

# A Review Paper on Currency Recognition System

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**Abstract** – In the last few years a huge technological advances in color printing, duplicating and scanning, counterfeiting problems have become more grave. In history only expert printing house has the ability to make currency paper, but now a days it is feasible for anybody to print fake bank note with the help of modern technology such as computer, laser printer. The purpose of the paper is to help people resolve this difficulty by comparing by a different methodology. On the other hand, currency recognition systems that are based on image analysis totally are not sufficient. Our structure is based on image processing and makes the process easy and user friendly to recognize all variety of banknotes.

**Index Terms** – Currency Recognition, Pattern Recognition.

## 1. INTRODUCTION

The currency recognition system is developed to recognize the currency by using different techniques and methods on currency note. The currency recognition system should be able to organize the paper currency to its accurate class. The currency recognition system should be able to recognize the note rapidly and properly. The currency recognition system should be capable to recognize currency note from any part. There are dissimilar types of currency notes some are previous and some are loud. Therefore, it is not easy to recognize such notes.

To defeat this problem currency recognition system is developed. Currency recognition system can be worn in places such as shops, banks counter and automated teller machine, auto vendor machines etc. It is not easy for the teller in the bank to know notes so a currency recognition system in the bank can reduce human endeavor.

We have review currency recognition system developed for dissimilar countries. The systems are developed using different methods and algorithms. The profit of this study for the reader is that this learns will offer information to the reader regarding the currency recognition system of unlike countries. They can evaluate the recognition system of different countries. Which methods and algorithms are practical to develop these systems and which countries have currency recognition system.

## Architecture of currency recognition System

The system is based on digital camera and load image on the PC and apply with algorithm. One time the image loads on the computer we applied technique and also image compares have been done.

The architecture of currency recognition system is below:

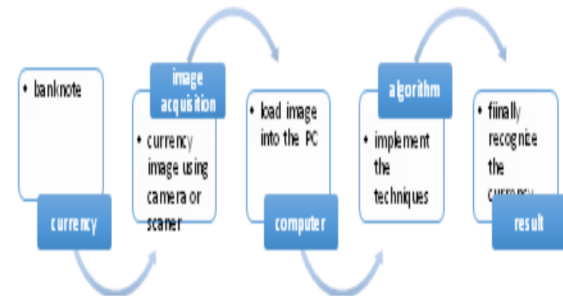


Figure 1: Architecture of currency recognition system

## 2. EXISTING WORK

Many researchers have done work on currency recognition system. The list of work done is below:

Neural Network

Technique used

### 2.1. Neural Network (NN)

In this researcher propose ensemble neural network to address the currency recognition process. The ensemble NN can solve the problem efficiently than single NN. The 'negative correlation learning' (NCL) is used to produce different individual NN in the ensemble, so that the entire ensemble learns the input patterns completely.

### 2.2. Technique Used

In another research work, a straightforward statistical test is used as the verification step, where univariate Gaussian allocation is employed, in another technique for paper currency recognition, three characteristics of paper currencies together with size, colour and texture are used in the recognition.

## 3. METHODOLOGY USED

The current technologies make it essential to build up an automated system and check its validity. The planned approach that was implemented acquires the image. After that the image is pre-processed. The process is proceeds by extracting the textural and non-textural features of the image. The textural features are extracted with DWT (Discrete Wavelet Transform). The non-textural features are use to typically check accuracy.

They are such as serial number, color, etc. Textural features are

used to categorize them. According to categorization result i.e. pattern matching we obtain the necessary result (Denomination). Once the denomination is known authentication is complete. The verification process consists of inspection the security thread, RBI microprint and recognizing serial number to find out whether the currency is fake or not.

There are a range of techniques for currency recognition that engage texture, pattern or color based. We use digital image processing techniques to find region of interest, following that Neural Network and Pattern Recognition Technique is used for matching the pattern.

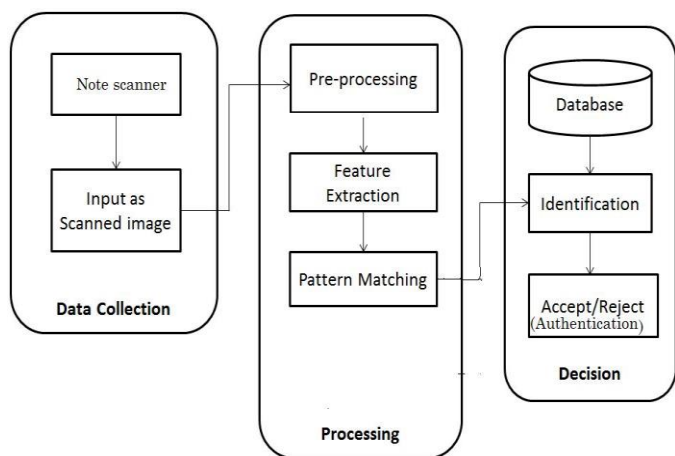


Fig 2: Methodology

#### 4. RESULTS

I determine whether a note entered by the user is fake or real. The results of my proposed work is

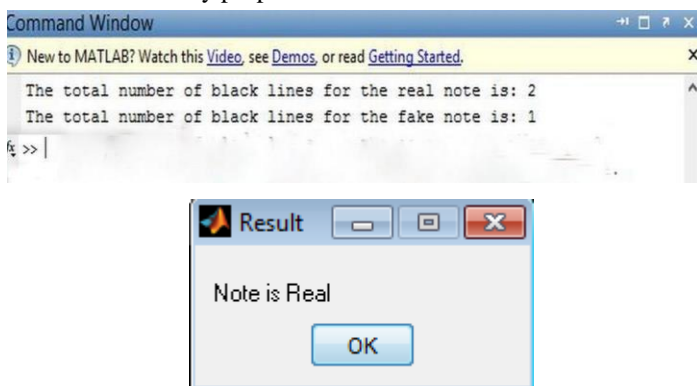


Figure 3 Result of the Proposed System

#### 5. CONCLUSION

In this paper, we discussed the currency recognition system by a digitalized image processing system. This system can work for people to correctly determine the denomination of the currency notes.

It can help to discern the original note from fake currency. If

the image display information loses such as outside damage, noise level, sharpness issues and so on, the identification may fail and the user has to do the processing again. The system had been programmed by using MATLAB and it will contain a user-friendly interface.

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