

# Spotting the Crook

N.Swapna Goud

Assistant Professor, Department of CSE, Anurag Group of Institutions, Hyderabad, India.

Email: swapnagoudcse@anurag.edu.in

H.Sowmya, P.Nandini, P.Sanjay

UG Student, Department of CSE, Anurag Group of Institutions, Hyderabad, India.

Email: sowmyaaaaa12345@gmail.com, nandinipola0101@gmail.com, sanjaypalugula0047@gmail.com

**Abstract**—We all know that our Face is a unique and crucial part of the human body structure that identifies a person. Therefore, we can use it to find the criminal identity. Using the previously captured faces and criminal's images that are available in the police station, the criminal face recognition system can be implemented. We propose an automatic criminal identification system for the Police Department to enhance and upgrade the criminal identification into a more effective and efficient approach. Several causes like theft, kidnaps, human trafficking etc. are left unsolved because the less availability of police personnel, many times there is no identification of the person who was involved in criminal activities. To avoid this situation an automated facial recognition system for criminal identification is proposed using the Haar feature-based cascade classifier. This paper presents real-time face recognition using an automated surveillance camera. This system will be able to detect and recognize faces automatically in real-time.

**Index Terms**—Machine Learning, LBPH algorithm, Haar feature based cascade classifier, Facial recognition, Real-time, Criminal Identification

## I INTRODUCTION

The video is captured from the surveillance camera which is converted into frames. The detected frame of the face is preprocessed. Then it goes through feature extraction. The real-time image features are compared with the processed image features which are stored in the citizen database. If a match is found, it is further compared with the features of images stored in a local watch list database to identify if the person is criminal or not. If he is a criminal a notification is sent to the police personnel with all the details and the time for which he was under the surveillance of the camera. If a match is found, a notification is sent to the police personnel with all the details and the time for which he was under the surveillance of the camera. If a match is not found, he is innocent. Our aim, which we believe we have reached, was to develop a system that can be used by police or

investigation departments to recognize criminals from their faces. The method of face recognition used is fast, robust, reasonably simple and accurate with relatively simple and easy to understand algorithms and techniques.

## II LITERATURE SURVEY

*A Face Recognition for Criminal Identification: An Implementation of Principal Component Analysis For Face Recognition*

**AUTHORS:** Nurul Azma Abdulla., etc

**ABSTRACT:** In practice, identification of criminals in Malaysia is done through thumbprint identification. However, this type of identification is constrained as most of the criminals nowadays getting cleverer not to leave their thumbprint on the scene. CCTV has been installed in many public and private areas in order to provide surveillance activities. Suspects on scene can be identified by using CCTV footage. As there is limited software that is developed in order to automatically detect the similarity between footage's photos and recorded photos of criminals, the law enforces thumbprint identification. In this paper, an automated facial recognition system for criminal database was proposed using the known Principal Component Analysis approach. This system will be able to detect faces and recognize faces automatically. This will help the law enforcement to detect or recognize suspects of the case if no thumbprint is present on the scene. The results show that about 80% of input photo can be matched with the template data

*B Force Field Feature Extraction Using Fast Algorithm for Face Recognition Performance*

**AUTHORS:** Kian Raheem Qasim and Sara Salman Qasim

**Abstract:** Face recognition is a method of recognizing individuals by facial expressions. It has become essential for security and surveillance applications, including banks, organizations, workplaces, and social areas, and is needed everywhere. Face recognition, includes variety of difficulties faced, like shape of face, age, sex, lighting, and other factors. Also, the scale of the servers for these

apps is limited. Therefore, acknowledgment and Education are increasingly complicated. Many unchanged

features have been proposed in the literature in recent years, in this paper approach the use of the fast algorithm as local descriptors, and as we shall see, it is not only fixed-size features, but also offers the advantage of being highly efficient. The proposed approach allows distinguishing the destination after converting the image to the HSV system, after which the force field features will be extracted using the fast algorithm and then classification by using the distance for three methods (Manhattan, Euclidean, and Cosine) through which a comparison is made to choose the best resolution, as it was found that the resulting accuracy of the two dataset (ORL and UFI) is 99.9%.

### III HARDWARE COMPONENTS

#### A External Web Camera

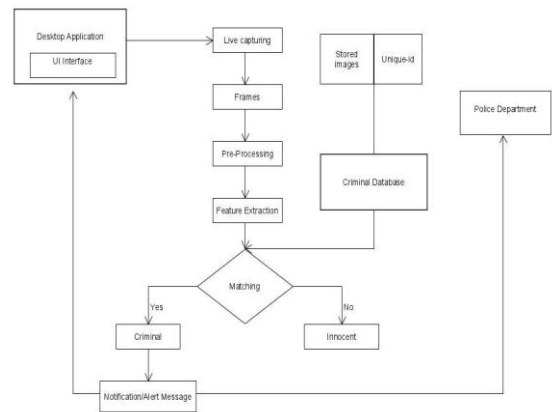
An external Webcam with a better resolution (1080px) and pixel is used in this process to increase the efficiency of the system in terms of reducing the noise values that frequently occur while analyzing a video. This webcam is attached to the machine in which the code is being run, and the picture of the person is taken through it. The whole idea of using this external webcam is that the built in webcam quality in many machines is most likely to provide massive noises that can affect the accuracy of the prediction.

### IV METHODOLOGY

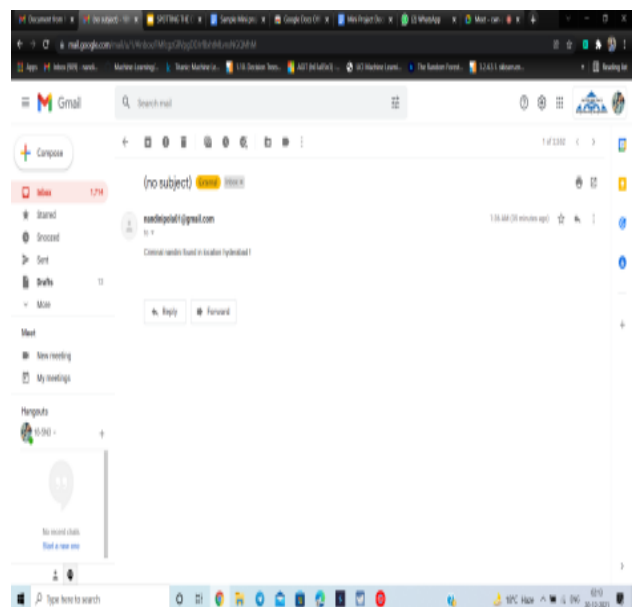
The first step in our project is model generation. The user firstly feeds the data. The data includes details of police stations, criminal records, hospitals and details of local citizens as suspicious people data. After this, the dataset has to be trained using the training module, and is done by LBPH module. After this, the user can view the data fed in the system. A Face image or a video sequence can be put as an input using live camera feeding. Then the system captures the face image; if video, it will take images from the video sequence. The system firstly detects the image. Then, it recognizes the image; both operations are done by the DNN module. Then if the recognized image is a criminal, the frame will show it as detected. Along with this, using SMTP, the location details will be sent via mail to the nearby police stations. If the recognized image is not a criminal, it will show it as innocent. In this way, the automated system works, and it will detect the criminal at any location.

### V ARCHITECTURE

#### A Block Diagram



#### B Result



## VI CONCLUSION

This upgraded version of the criminal detecting system not only provides a huge convenience to the Police in the identification of criminals but also saves time for them as processes are automated in the system. The proper training of the data-set enhances the image and the accuracy of the system. Single-face recognition is possible. Single-side face recognition that can be either left side or the right side of the face can be recognized through the proposed system. Multiple face recognition is an advantage of this system. Higher accuracy allows avoiding false identification. The system aims to find solutions for a robust method for face recognition from videos, reducing the time requirements for face recognition with the introduction of four different algorithms. This system provides better approach to detection of criminal and recognizing a missing person

## VII FUTURE ENHANCEMENT

For future work, we can add the Alarms to the criminal detection system. It will range only when matches are found so that if anyone is not there to keep watch in the room, they will come to know that someone is found from the database in that public place. [21] This paper presents a surveillance system that will give us alerts when any controversy, fight, or intruder is detected by using CCTV footage.

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## AUTHORS PROFILE



N. Swapna Goud is one of the co-authors of this paper. received her Bachelor of Technology (Computer Science and Information Technology) from Vijay Rural Engineering College, Nizamabad affiliated to JNTUH in 2004, Master of Technology (Computer Science and Technology) from CVSR College of Engineering, Hyderabad affiliated to JNTUH in 2009 and Pursuing PhD (Computer Science and Engineering) from KLEF, Vijayawada. She is currently working as Assistant Professor in the field of Computer Science and Engineering at Anurag Group of Institutions, Hyderabad, Telangana, India. Her research interests are in the fields of Data mining , Especially in the area of Classification and Clustering, Security related to Phishing. She has taught undergraduate classes in Programming and Problem Solving, Data Structures, Software Project Management, Information Retrieval Systems, Multimedia Computing.



P. Nandini is one of the co-authors of this paper. She was born in Telangana on January 1,2000. She is currently pursuing B.Tech. Degree in the field of computer science and engineering, from Anurag Group of Institutions, Hyderabad, Telangana, India. She is currently working at Cognizant as an Intern. Previous research interests of her are in the fields of Machine Learning and Artificial Intelligence. Her current field of Interest is also Machine learning...Ms.Nandini is an active participant in the paper presentation events conducted at her college.and enjoy collaborative learning.



H. Sowmya is one of the co-authors of this paper. She was born in Telangana on July 2,2000. She is currently pursuing BTech. Degree in the field of computer science and engineering, from Anurag Group of Institutions, Hyderabad, Telangana, India. She is currently working at Price Water House Coopers as an Intern. Previous research interests of her are in the fields of Machine Learning and Artificial Intelligence. Her current field of Interest is also Machine learning. She is

an active participant in the paper presentation events conducted at her college.



P.Sanjay is one of the co-authors of this paper. He was born in Telangana on June 24, 2000. He is currently pursuing B.Tech Degree in the field of computer science and engineering, from Anurag Group of Institutions, Hyderabad, Telangana, India. His previous

research interests are in the fields of Machine Learning. His current field of Interest is data science and artificial intelligence and attended various international conferences. He is an active participant in the paper presentation events conducted at his college.