

Visual Media based CCTV Victim Tracker

Aishwarya Rahul Pharande
Diploma in Information Technology
MAEER's MIT Polytechnic
Pune, India

Shrutika Ramesh
Wanzkhade
Diploma in Information Technology
MAEER's MIT Polytechnic
Pune, India

Sakshi Paraskumar Lodha
Diploma in Information Technology
MAEER's MIT Polytechnic
Pune, India

Dhanuja Dhananjay Sagade
Diploma in Information Technology
MAEER's MIT Polytechnic
Pune, India

M.P. Fatangare
Professor, M.E (computer)
HOD, Information Technology Department.
Dr. Vishwanath Karad MIT World Peace University,
School of Polytechnic & Skill Development, India,
Pune

ABSTRACT

Face recognition system has become an integral part of our modern-day to life. Varied applications of face recognition system. Digital image process could be an evolving field with growing applications in science and engineering. Image process holds the chance of developing the final word machine that might perform the visual perform all living beings. It is employed in video surveillance, human pc interface and image management. Image or Video process has become a serious demand in current world. This method is majorly accustomed sight, acknowledge and track varied objects. Face sighting and following is that the section wherever we tend to detect someone's face from a image or in video sequence and track him/her throughout the video. It plays very important role in video corrections, police work, military following thus on.

Keywords

Face detection, OpenCV, Haar Cascade, Video surveillance, Security purpose, etc

1. INTRODUCTION

We can use face recognition technology of identifying a human being by using one's individual. This technique is used in images and videos with the help of python and open CV in deep learning we can detect face of person. We can simply observe the face by the assistance of information set in similar matching look of person. This technique is beneficial in military colleges banking on-line net applications and gambling, etc. For security system uses important at associate rule through that the popularity of face is incredibly simple and consistently. The primary and initial stage of face detection is localization of human faces. Extraction of facial features using pattern recognition system is known as face localization. MATLAB and OpenCV is used for creating this kind of prototypes and system.

2. MOTIVATION

In face recognition the most useful area is the biometrics. Biometrics is used for authentication process that makes work too much easier. The face recognition is one of the most popular and famous technology that has the potential to perform tasks like to have records provided by the data set in many industries and places like school, colleges attendance system, in many companies counting of workers working

days.

It can be also helpful in catching the thieves and terrorist. It can be more helpful for the security of common people and much security in needful areas in countries. To avoid such criminal acts, it is useful. In malls we can watch all peoples or customers that they are not doing any wrong work.

2.1 Objectives

We will be able to:

1. Find a victim in a crowd within short period.
2. Reduce Number of Bank robberies or similar Fraudulent events.
3. Locate terrorists in close proximity.

2.2 Scope

Fast face processing: Our biometric face recognition system performs quick and correct detection of a face within the live video stream.

Multiple samples of an equivalent face: A biometric templet record will contain multiple face samples happiness to an equivalent person. These samples will be registered with completely different face postures and expressions, from completely different sources and at a special time so permitting to boost matching quality.

Identification capability: Our system functions will be utilized in 1-to-1 matching (verification), additionally as 1-to-many mode (identification).

Features generalization mode: This mode generates the gathering of the generalized face options from many pictures of an equivalent subject. Then, every face image is processed, options square measure extracted, and therefore the assortments of options square measure analyzed and combined into one generalized options collection, that is written to the information.

3. PROJECT BACKGROUND

If the face detected by face recognition algorithm may be moving in the video sequence. we have to deal with uncertainty in recognition of the face for a video-based recognition that take video sequences as input has been developed. It performs both the tracking and recognition of

human faces from the video sequence. In these projects we are going to work on total face detection methods. We have collected and merged various types of videos and clips in which we can easily track victim or person just by image. hence there is no need to watch whole clip and waste our time, by face recognition using open cv we can track our victim in seconds with correct data entry. Here we are also going to discuss about how we can implement our project in easier way to make recognition visible and the face of victim cannot be hide. Using the new technologies and methods and converting our whole data and merging the code in python we will end with new applications and ideas. Here we are planning to create smart cctv surveillance as crime rate is being increased and maintenance of criminals has max value.

4. LITERATURE SURVEY

Face recognition and tracking of a face using cctv surveillance is very hi-tech method to track criminals and find the data in quick little processes. Mostly in Indian cities there seems to be need of cctv services. There is many research undertaken from 1960 s as there is availability of feasible technologies which also includes mobile solutions. Face recognition is one the most perfect and successful way of images analysis which has also gained significant attention in crime and source departments. There are many different types of biometric methods that can differentiate between fingerprints, DNA and face categories. there are many elements in face recognition such as holistic and feature extraction methods. As in many researches the face recognition has great impact in student life There is no need to enter a key code, sign a sheet, identity card or swipe machine system Just integrated cameras system can automatically identify a student by face recognition automatically and make data entry effortless and easy. In schools it is hard for faculty to focus on each and every student for their attendance and progress reports. Methods of face recognition and face tracking has helped many institutes for attendance and special attention of student. Meanwhile there is no sufficient time with faculty to focus on particular student so they implemented the method of face recognition. The image machine identifies the face of student and mark their attendance in their daily records and maintain their data entries in reports. While it is being used with no efforts. This database is purposed on the Indian actors of Bollywood, Tollywood, etc. As we take the example of famous actor “Akshay Kumar “. We have taken many images of Akshay Kumar from his superhit movies and with the help of face recognition we searched many movie clips of many other movies As we identified his image in other movies the data entry was discreted and we identified his images from the clips of his movie the face recognition system was successfully implemented with the result of 100 % correct information .Machine identified the person with quick response of images from and video Instead of watching whole video and tracking victim from clips , face recognition had made it easy to identify victim using images instead of concluding whole video. Indian railways has proposed the method of smart cctv face recognition system in their departments where the machine detects if any person crosses railway line or anyone is in the area where train is passing the person on its place gets the alarm of quick shifting to secure place .The machine identifies the face and send response to person to move from danger area to safe place it detects the train and person both This smart system made crime rate to decrease from 40% since 2017.Face recognition is method activated from last 30 years many researches are in process to make smart systems and smart cctv surveillance as face is

main social and primary focus.

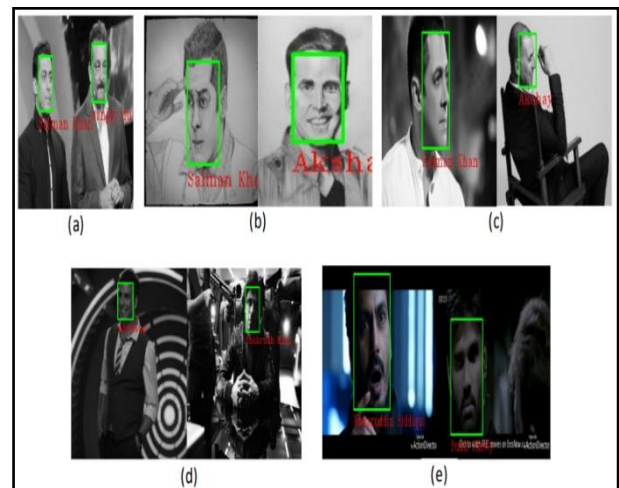


Fig. 1 Angular Face Detection

5. METHODOLOGY/ WORKING

We are going to purpose the safe working by using the automatic face detection machine in which we can tract the data not only of person but also with the background of the human. person’s expression. clothes, personality and background combinations can also detect the victim’s data. For measuring the system work there are four real time demos.

- Real time web demo system
- Comparison demo system
- Training a classifier system
- Real time Sphere Visualization system

In order with creating new directory of images and then processing it into raw form of code is main task to open cv where the main work is to classify the model and depict the structure of images in videos Video and clips should be only in mp.4 format other. filetype can cause error in loading the data and it will show the output as system destroy. We have to first build the record of people and then create directory path for the video and process our data in format to create directory to find image in video. The image should be bright and colorful which will be similar to identify in video. Blur and Xerox copy pictures are a source of corrupt data format when the machine will process the data the image will not be visible and then the data entry in output remain blank and it will show no result. Lots of people have pose variation and pose confliction in video so here we have kernels and open cv process demo models which will give independent data. We have setup various outstanding designs using open cv model which will show various animated data on time. We can implement the correct time and place of victim. Just instead of watching whole video clip of cctv just sort the image of criminal you have doubt on and the process will find that where the victim is criminal or not. It is employed in video surveillance, human laptop interface and image management. Video process has become a significant demand in current world. this method is majorly wont to sight, acknowledge and track numerous objects. Face sightion and trailing is that the part wherever we tend to detect someone's face from a video sequence and track him/her throughout the video. It plays important role in video corrections, police investigation, military trailing therefore on.

6. SYSTEM ARCHITECTURE

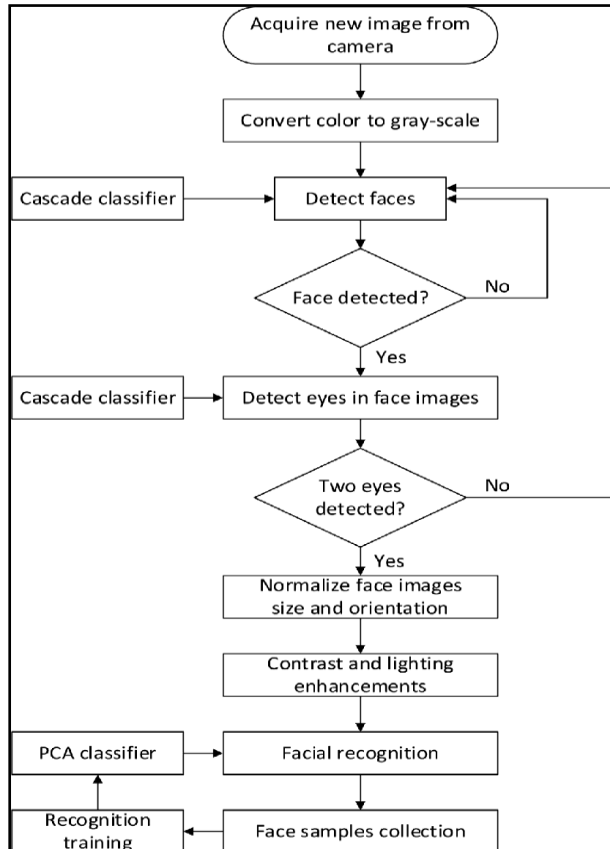


Fig. 2 System Architecture



Fig 3. Video Face detection

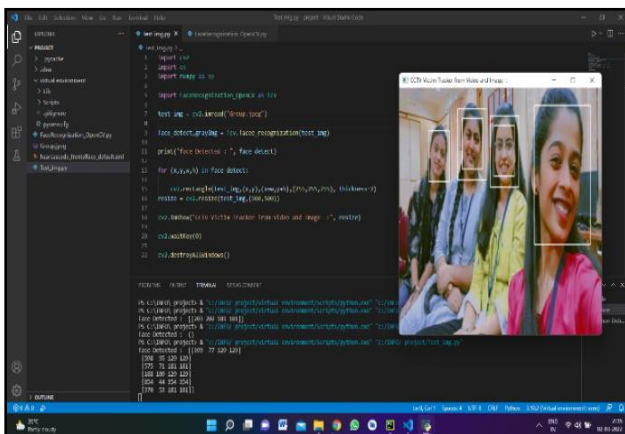


Fig 4. Face Detected using Image

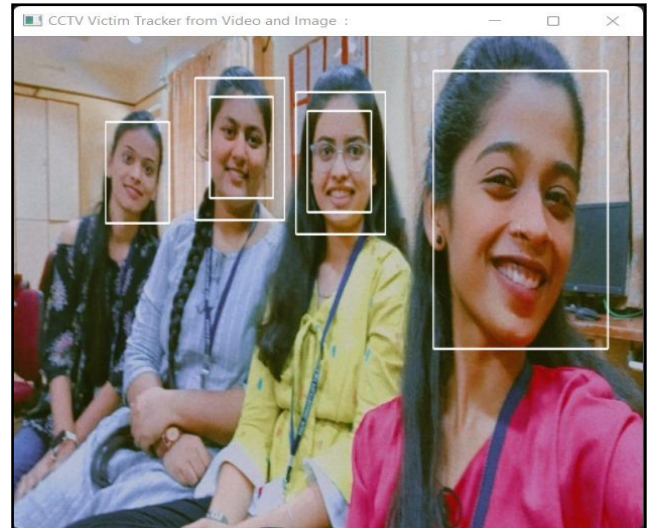


Fig 5. Detected Faces in Image

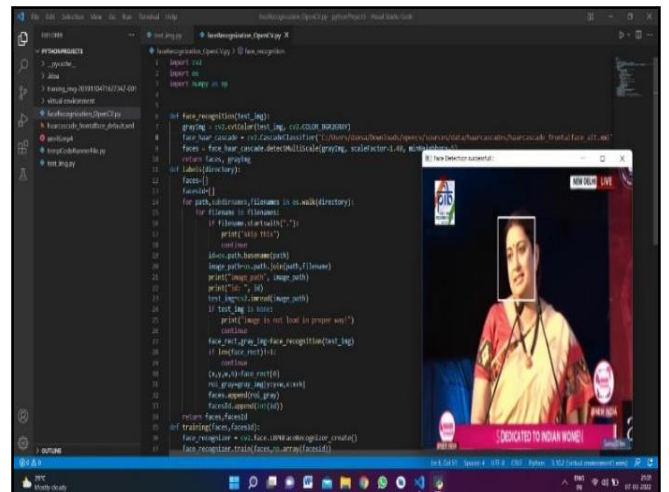


Fig 6. Victim Tracked by using Video

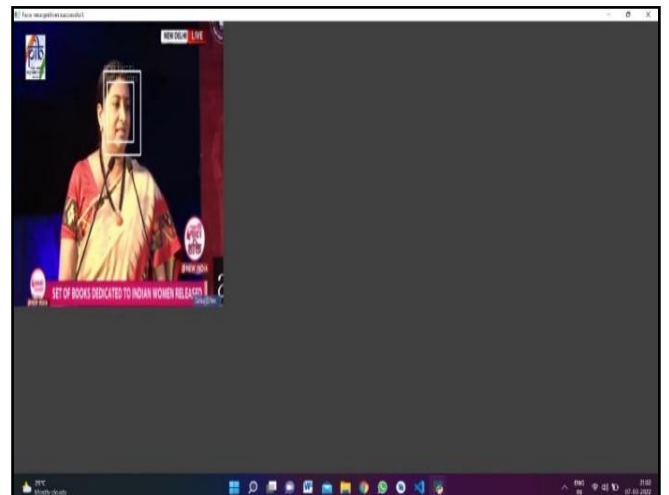


Fig 7. Face Detected in Video using name Tag

7. RESULTS

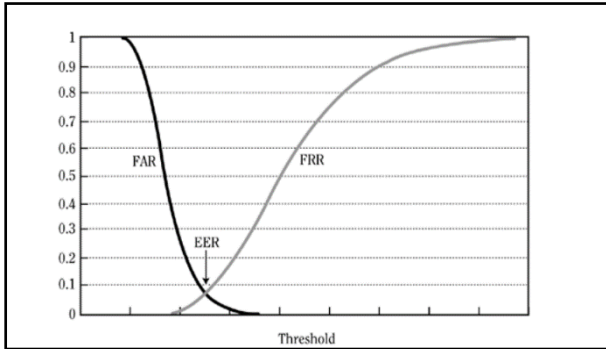


Fig. 8 FAR, FRR, EER Curve

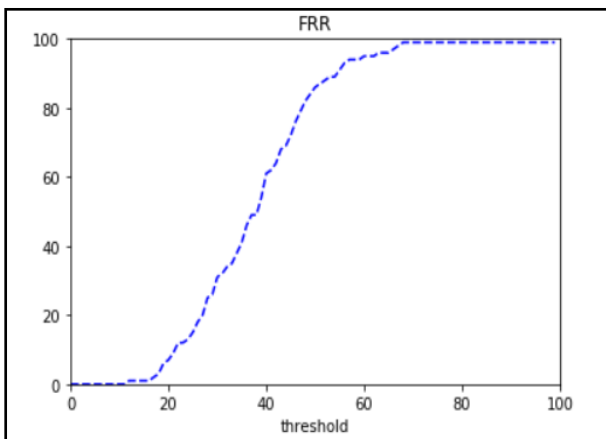


Fig.9 False Rejection Rate (FRR) graph

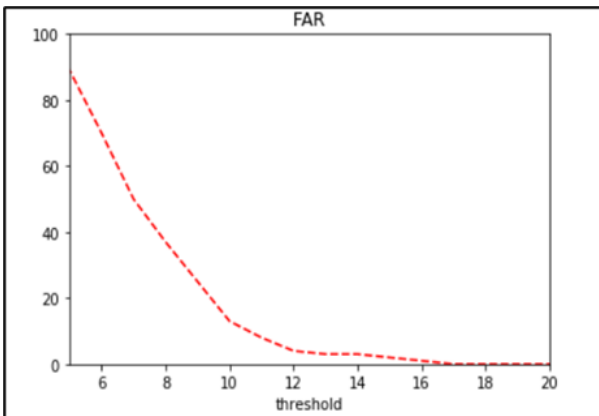


Fig.10 False Acceptance Rate (FAR) graph

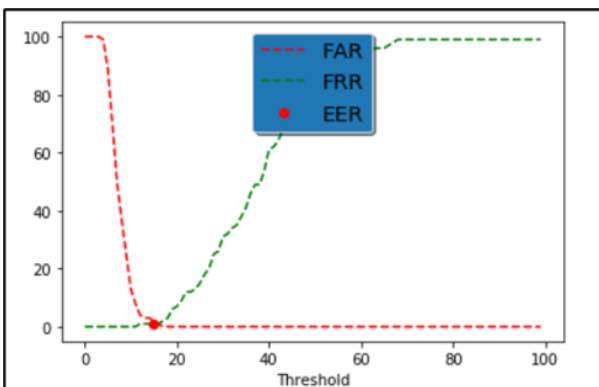


Fig.11 Equal Error Rate (EER) graph

CCTV image tracking total samples = 100

System recognition of samples =100

Accuracy for image recognition =100%

Similarly,

CCTV videos tracking total samples =100

System recognition of samples =84

System didn't recognize = 16

Hereby the accuracy for video recognition = 84%

EER for CCTV images and videos recognition is total 16.

FAR rate increases with increase in threshold frequency.

FRR rate decreases with increase in threshold frequency.

8. FUTURE SCOPE

This system encompasses a wide selection of uses in varied fields, like banking, forensic department, etc. the rationale this technique is quite helpful is thanks to the terribly fact that it is highly compact and it provides face detection and a second notification concerning the same through email. additionally, to the current face recognition may also be tried in future. Recognition is that the main a half of any security system. typically for a best recognition system, we've an inclination to need a well-trained information, that might give the bottom for our recognition. thus, to get the information, 1st collect the pictures of the topic individual for the quality. Once we have an inclination to acquire and train our system, we tend to square measure ready to give face recognition.

9. APPLICATIONS

1. Banking using ATM.
2. Residential security.
3. Voter verification
4. Student attendance system.
5. Airports security.
6. Control the Crimes.
7. To avoid the terrorism.

10. CONCLUSION

In this project we've used Python and OpenCV because it is simple to do code and simple to understanding also. Face recognition is an useful technology nowadays, that can provide many benefits to every industry. Face recognition can save resources and time and even develops new income streams, for companies that implement it right. The main goal of this project is to detect face in video or image and track person which we want as victim in it.

11. REFERENCES

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Proceedings of the Fifth International Conference on
Communication and Electronics Systems (ICCES 2020) •
IEEE Conference Record # 48766; IEEE Xplore ISBN:
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