

# Fake Currency Detection Using Image Processing

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**Abstract:** Fake currency is the money produced without the approval of the government, it is considered as a great offence. Most of them are doing it as a profession. Fake currency causes major issues in our economic growth and also it will decrease the value of original money. There are various methods available to find these types of fake currency. Some are water marking, variable ink, etc. In this system, image processing is used to detect these fake notes. We are going to detect the variation in barcode among the real and fake one. Matlab is used in this image processing technique.

**Keywords** – Fake Currency, Detection Methods, Image Processing.

## I. INTRODUCTION

currency faking is the most disastrous thing that is happening now-a-days . Actually the currencies are begin printed, maintained and released throughout the country by the authorities of Reserve Bank of India(RBI). Currency faking are mainly carried out in 500 and 1000 rupee notes. These rupee notes are highly expensive. The fake currency production has been growing enormously from the past 5 years. So inorder to avoid the circulation of fake currency among the original currencies, it can be detected and eradicated by the usage of the image processing.

## II. LITERATURE REVIEW

Fraud detection technique by using performance metrics[1] is used in this paper. This method is used to detect credit card fraud, computer intrusion and tele-communication fraud. Neural networks and model based reasoning are the two methods behind this technique. The general attributes like identification mark and serial numbers of currency are extracted. Denomination of currency [2] is known by identification mark. Next generation intrusion detection expert [3] system is used in this paper by using the real time and batch technique. Large volume of fake money will cause many problems. Using machines it is easy to recognize fake currency [4]. Every year RBI (Reserve Bank of India) face the fake money or destroyed money. Various methods [5] like water marking, optically variable ink, florescence, etc are used to detect fake currency in this paper. In this system, various two components of two images are combined together to find the variation among the images. Image acquisition, gray scale conversion, edge detection, feature extraction, image segmentation [6] and comparison of images are the methods used in this approach to detect the fake currency. Feature extraction by edge based segmentation using sobel operator [7] is used in this paper for design and implementation. The image is acquired and the acquired image is converted into grey scale by pixel value [8]. The image is sub divided into object or region [9] by image segmentation. Security features [10] of Indian currency are used in this paper.

## III. PROPOSED METHOD

### A. Read Image

The image is captured using the camera and the image is stored as data set for reference. The acquisition will contain all the attributes of the image.

### B. Image Conversion

The image is converted into grey scale based on the pixel values. The RGB value is converted as pixel and the pixel value is converted into grey scale.

### C. Threshold Saturation

The saturation and luminance value is set as threshold to create binary image. The saturation value must be high and the luminance value should be low. The obtained saturation value should be greater than satThresh and luminance value should be low as valThresh.

### D. Minor Closings

For fake image black line is separated by a few pixels whereas for real currency has no separation. The image is closed by 6 pixel line in vertical to make both images common.

### E. Final Cleanup

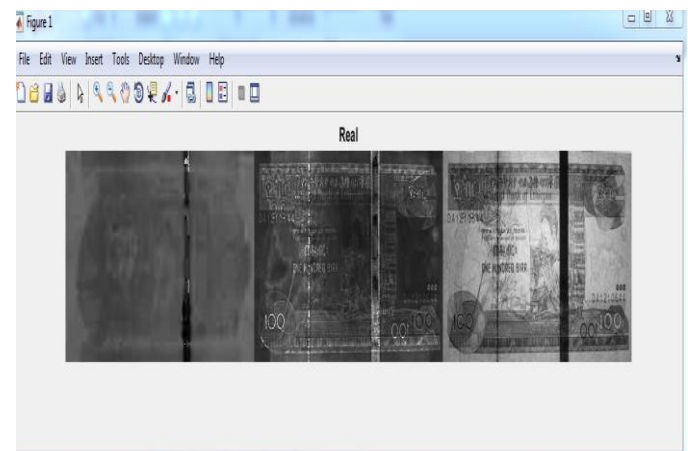
In this the unwanted regions of the images are removed from the image.

### F. Count Black Lines

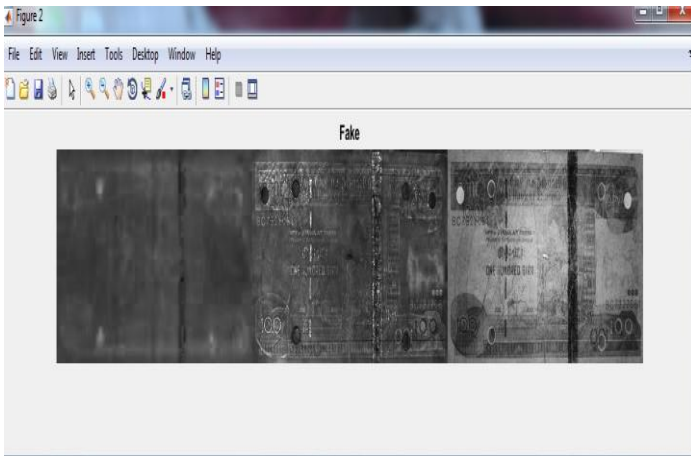
For real image the black line should be 1. Other than 1 are considered as fake currency. The number of lines in both the images are calculated by the use of parameters. If it is 1 it is real otherwise it is fake.

## IV. Experimentation and Result

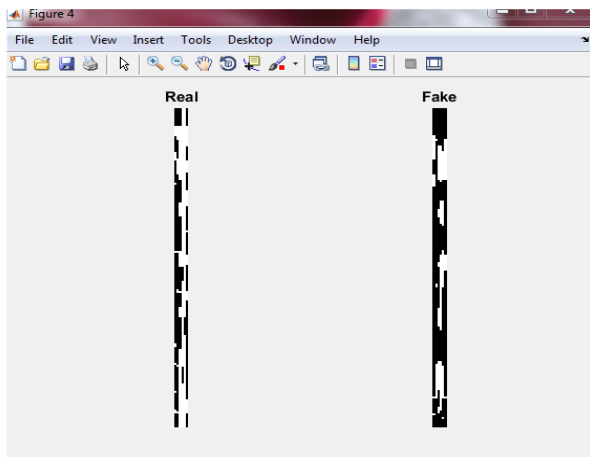
### Image of Real



### Image of Fake



*After Segmentation*



## CONCLUSION

Thus we detect the currency and check whether it is original or duplicate. We had found the currency through the currency barcode and serial no by using matlab image pre-processing technique. Here input is in the form of image and will be converted using color operator after the conversion of images. Then the features are extracted from the segmentation. Finally, we compared Real and Fake images. We find whether the currency is original or duplicate.

## References

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