STANDARD FACE RECOGNITION TECHNIQUES

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ABSTRACT

Face recognition is one the most trending technologies which is used everywhere in the present world. It involves the scanned part of our body parts which are unique to everyone and are stored in a database which makes hackers impossible to steal passwords or any personal information.It has a lot many advantages and helps a lot to scientists, political parties to protect their private party matters from stealing by the other parties or the hackers. Face recognition involves a lot of coding and it even requires mathematical knowledge to retrieve one's information. Mathematics topics like eigen vectors and integration is used to retrieve data, since these eigen values and integration take the lengths of the body parts computer interaction. Now that face recognition makes hackers impossible to steal someone's passwords and hack their belongings that have to be safe guarded. Face recognition is useful for people like- journalists, political parties to ensure their data is safe and to protect their data from stealing by other political parties or by the stealers. Our topic is face recognition which one of the most used technology in our daily lives. It involves scanning of face and get the points on the face which is unique for everyone and it get the points using mathematics topics like eigen vectors and integration. It also involves python language and matlab language. Matlab is used to get the mathematical values and python is general coding language which is used in biometrics and it is also used in artificial intelligence and machine learning. Python has inbuilt libraries which we make use of them and get the face values. All these faces are stored in databases and whenever we keep a live face it recognizes the face of the person which is already present in the database. Even face recognition is used in the data security and high security labs where only limited people have access to control over the labs. So face recognition is even used there to ensure high security to the companies. Almost all the software companies, educational institutions have these face recognition technology to ensure the fraud or make their more comfortable.And now in our project we look this complex process will happen in simpler terms.

Keywords: face recognition, face detection, python, matlab, database

1. INTRODUCTION

Now a days face recognition is growing rapidly. So many people are researching on it. We need to have some extra knowledge to know about it. We should know about the face highlights and geometric invariants. It depends on the face revolution and distortion. We even have some advantages too and disadvantages but one of the most peculiar disadvantage is there is less solid invariants.

Face detection involves the 2 step procedure: 1 containing the faces. It is hard to find the faces so the first step involved in face recognition technology is to get or capture the face. There are different problems while capturing the face such as light, background, quality and many more. So we need to have an ideal face detector which detect any face at any point of time. After getting the input using face detector we can get the output in 2 ways one way is keeping all the images in the folder as an input and when we scan the face then it will say if the given image is present or not, if the given image is present

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then it will give the output yes or else it will give the output no. Next method when we give the faces as the input then it will check and measure all the algebraic terms such as width, height, and color and then it will recognize the given input face.

2. LITERATURE SURVEY

Face detection can be divided into 2 types:Processing before they are saved in the database once we give the input then the images are pre-processed and then if the images are clear then they are saved in the database otherwise they have to be retaken.Now the taken images are classified into categories in which we use matlab for the classification. We can also use many other network systems but in this project we have used python and matlab, so we are using matlab for the filtering.Locating the images. All the images which are saved and extracted are saved but its time to know which image belongs to particular person. So all the images are saved and named once they are in the database, so when next time when we scan the face then it will show the output from the saved database.

3. METHODOLOGY

Extraction of images to filter and organize the images :Now a days we use tonnes of photos which are either captured in DSLR'S, phones or digital cameras. So there is need to create photo application which was created. This will help us in browsing and arranging the photos in simple manner. This application will help in arrange photos in sequence manner the above uses an automatic approach which will sort out the images and label them. So this one of the most useful tool which was developed.

3.1 Using eigen signatures for the general face recognition

In this process we will extract the image using eigen values. This helps in getting face for faces with different expressions. It also helps in identifying the image is real or fake. It will detect the fake images and accepts only original faces. It also recognizes face even under certain changes such as rotation, depth. This also recognizes face in motion such as when the video is running we can capture the images. This mostly depends on the filtering from unfamiliar images to familiar images.

3.2 Using local binary patterns for face recognition

This paper describe the usage of the and consider both the shape and texture pattern. Theare is divided into chi-square tests. Chi-square is a test which has grid or divide the face in such a way that it has equal number of rows and equal number of columns. Face recognition is a computer-based technology where we detect only faces but any-other objects such as trees, buildings are not detected.

3.3 Face recognition has two ways to detect an image

One way is to find the face and detect all the points in it so that the face is recognized and this way is called facial recognition.Another way is to detect the face using trial and error method where we give a lot of input images and when the face is scanned it will check with each and every face then it will show the matched face. So in this we checked each and every face and trial and error method is used.

4. SYSTEM ARCHITECTURE

The architectural structure of our work is given in Figure 1. Firstly, we take the input images using face scan detector then this face gets segregation using facial feature detection. Secondly, we apply classifiers and compare them with the inbuilt images using viola jones algorithm. Finally, the resulted face is detected or not or we get the name of the face which we have stored in the input database.

Figure. 1. System Architecture
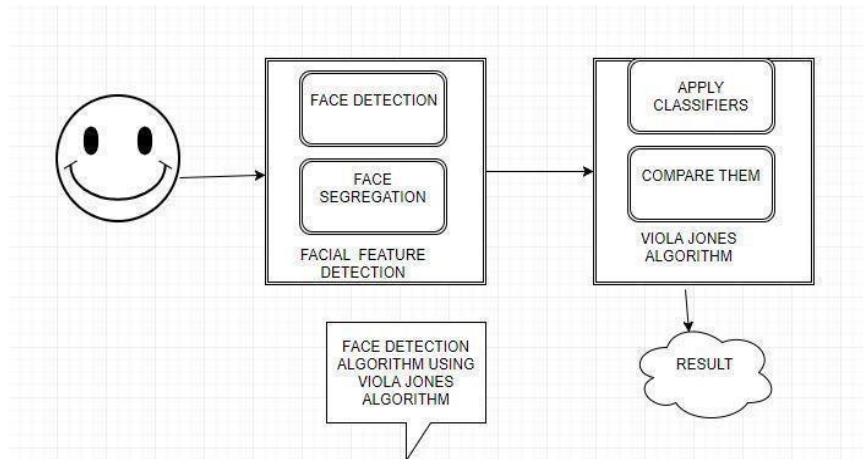
The edge features, line features, and center surround features for different angles are obtained. Figure 2. Shows the above mentioned features of the object.
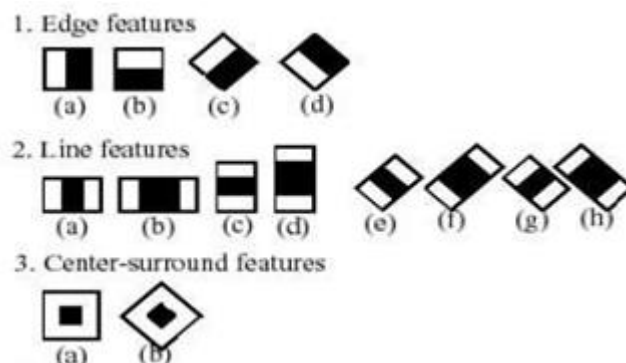

Figure.2. Edge Features, Line Features, Center Surround Features

5. SYSTEM AND RESULT ANALYSIS

The input image is viewed as a pyramid image. Preprocessing is accomplished using histogram equalisation and correctioness for lighting is achieved. Input layer and hidden layer are analysed and obtained using neural network, and the output is obtained. These steps are summeraised as under.

5.1 Face Detection Algorithm

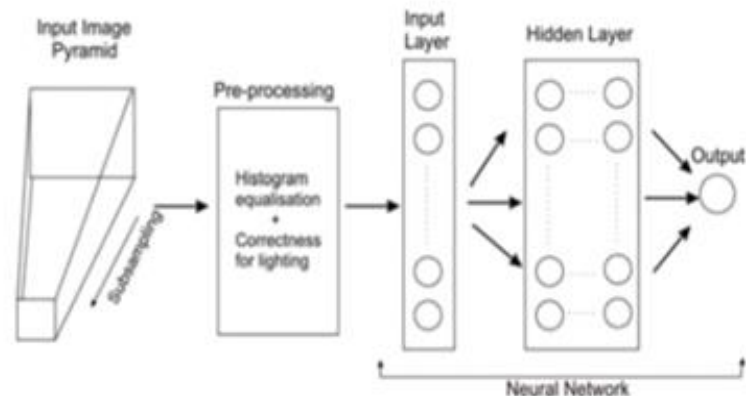The Figure. 3 shows the functioning of face detection algorithm.

Figure.3. Face Detection Algorithm Follow

- Processing done before they are saved in the database. As soon as the input is received, it is undergoing pre-processing, then checking is performed for clarity of the image. If the images are clear then they are saved in the database otherwise request is made for retake of the image.
- Now these images are classified into categories. For this purpose we use matlab and classification is performed. We can also use many other network systems but in this work, we have use python and matlab, so we are using matlab for the filtering.
- All the images which are saved and extracted are saved but its time to know which image belongs to particular person. Locating the images are the next important concern of our algorithmic process. So all the images are saved and named once they are in the database, so that next time when we scan the face then it will process the output from comparing the images saved in database.
- Gray scale base: Our face consists of many parts such as eyebrows and peupas. The color around these regions are darker than the color of the face. So gray level is making all the face to the constant color and then extracting the images using matlab.

5.2 Low Level Analysis

It based on the color, where filtering color is far better than filtering the faces using the coordinate points. In this the face color is filtered and recognized but this is not the right approach because people having same color may sometimes be recognized and this may lead to collision between the faces of

the person and even when the person is in motion, it cannot be detected due to less light and it is influenced by many factors.

There are 3 ways to get this approach:

1. Get the input face image and filter it.
2. Apply all the mask to get the best out of it.
3. Apply convolution theorem and get the coordinates and extract the image.

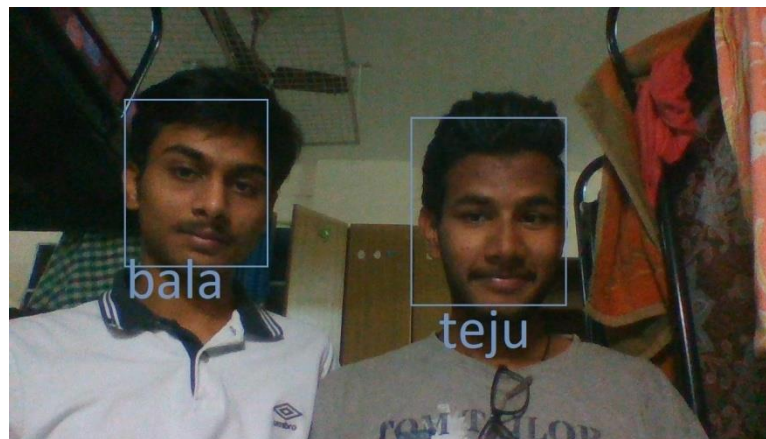*Figure.4. Python Programming Screen*

Figure.5. Sample Output

The Figure 4 and Figure 5 show the Python programming screen shot and sample out respectively.

6. CONCLUSION

There are some implementations which do not produce any 3D applications. As the time changes, the software must be updated, while outdated software is still in use. Our face not only contains skin but it also contains hair for which algorithm finds difficulty to scan the image so algorithm

works in different manner. When we scan different images, the dimensions and intensity varies. This leads to difficulties to extract the image. Waste in the storage in the database when we take more photos than required. Our system minimizes or avoids the wastage in storage. Some systems find it difficult to handle the software. But our system ease the use of the software. Now-a-days we find face apps are being used in the social media apps such as snapchat, Instagram, facebook etc. Therefore, our system performs well to the latest need and use.

7. REFERENCES

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