ISSN No:-2456-2165

Exposing Digital Image Forgeries by Illumination Color Classification

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Abstract:- This The proposed method which explore regarding transmuted spaces, denoted by image illuminant maps. As to recommend an approach for choosing corresponding procedures of characterizing the detection of image forgeries by using its visual possessions for an effective and automated detection. Here we represent a new and effective image forgery detection scheme based on combining all the three features of an image i.e. color, texture and shape information. In the methodology we mainly focused on identifying image forgeries which contains the info regarding individuals and explains a way for detecting forgery images (i.e. the face of a person in an image).As a result, the proposed method which increases the accuracy by 20%.

Keywords:- *Image processing, Support Vector machine, Illuminant Maps, Forgery Image.*

I. INTRODUCTION

A. Image processing

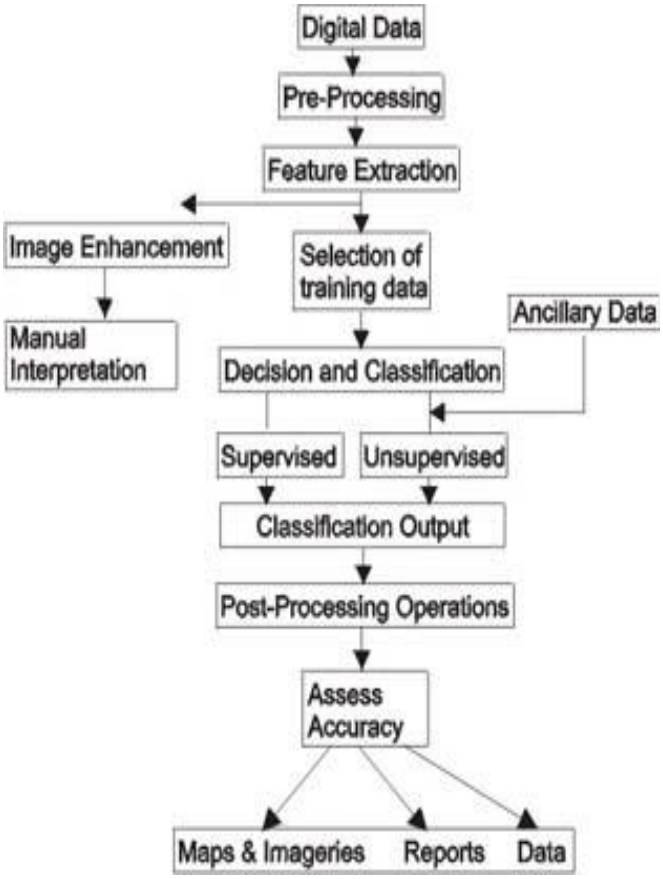
Image processing is a process of converting an image into digital form and execute certain procedures on it. The processing i.e. enhancing is done as to get some useful information from it. The system is taken as Input such as image, like video frame or photograph and provides the output which is associated with the characteristics of that image. The processing of Images mainly contains three steps.

Step 1: Import the image using optical scanner or by digital photography.
Step 2: Analyze and manipulate the imported image which contains the info regarding data compression and enhancement.
Step 3: Output is consider as the last stage in which result can be transformed image.

B. Characteristics

- Image enhancement: As to increase the features of image like boundaries or constant graphic display, increase or reduce the gray levels, filtering, coloring and so on.
- Image restoration: Efficiency of image restoration is mainly depends on degradation process and filter design. Image enhancement and restoration both differs from the latter concerned and more extraction of image features.
- Image compression: The minimization of bits necessary to represent an image is called as image compression. In many applications this technic is used i.e. broadcast TV, remote sensing via satellite, radar, for educational & business documents, in medical images, digital radiology, motion, pictures, and weather maps and so on.

C. Working diagram of Image Processing



II. METHODOLOGY OF PROPOSED SYSTEM

As there are many system are available which have used for digital forgeries images using lighting technique. In one of identifying image configurations method which containing people, the writers as to appraisal illuminant maps for the image using available approaches. There are important characteristics which not explored by investigators.

In proposed system of color, texture and shape present in a fake image become more pronounced in the transformed image. It is necessary is to found translating an input copy to different illuminant maps.More specifically, this proposed work covers texture and edge descriptors to illustrate IMs and sense conflicts in images. Here we study diverse ways of using different IMs for different color spaces and also for examining one of the suitable image descriptors which leads to detect forgery by taking the use of image properties.

A. Implementation

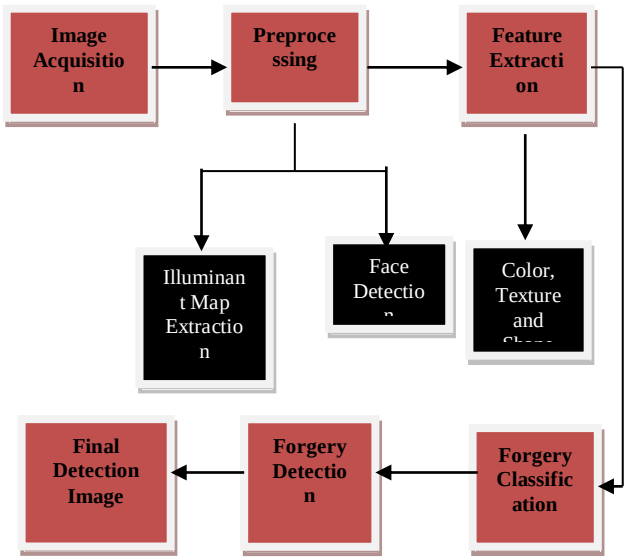


Fig 1:- Block Diagram

The implementation of the system is done using the following modules as listed in below, and the block diagram is represented in Figure 1.

The projected methodology to detect image splicing, which is more detailed by removing the number of interactions of people. The task for detection images involves in classification of a new image by using two classes which are pre-defined i.e. real and fake.

➢ Image Acquisition
- This is considered as the first stage of any vision system.
- The image is acquired by Gallery.

➢ Preprocessing
- Preprocessing having two steps, Illuminant Map Extraction.
- Face Detection.

B. Illuminant Map Extraction

Here we offered an innovative approach as to identify falsifications using illuminant colors. This method splits a color duplicate into overlying chunks by providing the estimation for each block.

1. Face Detection

After estimate the illuminant color in image, detect face one by one using face detection tool. Then detected each face images cropped for further process.

2. Feature Extraction

In feature extraction stage, cropped illuminant map face images are processed. In this stage image descriptor such as Content-based image retrieval method is recycled for feature extraction. Color, Texture and figure structures are extracted in cropped illuminant map face images. Finally encoding the extracted information into feature vectors for further process.

- In color based, color has histogram, autocorrelation and color moments features are extracted.
- In texture based, energy, contrast, correlation and homogeneity features are extracted using GLCM method.
- In shape based, edge feature are extracted.

3. Forgery Classification

In this stage, faces are classified in the form of real or fake based on color, texture and shape features.

4. Forgery Detection

In this stage, the first step is to be taking that of the image which is found as fake. In further steps need to recognize which face is more probable to be fake in the image using surf feature detection.

III. SYSTEM DESIGN

In the system design we discuss regarding the data flow diagram, uml diagrams, use case diagram, class diagram, sequence diagram, feasibility study and software testing units.

A. Data Flow Diagram

The input image has been obtained by gallery is called image acquisition, next processing is carried out in two steps. First one is illuminant map extraction and second is face detection. Finally encoding the extracted information into feature vectors for further processing. In the fourth step faces are classified in the form of real or fake based on color, and shape features. Finally fake face is identified.

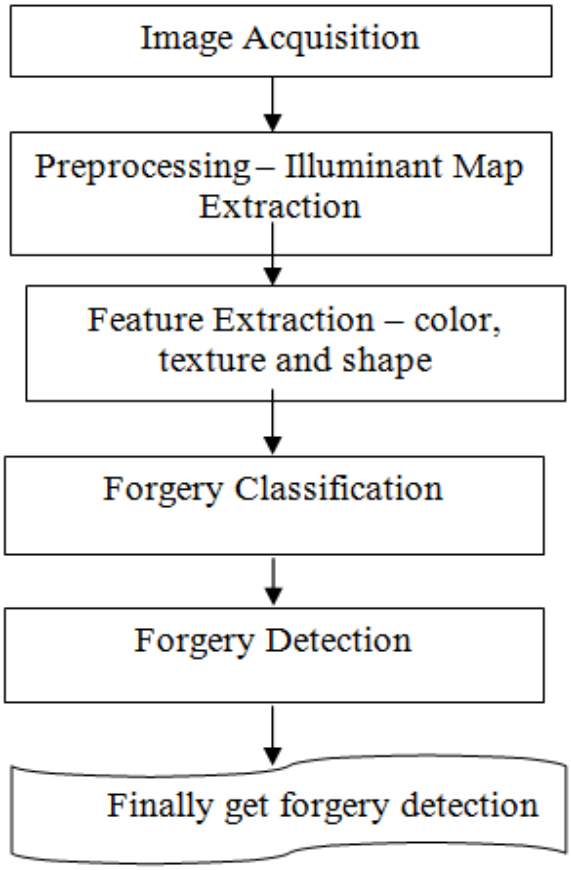


Fig 2:- data flow diagram

IV. RESULT

The proposed system i.e. the image forgery detection using MATLAB is tested and results are drawn this this chapter.

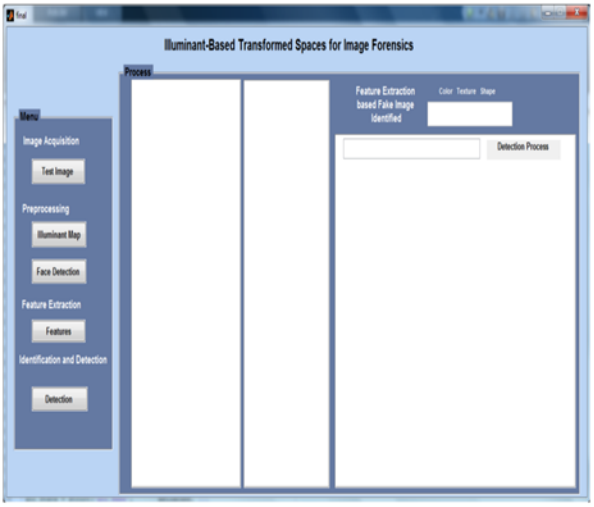


Fig 3:- Proposed system GUI view to the end user

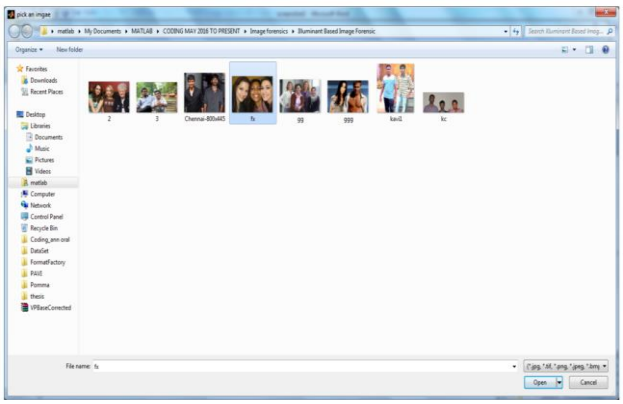


Fig 4:- Photography shows the folder of images. Which are used to inspect the forgeries.

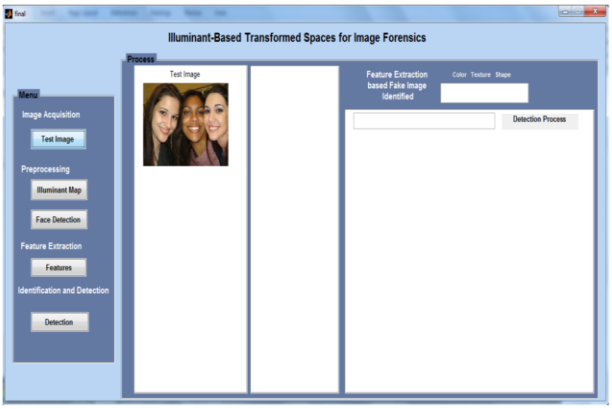


Fig 5:- Photography shows the selected image. By clicking on the test image button, it will shows the path from which we can select images.

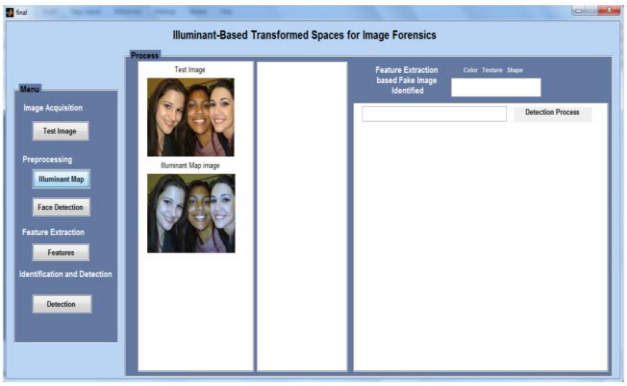


Fig 6:- Photography shows the illuminated image. For the test image we can apply the filters, correlation, colour illumination by clicking on the button “illumination map.

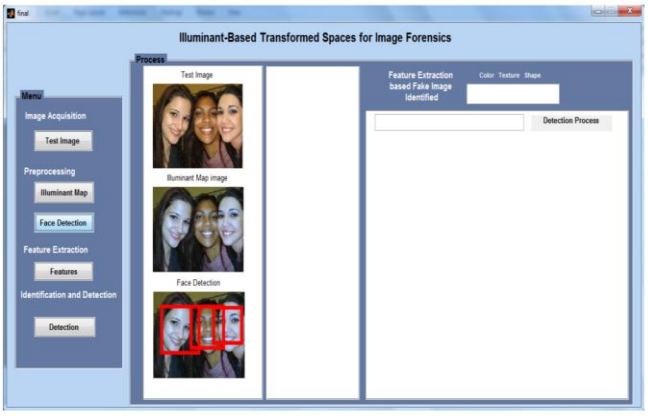


Fig 7:- Photography of the face detection in the image.

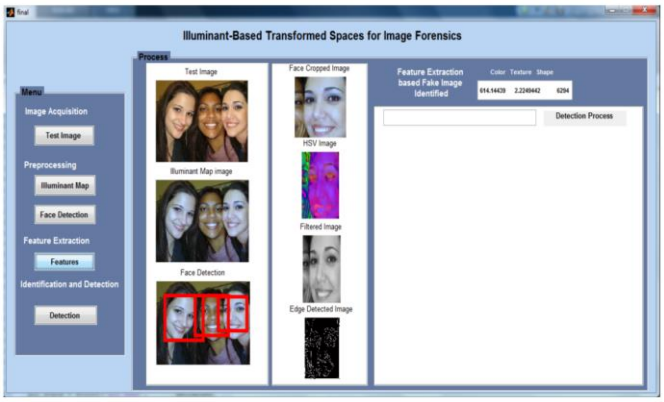


Fig 8:- Photography of the feature extraction from the selected image.

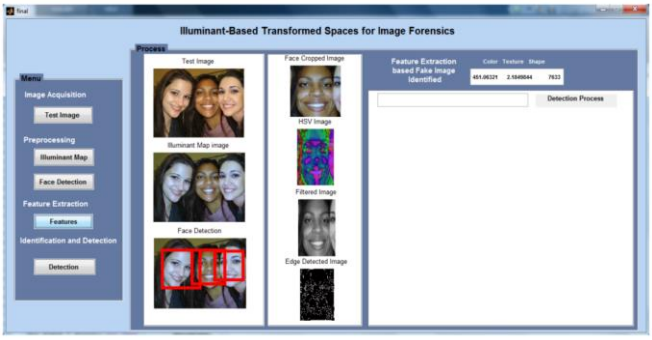


Fig 9:- Photography of the feature extraction based false image identification.

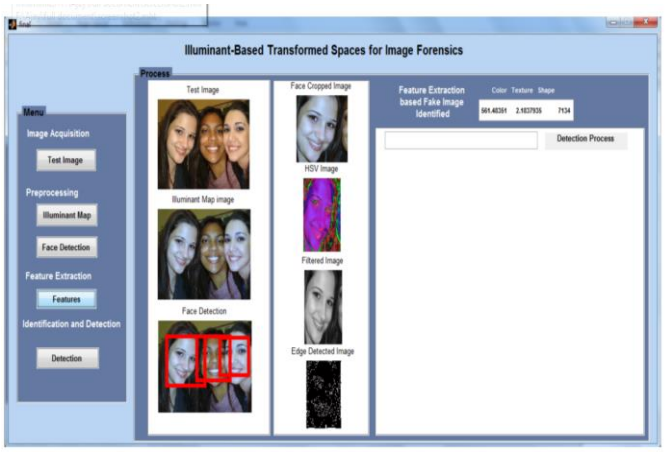


Fig 10:- Photography of the feature extraction based false image identification.

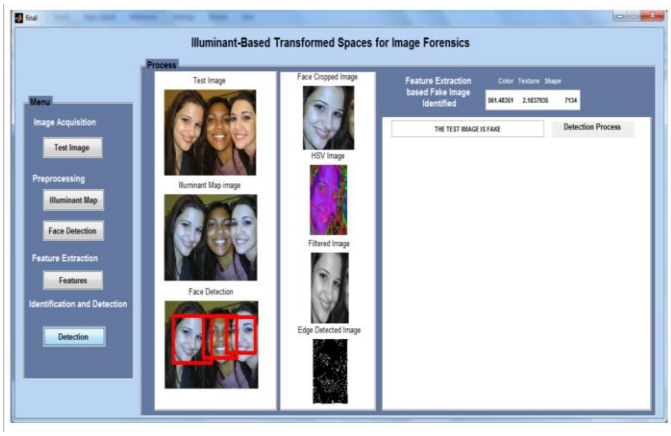


Fig 11:- Photography of the feature extraction based fake image identification.

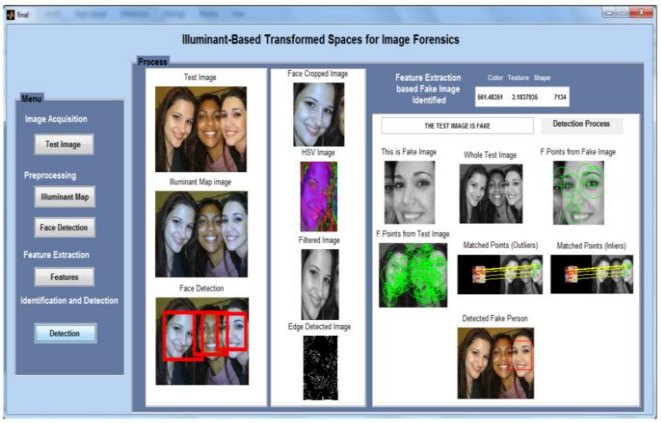


Fig 12:- Photography of the feature extraction based false image identification.

V. CONCLUSION

Image forgery finding has become a necessary portion in this current life. The previous ways needs more knowledge on that to execute. The color descriptors recognize if analogous portions of the thing are colored in the IM. The proposed system presents an enhanced methodology for discovering syntheses of individuals that discover corresponding statistics. Here we came up with an automatic way as to select the best image and combine with appropriate color spaces. The final result which we got i.e. efficiently indicating the region of an image which was forged. As a result, the proposed method which recovers the arrangement accuracy of the state-of-art solution by 20%.

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