

FAKE CURRENCY DETECTION

(AN IMAGE PROCESSING TECHNIQUE)

Mallesh Kumar N^[1], Meghana J^[2], Sangeetha S^[3], Satyam Kumar^[4], Prof. Anoop GL^[5]

^{[1],[2],[3],[4]} – Final Year Students, Department of CSE, DSATM

^[5] – Professor, Department of CSE, DSATM

Abstract

False money or bad currency is the treacherous thing in the world and we already know our country(India) is also part of it. Currently there are 100,500 and 2000 rupees notes which are the overpriced value of money in our country. Thus, overpriced money is more possible that frauds or thieves will always try to make fake currency. The major Object to learn the main different features of new original note and This system is using classifiers and techniques like SVM, algorithms like Bit plane slicing ,canny-edge method used to find and prove the new currencies circulated by RBI by implementing various methods of DIP for example image Processing, Binarisation, segmentation etc.

KEYWORDS- Grey Scale, Binarisation, Edge detection ,feature extraction , comparison etc.

I. INTRODUCTION

Counterfeit means making the Duplicate notes which looks like a genuine note exactly used for personal benifis. fake note is to duplicate the denomination which seems like the real money but it exists without legal sanction from the government. Therefore, This is the main reason for lose in economy and creating a problem.

Different methods have been introduced to find the fake currency like non-visual approach which have methods like chemical analysis that checks paper quality of currency. Another one is based on Manual Testing. Testing notes Manually is an un interested method one which requires a lot of effort and time. Therefore we require a Automatic system for fake currency detection which provides Higher Accuracy and Quicker Results.

Automatic Detection on Fake money is very important in many fields such as in banks and other commercial areas. This method is used to identify the Indian money which is valid. This system consists of following steps They are Image capturing, BlackandWhite Conversion, detection of Edge, Feature Extraction of image, Segmentation of image, Comparison of Images and output.

The System will show weather the currency note is real or not. This is significant to develop automated system to obtain feature and identify Indian currency note in several area such as banks, ATM's, Shopping malls ,Buses and Railway Stations Markets etc.

II. RELATED WORK

Many years ago Researchers already implemented fake currency recognition and detected by using several methods. Many Publishers have done False money recognition based on some of the Indian currency security features like water marking, microlettering etc also done by using color of note and texture etc. There are several techniques to detect fake currency some of the techniques are.

- i. Detection of Fake currency by using Digital Image processing. This technique can be done by using MATLAB.
- ii. Dual test counterfeit detection pen by using Dri-Mark.
- iii. Fake currency detection using ultraviolet detection scanner.

Debnath[6] implemented by using ENN(Ensemble neural network) to identify the currency of Bangladesh. This method is used to train by using negative correlation learning which is also called NCL algorithm. The objective of NCL is to highlight the individuals on different portion of an input patterns. In this System values of grayscale is used for input patterns of the currency image. The decision of ensemble is implemented by using voting scheme.

Ahmadi[8] implemented through principal component analysis(PCA) .This Technique increases the reliability by using different features of US Bank notes.The function of PCA algorithm is to extract the features of US currency and also helps to reduce data.

Based on internal features of the currency Verma Propose an Indian currency recognition system .Here,The texture of the currency is considered as an internal feature and it is extracted for currency detection and determines discriminating capability of class and the features of Indian currency is evaluated.

Based on unique features of the Indian currency Gogoi classified an Currency image.Gogoi used Fourier Descriptor method to extract the features.An Artificial Neural Network used for this classification.

Renuka Nagpure,shreya sheety,Trupto Ghotkar, used floral designs on the notes which are provided by RBI.It distinguish between valid and invalid notes.

III. METHODOLOGY

This contains eight steps

1) Image Acquisition

The function of image acquisition is input the image.The input image is acquired by scanning or clicking the picture with the help of android mobile phone .The input image should consist all of the security feature,which is used for identification and detection.

2) .Image preprocessing

In this the input image is extracted in to different features and performs different operations and also highlights the features of the image.There are two methods in preprocessing image adjusting and image smoothening.

Image adjusting,The image reduces its size by performing the adjusting function in image processing technique.

Image smoothening:Some noise will be imposed while scanning the image .

3) Grey Scale Conversion

In this method the color image obtained in RGB is converted in to grayscale image i.e it is converted in to 256 bits of gray and further it is converted to binary image that is black and white in order to perform operations easily.This Process is called binarisation.

4) Edge detection

Edge detection is an Image processing Technique for finding the boundaries of objects with in the images.

5) Feature Extraction

It is a type of dimension reduction.When the information to a algorithm is too large and it is suspected to be excess the information will be reduced set of feature.

6) Comparison

This method compares the features extracted in the input image and features extracted in the original image.

7) Output

The output is displays and it detects weather the currency is genuine or not.

COMPARISON				
AUTHOR	OBJECTIVE	TECHNOLOGIES USED	ADVANTAGES	DISADVANTAGES
[1] Binod Prasad yadav,C.S patil,R.R Karhe,P.H patil	The fake currency is detected manually.	HSV Technique by using MATLAB	It detects the currency note manually	It is very default or time consuming.
[2] B.Sai Prasanthi,D.Rajesh setty	Recognition of note with image processing technique	Digital Image Processing	Low cost and Quick decision making.	Comparing with many characteristics is a lengthy process.
[3] Kevya BR,Devendran B	To recognize Indian currency and checks weather the currency is valid or not.	SIFT Technique.	Helps in efficient matching of features.	Lengthy and time consuming.

[4] wk.EL	Detects the fake Egyptian paper currency.	Image Processing	Can be used effectively in financial organizations and commercial applications.	Not useful for other country notes.
[5]Komal vora,Amy shah,Jay mehta	Currency Recognition System using two dimensional discrete wavelet transform	2D DWT method in image processing	Gives Superior Results	This can be done only with the help of serial number other characteristic feature of notes is not possible.
[6] Debnath	Used ENN to recognize Bangladeshi Currency	Machine Learning (NCL)	It gives better results even for noisy Bangladeshi Currency.	Only 50% is detected

[7] Gracia-Lamont	Mexican bank notes by using Artificial vision.	RGB Space and Local binary pattern.	Currency is recognized easily	It is done only by using color and texture.
[8] Ahmadi	Increases the realibility of bank note recognition Machines.	PCA Algorithm,Linear Vector Quantization(LVQ)	Used to extract the main features of US Currency and it reduces the data size.	This Technique still not used for Indian Currency.

CONCLUSION

In this system, Fake Currency is detected by image processing principle which is low cost and shows high accuracy. This system works for identification of 100.500 and 2000 for Indian Currency.The system also provides accurate and valid results.This is a quick and easy process.

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