

# A Facial Recognition Technologies

Kavita Samdade<sup>1</sup> Priyanka Chavan<sup>2</sup> Suparna Naik<sup>3</sup>

<sup>1,2,3</sup>Department of Computer Technology

<sup>1,2,3</sup>Bharati Vidyapeeth Jawaharlal Nehru Institute of Technology, Pune 43, India

**Abstract**— In recent year biometric authentication has been widely used to realize high security in airports, office building and so on. We first present on overview of face recognition and its application, scope of face recognition, techniques of how facial recognition is done and advantages and disadvantages. we choose Facial recognition in paper because it's easy to deploy and implement there is no physical interaction required by the end user. One of the biometric information process is facial recognition system whose range is more than other biometric technologies.

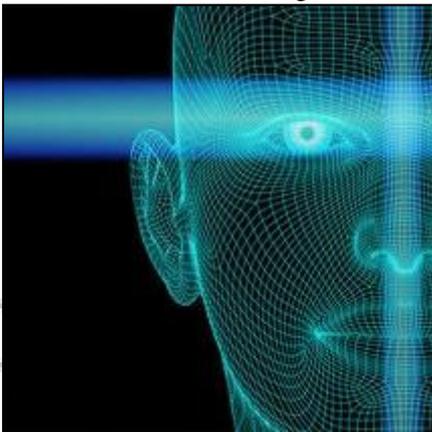


Fig. 1:

**Keywords:**

## I. INTRODUCTION

A Face Recognition system is part of facial image increasing recently. They use biometric information of humans and are applicable easily instead of fingerprints, iris, signature etc. face recognition system Face recognition usually applied and preferred for non-collative people and security cameras in metropolitan life. This system can be used for crime prevention, video surveillance, person verification, and similar security activities.

Over the year, movies have fixed a futuristic fantasy in our minds that a time will come when Software would be used to recognize people by their faces. In future there will come a time when ID cards will be replace by human face.



Fig. 2.

A human face consists of 80 nodal points. It is created and stored in database after measuring the features of numerical code. This is known as the face print.

Technology and application can be applied across different segments in the country.

## II. SCOPE OF FACIAL RECOGNITION TECHNOLOGIES IN INDIA

Preventing the frauds at ATMs in India. A database of all customers with ATM cards in India can be created and facial recognition systems can be installed. When user will enter to ATM then that person's photo in the database will be matched to give the access of ATM.

Through this technology verification visa and passport can also been done.

Also, driving license verification can be done using the same approach.

For the security reason in defence, military, on airports and on all importance places this technology can be used.

This technology can also be used in banks for verification and identification of an authentic user.

For identification of criminals the system can be used by police force also.



Fig. 3:

## III. TECHNOLOGIES OF FACIAL RECOGNITION

### A. 3D base face recognition:

3D base face recognition is a method in which face is scan or collect 3D geometric information of a human face. In this technique data of face shape is capture from a 3D sensor. The author said that 3D base face recognition is more robust than 2D base face recognition and it is cheaper and faster [2] [3]. Also the pose variation problem is solved by using this technique i.e. even if the person is not looking at camera the face will be recognized.

### B. Video base face recognition:

Video base face recognition is one of the important technique in face recognition problem It's difficult to recognize the face in video because of varying pose, expression etc. [4]. This problem is solve by creating appearance manifold for person in video. This method helps us when face may not in the

direction of the camera and also handle the large motion efficiently.

### C. Application of facial recognition:

There is various application of facial recognition. Mainly divided into black list and white list [5]. Blacklist application is related to security and identification of criminals and the white list application are such as attendance tracking, access control etc.

- 1) Payments
- 2) Access and security
- 3) Criminal identification
- 4) Healthcare
- 5) Unlock phone
- 6) Protect institute from threats
- 7) Track school attendance
- 8) Validate identity at ATMS
- 9) Recognize drivers
- 10) Banking and telecom.

## IV. ADVANTAGES OF FACIAL RECOGNITION TECHNOLOGY:

### A. Enhanced security:

By using facial recognition technology we can find the burglars, thieves and other trespassers.

On the government level, it becomes easier to identify terrorists or any other criminals with the help of the face scan.

For the security purpose of personal devices facial recognition can be used.

### B. Faster processing:

Recognizing a face this process takes a second or less and this is incredibly beneficial for the companies. In the era of constant cyber-attack and advance hacking tools, companies need the technology that would be both secure and fast. This is possible due to facial recognition, it grants a quick and efficient verification of a person. In addition it is hard to fool this technology so this is another advantage.

### C. Automation of identification:

Today, facial recognition is completely independent in the identification process and not only takes seconds and incredibly accurate.

With the help of 3D facial recognition technology it is very difficult to fool the technology as it contain infrared cameras which boosted the level of accuracy.

## V. LIMITATION OF FACIAL RECOGNITION TECHNOLOGY

### A. Change in appearance:

It creates problems to recognition face when people change their hairstyle, grow or shave beared or wear glasses.



Fig. 4:

### B. Confusion

Facial recognition systems can't tell the difference between identical twins.

### C. Light sensitive:

Different lighting and quality of camera may also affect recognition.

## VI. CONCLUSION

This technology generally used for the applications which requires high security. Facial recognition system must be able to recognize a face in many different imaging situations.



Fig. 5:

## REFERENCES

- [1] A.S.Tolba,A.H.El-Baz,and A.A.El-Harby"Face Recognition:A Literature review"vol.2,jan 2005.
- [2] Ira, K.-S., Ronen, B.: '3D face reconstruction from a single image using a single reference face shape', IEEE Trans. Pattern Anal. Mach. Intell., 2011, 33, (2), pp. 394-405.
- [3] Waldemar Wojcik, Konrad Gromaszek and Muhtar Junisbekov Facial Recognition: Issues, Methods and Alternative Applications, 2016, 14.
- [4] Apurva Biswal1, Poonam Sonawane2, Meghali Veer3, Yash Sahay4'A Survey on Automated Systems for Face Recognition in Videos' 1234BE IT, Department of Information Technology, India.vol 4, 2016, Page 620-624
- [5] Artificial intelligence with Expert System, 31.december. 2019.
- [6] Muhammad Naeem,Imran qeshi andFaisal Azam"Face Recognition Techniques and Approaches:Aservey"Sci.Int(Lahore),27(1),301-305.2015.
- [7] Kavita,Ms.Manjeet Kaur,Mtech.CSE,Riem,Rohtak Assistant Professor RIEM.Rohtak"Aservey paper for Face Recognition Technologies" Vol.6,issue 7 july 2016.