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Currency Verification Using Image Processing

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Abstract - *Today in this world there are many different types of currency, every currency vary with each other i.e. they differ in their size of the banknotes, texture, color and so on, the people who are interested in the money exchange work have to differentiate between all the type of currencies. They have to keep on the top all the features of the all the notes from which they are differentiating as they can cause some miner as well as major problems, In short they require an effective, efficient and exact system to enhance their work. The main purpose of the developing system is to help the people who require recognizing or identifying different currencies or notes and with convinces and efficiency. The people who are working on currency recognition used many machines which help in their work. But for most of the staff who are working in money exchange have to keep a lot of different distinctive and anti-fakes label for different commonly-used currencies in their mind. In this paper it provides a detail review of different and various types of currency recognition systems.*

***Key Words*: Image Processing, Feature Extraction, Aspect Ratio, Denomination, Binary Image, Currency Recognition**

1. INTRODUCTION

1.1. Overview

The currency verification system which we are going to designed to identify the currency or notes by using and performing different techniques and methodology on a particular currency note. The currency verification system which is based on image processing must be capable to classify the paper currency to its correct class. The currency verification system which we are going to develop that must be able to detect the note immediately and rightly. The currency verification system should be able to identify currency note from any corner of the note. The currency notes are of various types in which some are old or new and some are noisy which creates a disturbance. Therefore, it is not possible that much simple to recognize and verify such types of notes.

To deal or to overcome with this problem we are going to develop a currency verification system. Currency verification system can be used in places such as shops, banks counter and automated teller machine, auto seller machines etc. It is not possible too much easy for the teller in the bank to recognize different types of notes so as to reduce human efforts currency verification system can be used. We have surveyed our system which can be used for various countries. So the welfare of this study for the proofreader are that by this study it will provide required data and information to the reader about this currency verification system for different countries. It is possible for them to distinguish verification system of different countries. Which techniques and tricks are applied to design these systems and at present which countries is having currency verification system using image processing.

Figure 1- Block diagram of proposed system

1.2 BACKGROUND MOTIVATION

Around 180+ currencies are available around the world and the need for an automated system related to currencies has been increasing exponentially recently. The need for developing systems that process notes without human intervention for various different uses has been pivotal for the development of systems that help in detecting and recognizing currency notes. However the varying features in each notes and the security aspects involved in different currencies make this task extremely difficult. Various systems have been proposed in the past that take into account different features such as aspect ratio and HSV values [7]. Methods such as pattern matching have been proposed to develop a system that uses a single algorithm for all the currencies. However not a single method has proven to be efficient enough for actual development thereby making this problem statement an interesting area of research. One of the first methods proposed to identify the currency notes using image processing techniques was in the early 90's. However their algorithm does not take aspects of authentication of the notes into account. Thus it has been assumed that the notes are in good condition and images as desired are obtained. It is noteworthy to mention that the system proposed requires the input images to be taken in a predefined angle and distance.

2. OBJECTIVES OF APPLICATION

- To identify 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 android application of currency recognition system.
- To make available to common people quickly and easily so they can utilize anywhere and at any time

3. SYSTEM DESCRIPTION

Input (Image Acquisition): A mobile camera 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.

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 that the currency is Original. After applying Template matching Algorithm, so person can know whether note is real or fake.

4. RESULT

Fig -1:Uploading image

Fig -2: Add Gestures

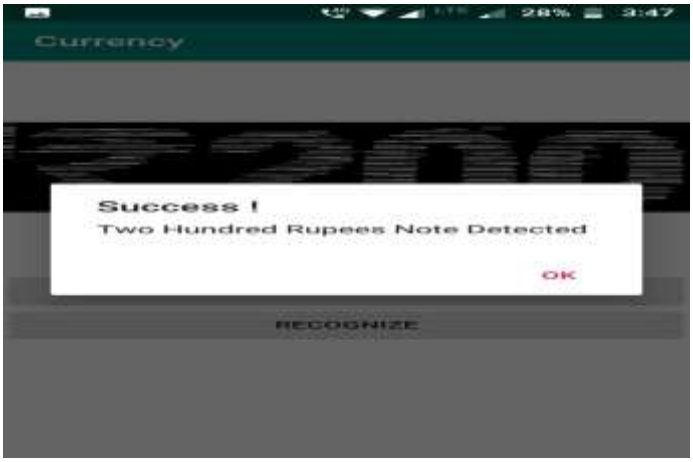

Fig-3: Recognizing Currency

5. CONCLUSION

In this paper we are going to propose a system which is capable to identify the country of origin and the denomination value of the given banknote. Our system which we are going to propose is able to identify twenty of the most common currency, but it can be extended easily to more countries by following the method described. Our system will be more accurate and take less time when compare with crude algorithm of pixel by pixel comparison. Our designed system will able to identify currency and denomination approximate in an average of 5.3 seconds, which is a considerable improvement over crude algorithm. This project will be helpful to the people, who travel in different countries and those who don't have any knowledge about currencies of different countries. This will also helpful for detecting new as well as old currency. Our future work will be concentrated on currency recognition on coins.

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