BlinkMatch

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Introduction to BlinkMatch

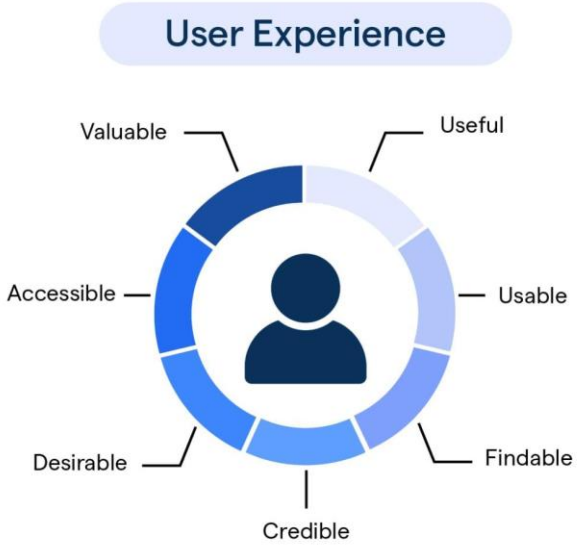
Welcome to our presentation on **BlinkMatch**, a cutting-edge facial recognition model developed using Python. BlinkMatch aims to revolutionize how we interact with technology through **efficient and accurate facial recognition**. Today, we will explore its objectives, methodology, challenges which we might face will making this model.

BlinkMatch

Objectives of the Project

The primary goals of creating BlinkMatch include:

- **Enhancing User Experience**: Streamlining interactions through quick and reliable facial recognition.
- **Exploring Applications**: Investigating various fields where BlinkMatch can be applied, such as security, healthcare, and retail.
- **Pushing Technological Boundaries**: Contributing to advancements in facial recognition technology.



Methodology Overview

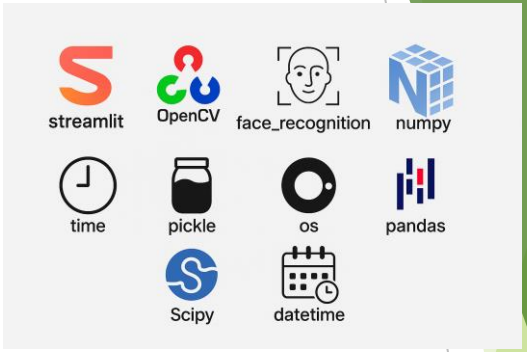
Key Steps in Development

Research and Planning: Understanding existing technologies and defining project scope. **Data Collection**: Gathering a diverse dataset for training the model. **Model Development**: Utilizing Python libraries like OpenCV and Streamlit, face_recognition, numpy ,time , pickle, os, pandas, datetime, scipy.spatial.distance to make our model good and accurate

Technological Stack

Programming Languages: Python **Libraries Used**: OpenCV, Streamlit, face_recognition, numpy ,time , pickle, os, pandas, datetime, scipy.spatial.distance

Python Libraries Used:



List of Libraries Used:

- Streamlit
- Cv2 (OpenCV)
- face_recognition
- Numpy
- Time
- Pickle
- os
- Pandas
- scipy.spatial.distance
- datetime

Uses of the Libraries Used:

- To build the interactive web interface
- Image processing and webcam access
- Face detection and face encoding/matching
- Array handling and numerical computations
- Time tracking and delays
- Saving/loading face encodings and names
- File management (existence, deletion)
- Storing and filtering logs in tabular format
- Calculating distances for eye aspect ratio (EAR)
- Timestamping log entries

Register New Face

Enter your name:

Next

Delete All Face Data

Registered Faces

✓ krish

✓ chirag

Blink Detection Settings

Eye Aspect Ratio Threshold

0.20

0.10 0.40

Consecutive Frames for Blink

2

1 5

Face Recognition

Lock Status

No Blink Detected

RUNNING... Stop Deploy

Register New Face

Enter your name:

Next

Delete All Face Data

Registered Faces

✓ krish

✓ chirag

Blink Detection Settings

Eye Aspect Ratio Threshold

0.20

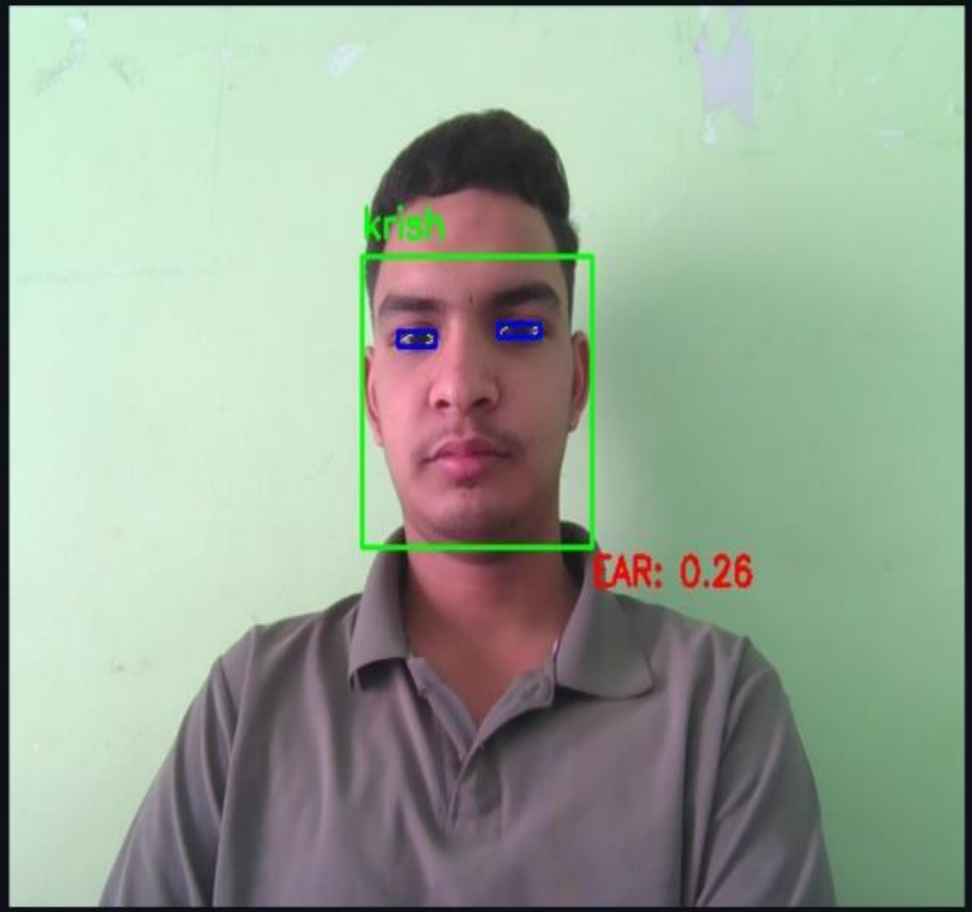
0.10 0.40

Consecutive Frames for Blink

2

1 5

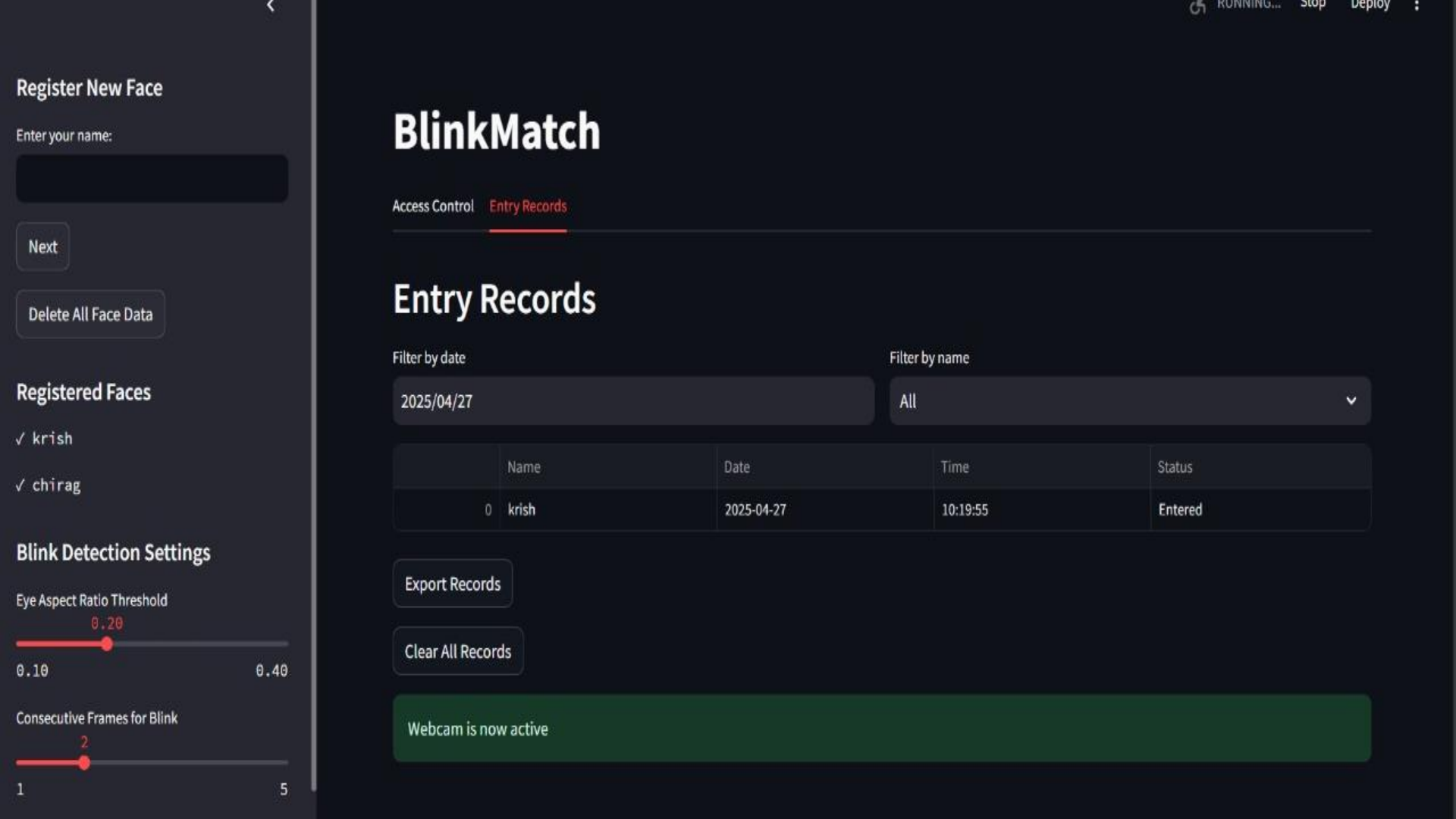
Face Recognition



Lock Status

Welcome, krish !

Blink Detected ✓


RUNNING...
Stop
Deploy
Register New Face
Enter your name:
Next
Delete All Face Data
Registered Faces
✓ krish
✓ chirag
Blink Detection Settings
Eye Aspect Ratio Threshold
0.20
0.10
0.40
Consecutive Frames for Blink
2
1
5
BlinkMatch
Access Control
Entry Records
Entry Records
Filter by date
2025/04/27
Filter by name
All
Name
Date
Time
Status
0
krish
2025-04-27
10:19:55
Entered
Export Records
Clear All Records
Webcam is now active

Challenges Which we Faced

During the development of BlinkMatch, we encountered several challenges:

- **Technical Hurdles**: Issues with model accuracy and processing speed.
- **Data Scarcity**: Difficulty in obtaining a large and diverse dataset for training.
- **Algorithm Tuning**: The need for fine-tuning algorithms to achieve optimal performance.
- **Blink Detection**: Since BlinkMatch involves blink detection, We encountered my difficulties like our model in early stages was not able to recognize or differentiate between Blink Feature or other facial moments

Conclusion

- At the end we would like to say that, BlinkMatch is a facial recognition system that identifies the person by the blink of the eye. Using advanced machine learning, it ensures high accuracy and real-time performance, with applications in security and healthcare.

References

- Books, Help form Google, Help form Teachers.


Thank You!