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# Face Detection and Features Extraction

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**Abstract:** In this we are used features extraction method is used for identify object form group of objects. And calculate location and size of human face In which we are detect Eye, nose, mouth. In which we are work on detection of human face in front. In our research we are use Viola Jones algo for detection of facial features Template machining technique basically create a template and identify object with the help of techniques IN which object is compare with classifiers and matched sucessfully.It contains feature points which used for describe objects. Working of template machining as follows.

1) In which features of source image is competes.

2) IN which features of image is compare with database images

**Keywords—** Face Recognition, feature detection, viola Jones.

## I. INTRODUCTION

Face Detection is the process of identify object from images. We are classify diff objects which are easily visible. Some objects are completely visible and some are partially hidden from another object objects are available in diff positions[1]. Identification of these objects are easy for humans because they have knowledge about object and lean based on experiences but It is difficult task for detect a object from machine. Duo to this problem solving diff algorithms are used. Using these Viola jones algorithms machine can easily detect objects in diif pose, lightning conditions, camera parameters, appearance etc. [2] In which use square-shaped filters to detect interested points object. [3].

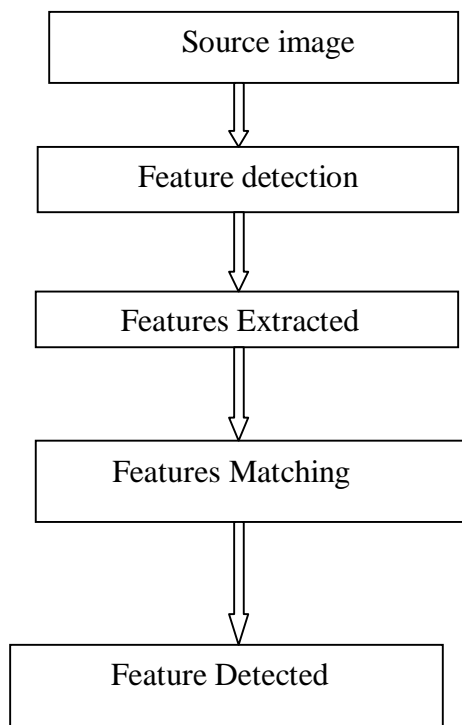


Fig 1 Represents control flow diagram

- A. In which we are represents working of Face detection system. Ist step input source image is calculating local features using Euclidian distance 2<sup>nd</sup> step detect using violva jones algo it is more accurate than SURF.3<sup>rd</sup> step extract features from images.4<sup>th</sup> step show results.[4]
- B. Difficulties during Face detection

- C. We are handle various difficulties during face detection .These problems are work like as
- D. hamper during Face detection.[5].
- E. 1.There is a bigger problem arise during detection is view point or lighting position.
- F. 2.Some image face are rotated then they are not properly detected.
- G. 3.Some face are in diff poses and diff appearances.
- H. 4.Difficult to detect face in binary images .

## II. BACKPROPAGATION

This algorithm is work on supervising learning method.In which require a output from a input for calculation loss gradient.In which use as sigmoid function as like as gradient function for its activation.[6]  
Algorithm is divided into two pars

- 1) Phase 1:Propagation :
- 2) Forward propagation: Input is given to network for generate propagation output activation
- 3) Backward Propagation: In which giving the output as like as input for order to generate the diffirence between actual and target output.
- 4) Phase2.Weight update:
- 5) Gradient of weight is used to produce of diffidence of output and input activation.
- 6) Ration of learning is affect the speed and quality of learning. When the ration of neurons are trained quickly then accuracy is not increases. Due to updating increases positive side then error size increase.

## III. FACE DETECTION ALGORITM

It is proposed by poul violva and Michael Jones.It is useful for detecting faces but other kind of objects. Due to robust nature and used in practically is mostly used .In which we are used four stages for detection of faces [7]

- 1) Haar feature selection: It is used for detect sophisticated features in rectangular box[8]
- 2) Cascade: In which classify features in different stages[9]

## IV. VISION CASCADE OBJECT DETECTOR

Cascade object detector is used viola-johnes algorithm to detect people face ,nose ,mouth, eye [10]

### A. Neural Network

Multiple interconnected layers are inspire neural structure of brain. Arrow represents the connection from the output of neuron of another. The nodes of neural networks are exchange data within nodes. Every nodes are assign nodes. It is based on supervision learning[11]

### B. Proposed methodology

- 1) Detection of faces in images.
- 2) Detection of features in face.
- 3) Compute histogram for Grey images and colour image



Figure.2

Figure.3

Figure.4

In figure2 we are detection of face using haar cascade ,detection in rectangle .

In figure3. we are detection of nose n face .

In figure4. we are detecting eye and mouth simultaneously at a single time

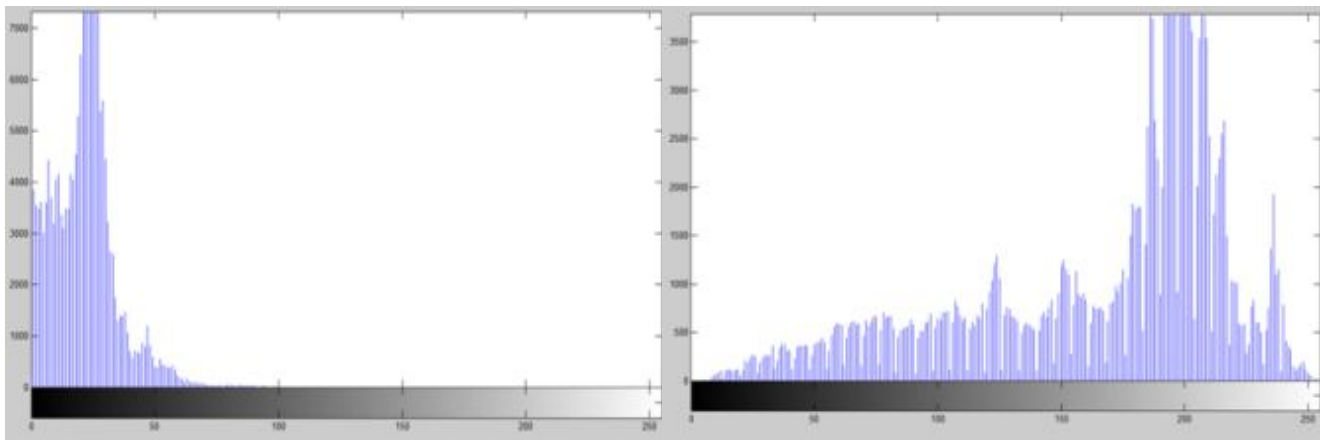


Fig. 5. Histogram of grey level image

Fig 6. Histogram of colour image

## V. CONCLUSIONS

Detecting face and features are recognize using neural networks .We are used different multiple faces for face recognition is continue as same. First we are read the image and detecting features and then convert into greyscale images for detection of feature .In that require a lots of training seasons for enhances the performance of network and reduce least mean square error. Viola-jones algorithm is high sensitive to the color information in the image and will not work for a gray scale image. It is difficult to detect face and features in binary and grey image.

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