

FaceHunt: Finding Criminals and Missing ones

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Abstract-

Face recognition and detection are unimaginable inventions in today's world when it comes to experiencing every crime. Protection, surveillance, entertainment sites, and criminal identification are just a few of the amazing applications. This device is particularly useful for customer screening in banks, airports, and other businesses. CNN needs more data for deep learning because it is still a facial recognition system, which is particularly problematic in the case of applications such as criminal investigations (murder, robbery, etc.). As a result, this project incorporates a face- recognition system that makes it easier and more reliable to scan for offenders, thus assisting police officers effectively and organization. In this paper, we implement the Deep Metric Learning to construct the face embedding for recognition process using dib face recognition library

Key Words: Crime Detection Neural Network Deep Learning Algorithm-task.



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INTRODUCTION:

Criminal and missing people identification has always been a critical concern for law enforcement agencies and communities worldwide. In recent years, advancements in technology, particularly in the fields of computer vision and artificial intelligence, have provided new tools and capabilities to enhance the process of identifying individuals. Face detection and face recognition have emerged as powerful and innovative solutions in this regard. Face detection is the initial step in this process, where algorithms are employed to locate and extract human faces from images or video footage. This technology can be instrumental in sifting through vast amounts of visual data, quickly identifying individuals of interest, and reducing the workload on law enforcement personnel.

Once faces are detected, face recognition comes into play, which is a more advanced technology that goes beyond mere detection. It involves comparing the detected faces against a database of known individuals to determine their identity. This database can include criminal records, missing persons reports, or other relevant sources of information. Face recognition algorithms analyze facial features such as the distance between the eyes, the shape of the nose, and the contours of the face to establish a unique biometric profile for each person. This allows for accurate identification and matching, making it an invaluable tool in the search for criminals and missing persons.

LITERATURE SURVEY:

- Title : "Searchious : locating missing people using an optimised face recognition algorithm" Author : Mrs. Vishakha Shelke, Mr. Gunjan Mehta, Ms.Prajakta Gomase, Ms. Trisha bangera 2021/ICCMC Description : This paper proposes "Searchious", an optimized face recognition system to locate missing people aiming to reduce search time and enhance efficiency in tracing individuals through facial recognition and citizen engagement
- Title : "Criminals and Missing Children Identification Using Face Recognition and Web Scrapping"

Author : S.AYYAPAN, Dr.S.MATILDA 2020/IEEE ICSCAN Description : This paper proposes a system that uses face recognition and web scraping to identify criminals and missing children achieving a high level accuracy in recognizing individuals from various types of images and videos.

- Title : "Face Recognition System Based on CNN" Author : Di Wang, Ding Wang, Hongzhi Yu, Guanyu Li 2020/CIBDA Description : This paper proposes an improved face recognition algorithm using a convolutional neural network (CNN), aiming to enhance recognition accuracy.
- Title : "Human face detection via Haar cascade classifier combined with three additional classifiers" Author : Li Cuimei, Qi Zhiliang, Jia Nan, Wu Jianhua 2017/IJRTE Description : This paper proposes a human face detection algorithm combining Haar cascade with three weak classifier based on skin hue, eyes and mouth detection effictively reducing false positives. PROPOSED SYSTEM:

ALGORITHM:

Step1: Start: Begin the process.

Step2: User Input:

- User provides an image of a criminal or missing person through the website.
- Encode the input image using the face_recognition library.
- Store the encoded data in a CSV file.

Step3: Capture Frames:

- Capture frames from the camera, representing individual moments in time.

Step4: Face Detection:

- Identify frames containing faces using the Haar Cascade Classifier.

Step5: Extract ROIs:

- Extract the detected face regions as Regions of Interest (ROIs) from the input image using the bounding boxes obtained from Haar Cascade detection.

Step6: Encode Captured Faces:

- Encode the captured images from the camera.

Step7: Match Encodings:

- Compare the encoding of the captured image with the encoding of the user input image.
- If the encoding of the captured image matches the encoding of the user input image above a certain threshold value, proceed to the next step.

Step8: Send Alert:

- Send an email to the authorized police station if a match is found.

The process begins with the user uploading an image of a criminal or missing person via the website, which is then encoded and stored. The system captures frames from the camera, detects and extracts faces using the Haar Cascade Classifier, and encodes them. It compares these encodings with the user-provided image. If a match above a certain threshold is found, an email alert is sent to the authorized police station.

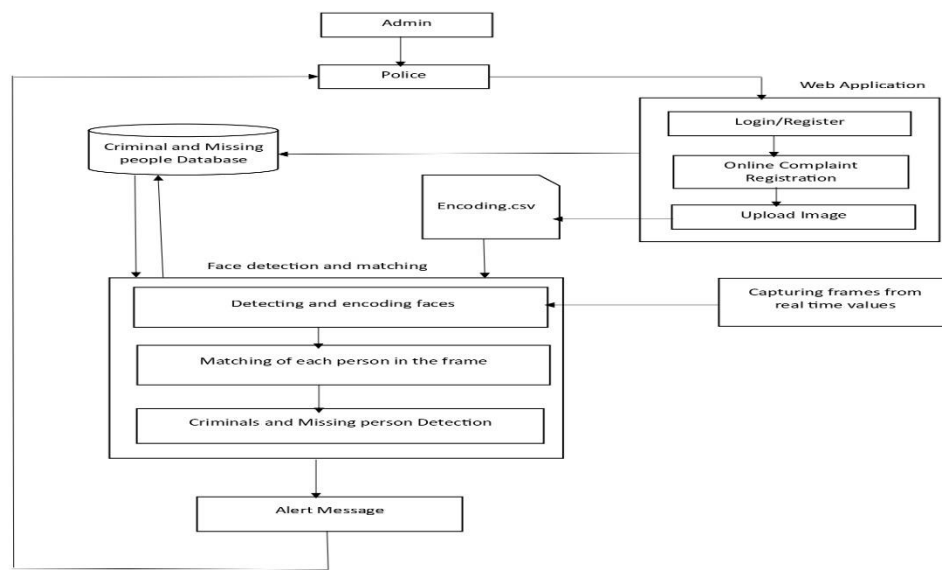


Fig: System Architecture

The architecture is designed to efficiently identify criminals and missing persons, incorporating a robust approach that includes user image submission, real-time face detection, and feature matching. User-uploaded images are encoded and stored, while a camera captures frames continuously. The system utilizes the Haar Cascade Classifier for accurate face detection and extraction, followed by encoding of the captured faces. These encodings are then compared with stored images, and if a match exceeding a certain threshold is found, an alert is sent to the authorities. This comprehensive process ensures timely and accurate identification and notification.

RESULTS:

Home Page :



File Complaints:

Police StationViewFile ComplaintLogout

File Complaint

ID

Name

Role

Select Role

Photo

Choose FileNo file chosen

Photo

Choose FileNo file chosen




Description

View Complaint :

Crime Records

127.0.0.1:5000/policekaview

Police StationViewFile ComplaintLogout

ID	Name	Role	Photo	Description	Update	Delete
PM1	Viraj Walzade	missingPerson		fair skin and with small beard and darks circle below the eyes	Update	Delete
PC1	Rahul Shirsat	criminals		mole in right eye	Update	Delete
PC2	Sai Ghodke	criminals		fair Skin	Update	Delete



Alert Message :

facehunt06@gmail.com

to me

Details of the Criminal/Missing person :
Name : Rahul Shirsat
Category : missingPerson
Description : Rahul
Location : Sinhgad Kondwa Gate No.1

2 Attachments • Scanned by Gmail



CONCLUSION:

The development of a criminal and missing person identification system using face detection and recognition is a technologically challenging and legally intricate endeavor. From a technical standpoint, it requires overcoming constraints related to data quality, hardware and software limitations, and the need for robust privacy and security measures. The system's effectiveness depends on addressing these technical challenges to ensure accurate identification and efficient operation. In parallel, navigating legal procedures and compliance is equally critical. The system must adhere to strict privacy regulations, consent requirements, and legal frameworks governing data protection. Legal experts play an essential role in guiding the system's design and ensuring its operation aligns with these legal requirements.

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