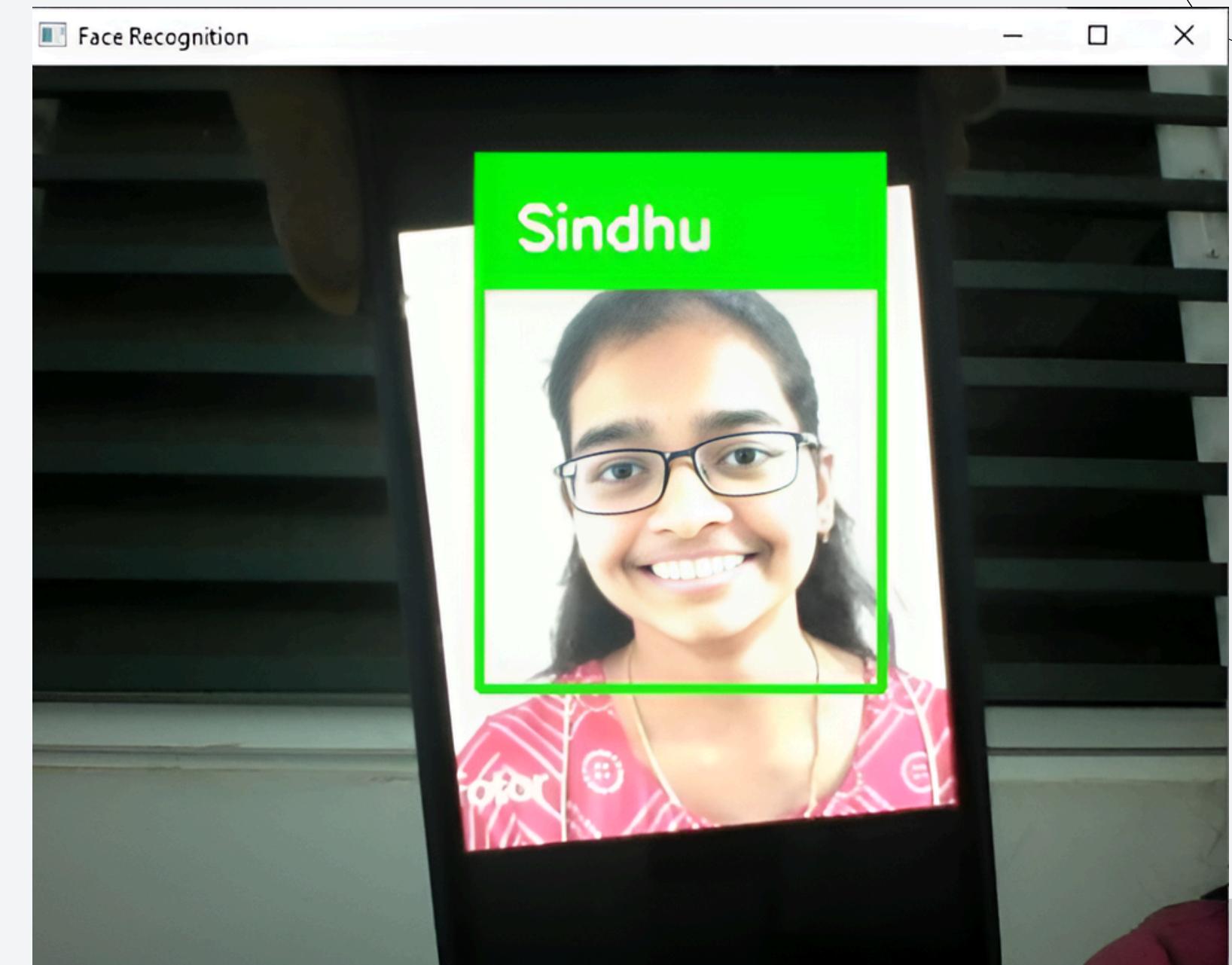
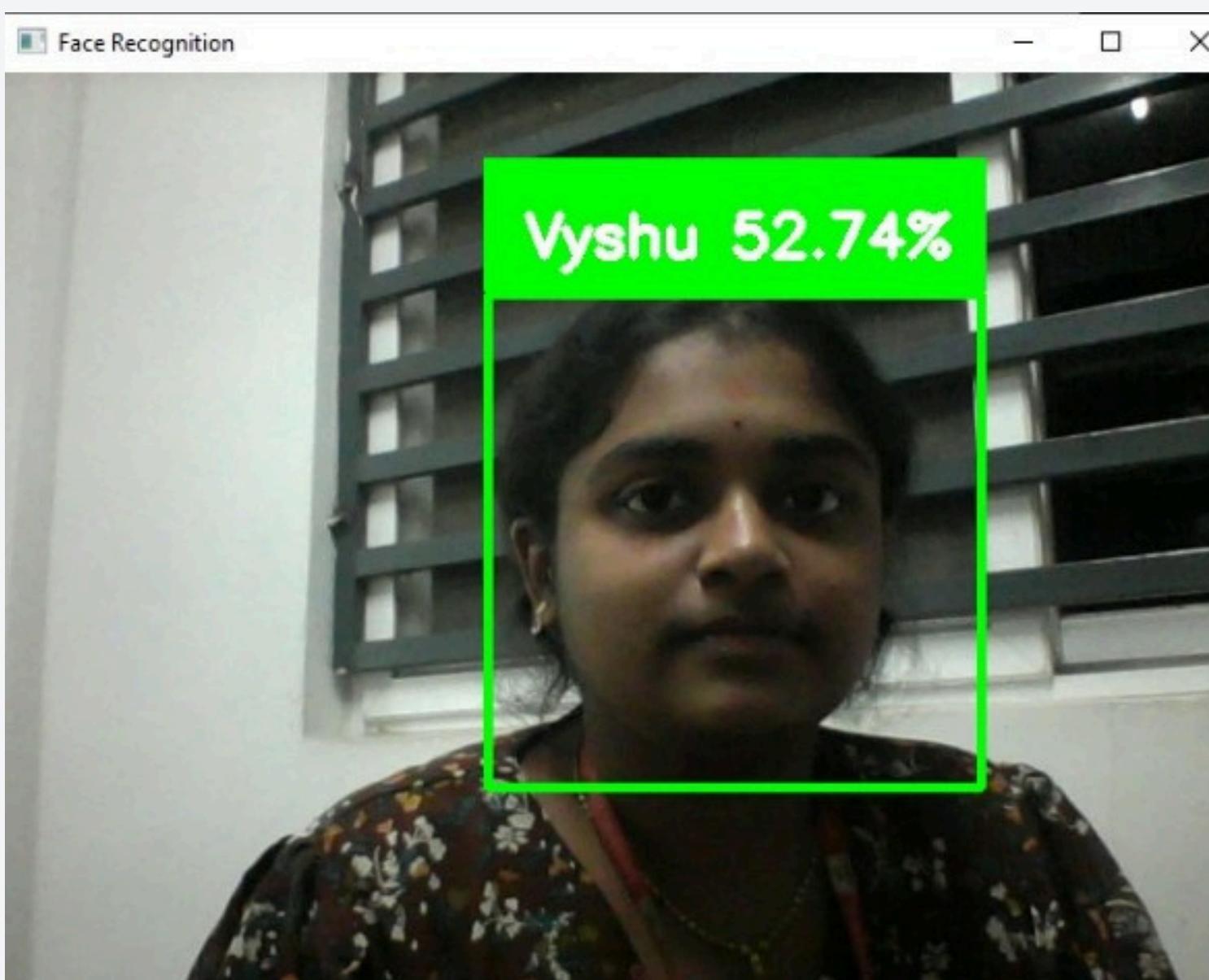
An effective algorithm for face recognition, LBPH uses pixel intensity comparisons to create histograms, making it robust to lighting variations and suitable for smaller datasets



IMPLEMENTATION SCREENS

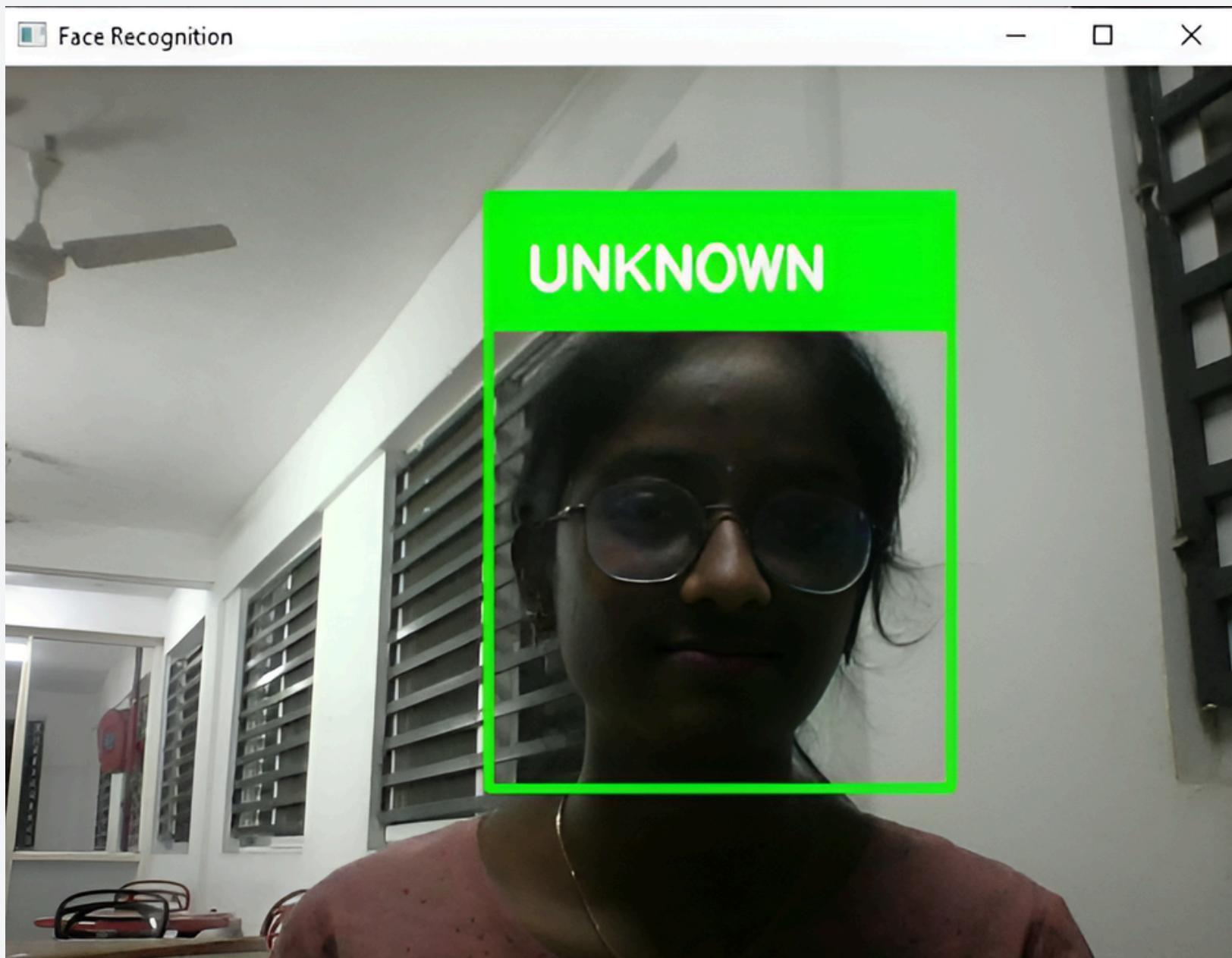


IMPLEMENTATION SCREENS



Recognizing Known Faces

IMPLEMENTATION SCREENS



Identifying Unknown Faces

TECH STACK



OpenCV



Numpy



TKinter



PIL(pillow)



REFERENCES



Face Recognition Methods & Applications

Subjects: **Computer Vision and Pattern Recognition (cs.CV)**

Cite as: [arXiv:1403.0485 \[cs.CV\]](https://arxiv.org/abs/1403.0485)

<https://doi.org/10.48550/arXiv.1403.0485>

International Journal of Computer Technology & Applications



Face recognition: A literature survey

Cite as: [arXiv:1403.0455 \[cs.CV\]](https://arxiv.org/abs/1403.0455)

[https://doi.org/10.1016/S0031-3203\(99\)00104-1](https://doi.org/10.1016/S0031-3203(99)00104-1)

[ACM Computing Surveys \(CSUR\),](#)



CONCLUSION

1. The system successfully integrates Haar Cascade and LBPH algorithms for efficient face detection and recognition
2. It showcases the practical application of machine learning in real-time scenarios
3. Provides a user-friendly interface suitable for security and authentication systems.
4. Demonstrates potential for scalability and implementation in various domains

THANK YOU