CURRENCY RECOGNITION SYSTEM USING IMAGE PROCESSING

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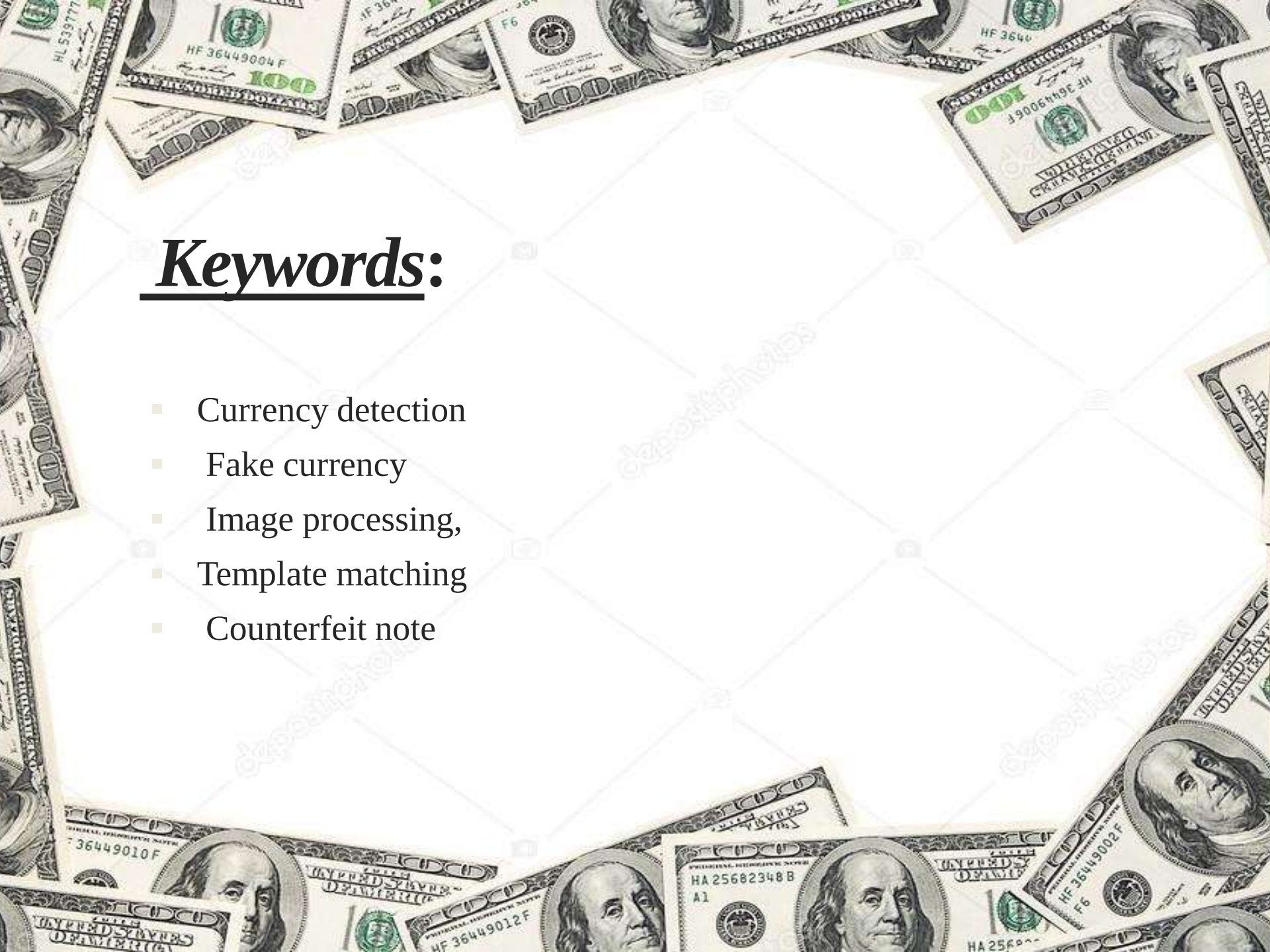
ABSTRACT:

It is difficult for people to recognize currencies from different countries. Our aim is to help people solve this problem. However, currency recognition systems that are based on image analysis entirely are not sufficient. Our system is based on image processing and makes the process automatic and robust.



***Keywords*:**

- Currency detection
- Fake currency
- Image processing,
- Template matching
- Counterfeit note

Introduction :

- There are approximately 50 currencies all over the world, with each of them looking totally different.
- For instance the size of the paper is different, the same as the colour and pattern.
- The staffs who work for the money exchanging (e.g. Forex Bank) have to distinguish different types of currencies and that is not an easy job.
- They have to remember the symbol of each currency. This may cause some problems (e.g. wrong recognition).
- the aim of our system is to help people who need to recognize different currencies, and work with convenience and efficiency

***CONT*:**

- For bank staffs, there is a “Currency Sorting Machine” helps them to recognize different kinds of currencies.
- The main working processes of “Currency Sorting Machine” are image acquisition and recognitions.
- It is a technique named “optical, mechanical and electronic integration”, integrated with calculation, pattern recognition (high speed image processing), currency anti-fake technology, and lots of multidisciplinary techniques. It is accurate and highly-efficient.

Relevance:

- In this proposed system, our relevance is to focus on detection of fake currencies which is spreaded in Indian market also our main goal is to use image processing technique and recognize original currency.

- Relevance of our project is similar to currency recognition system using neural networks . That paper identifies, and extracts robust features from banknotes

System Background:

The proposed web portal will help common people for currency recognition anywhere anytime.

- In this approach system extract the general attributes of the paper currency like various dominant parts of image of currency note (like identification marks, latent image, etc).

The identification marks helps to know the denomination of currency. These marks of currency helps to detect fake or genuine. The system will be developed to check different currency notes of 100, 500 and 1000 rupees.

The Web Application will display currency denomination and either currency is genuine or fake.

CONT:

The system simply extracts feature of currency which were match with original currency features and immediately displays result with accuracy.

The features which were considered for currency recognition are as follows :

- Latent image
- Currency Value Area (100,500 & old 1000)
- Intaglio printing
- Identification mark
- See through register
- Satyameva Jayate logo at left corner
- Reserve Bank of India at top of currency note
- Reserve Bank of India logo at right corner

LITERATURE SURVEY:

- Main purpose of the system is to provide fake currency detection facility. There are lots of machines are available that helps the people to recognize different features of currencies.
- But for most working staffs in money exchange have to keep a lot of different features and anti-fakes label for different commonly-used currencies.
- Existing systems uses optoelectronic device to produce the signal from the light refracted by the banknote.

CONT:

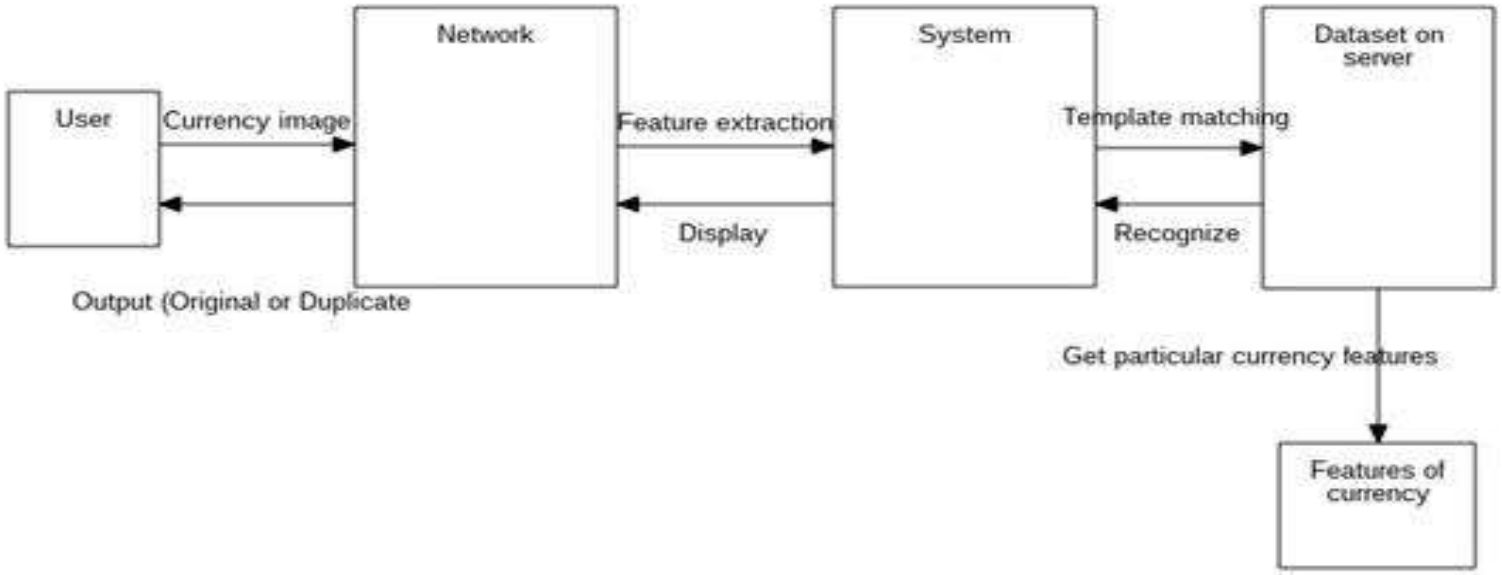
- There are many currency recognition machines are available in current market through which currency can be recognize whether by using image processing technique or neural networks

  Existing currency recognition systems are mainly based on processing of image using image processing techniques and neural networks.
- Some system uses Gaussian function in hidden layer and output layer of NN in the place of sigmoid function.
- System shown that the Gaussian function is more effective than sigmoid function for the recognition of known features and rejection of unknown patterns

OBJECTIVES OF APPLICATION :

- To identify original currency note using Image processing techniques.
- System compare images of currency note to the stored images of original currency note images.
- To provide Cheaper and Accurate system to the user which can easily accessible and gives accurate recognition of currency notes.
- To develop user friendly web application of currency recognition system.
- To make available to common people quickly
- and easily so they can utilize anywhere and at any time.

SYSTEM ARCHITECTURE:



SYSTEM DESCRIPTION :

- Input(Image Acquisition) : A digital camera or scanner or phone is used for image preprocessing. The starting step of the paper currency recognition system would be image segmentation that means separating the note image from the background.
- Browsing : Proposed System browse these images file in the system and these image will be given for feature segmentation and template matching.

Image processing : - It is method to convert an image into digital form and perform some operations on picture or image, in order to obtaining an enhanced image or to extract some useful information from image or picture. Here, We use Template matching for finding small parts of image.

CONT:

- **Template matching** : - It is a technique in digital image processing for finding small parts of an image which match a template image. It can be used in manufacturing as a part of quality control, a way to navigate a mobile robot, or as a way to detect edges in images. Finally, we get output which shows .

  Finally, we get output which shows the whether currency is Original or Duplicate. After applying Template matching Algorithm, so person can know whether note is real or fake.

***RESULT*:** Fig. Uploading Image

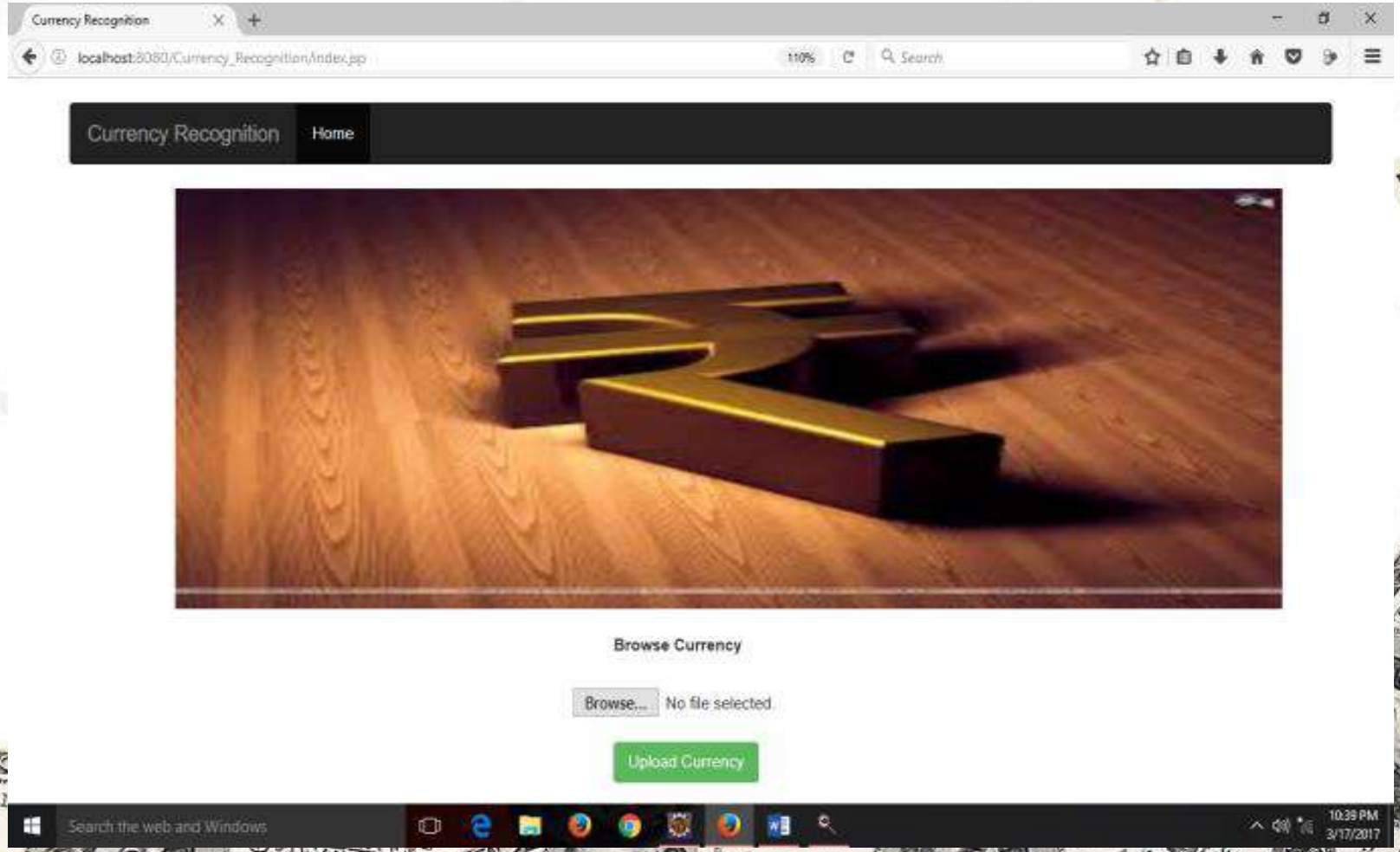
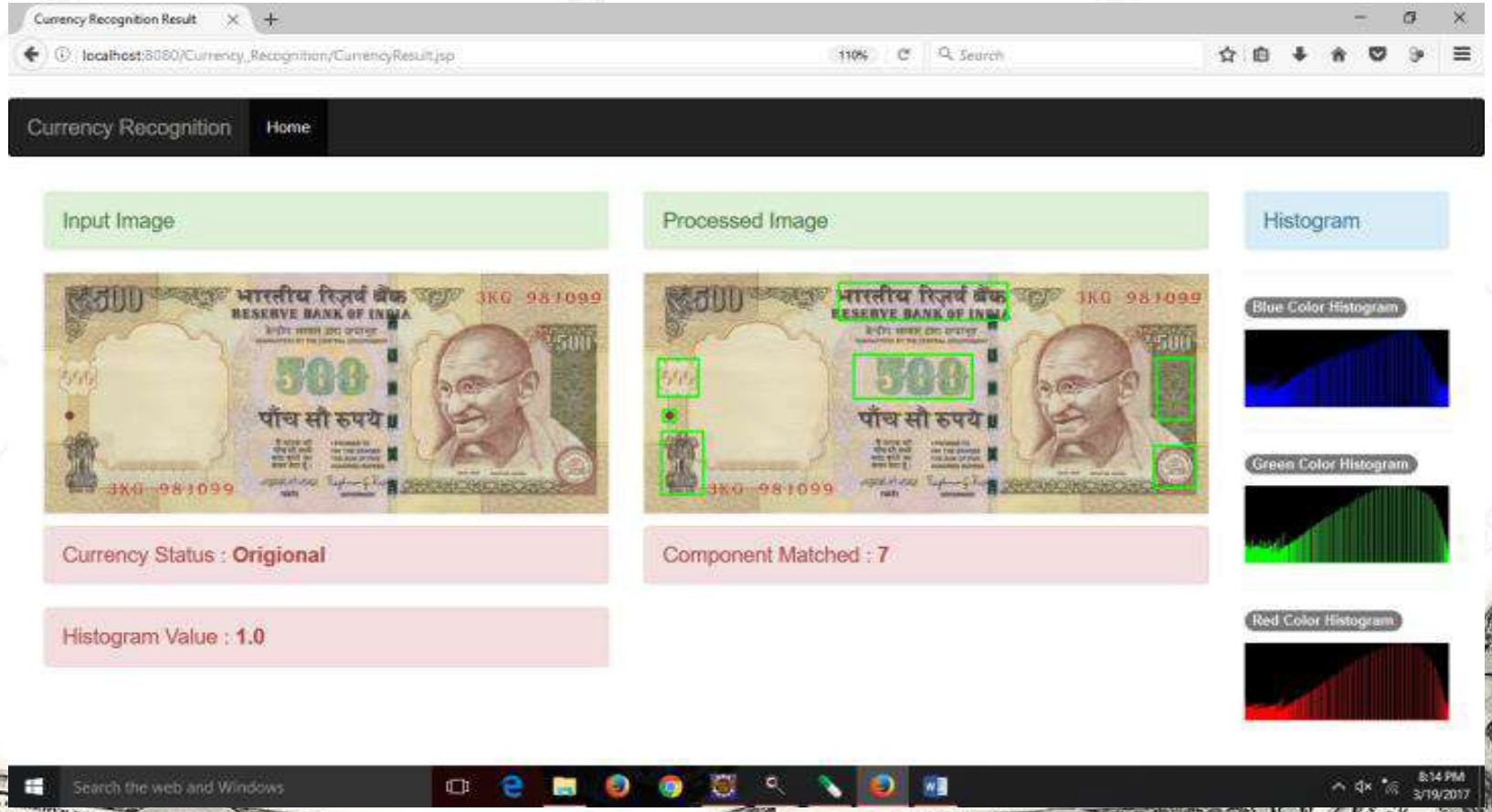


Fig.2 Template Matching



CONCLUSIONS :

- In this technique, the authentication of currency is described by applying image processing.
- Basically some features are extracted including various domination parts of note (like identification marks of the currency).
- The features are extracted using image based segmentation using template matching and works well in the whole process with less computation time.
- The complete methodology works for 100, 500 and 1000 currency notes. The method is very simple and easy to implement. This technique is very adaptive to implement in real time world. The process begins from image acquisition and end at comparison of features.

REFERENCES :

- [1] Rubeena Mirza,Vinti Nanda,Paper Currency verification System Based On characteristic Extraction Using Image Processing, IJEAT,
- Vol.1,Issue 03, pp.68-71, February 2012.
- [2] Sanjana, Manoj Diwakar, Anand Sharma, "An Automated recognition of Fake or Destroyed Indian currency notes in Machine vision", IJC-SMS, Vol. 12,
- Issue 02, pp. 53-60, April 2012.
- [3] R. Bhavani, A. Karthikeyan, A Novel Method for Counterfeit Banknote Detection, IJCSE, Vol.2, Issue 4, pp 165-167, April 2014.

Cont:

- [4] Harish Agarwal, Padam Kumar, Indian Currency Note Denomination Recognition in Color Image, Int. Journal on Advanced Computer Eng. And Communication Tech.Vol.1.
- [5] A.Ms.Trupti Pathrabe and B.Dr. N.G.Bawane, Paper Currency Recognition System Using Characteristics Extraction and Negativity Correlated NN Ensemble,2010, Int. Journal of Latest Trends in Computing.
- [6] Vipin Kumar Jain, Dr. Ritu Vijay, Indian Currency Denomination Identification Using Image Processing Technique IJCSIT, Vol.4, issue 1,pp.126-128, January
- 2013.


THANK
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