#IMAGE RECOGNITION OF COUNTRY CURRENCY USING SUPPORT VECTOR MACHINE:

#SUPPORT VECTOR MACHINE**:**

Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning.

#IMAGE RECOGNITION OF COUNTRY CURRENCY:

##INTRODUCTION:

There are approximately 200+ 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.

In this present times the business between countries has increased.

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), so they need an efficient and exact system to help their work.

After studying different currencies and considering the availability, we have chosen 3 currencies to work on for this project. The chosen currencies of countries are china,Indonesia and

Norway

Here comes the challenge. So, to recognize the currency we need an efficient computerized and automated system

*#*PROBLEM STATEMENT:

People face the problem of not being able to recognize the paper currency due to similarity of paper texture between the different categories.

These people face a lot of difficulty in their money transactions. In order to find a solution to this problem, we need to develop a technical solution which is cost effective and efficient to use for people

#EXPLANATION ABOUT THE PROCESS:

An image recognition algorithm takes an image ( or a patch of an image ) as input and outputs what the image contains.

1. Classification of the image to a single category /multiple categories.

2. Identification of certain objects in an image

Based on image resolution it will see height\*width\*dimension

In this image recognition system, we use numpy , pandas library with ndarray to set and modify pixel values, trim images, concatenate images, and many more.

In this example, a scanner is used to acquire the image. The acquired image of a paper currency is first converted in to gray scaled image conversion to facilitates further pre-processing.

The task of pre-processing is achieved by converting coloured currency images to gray scale,then black-white image

#CONCLUSION:

In this project, we actually worked on certain modules of the system which helps for currency recognition.

Each country has its own different currency so it is a very difficult task for people to recognize the currency.

In manual currency recognition system, there are many problems. We will be developing this system to overcome those problems which have been faced. And it was found that proposed algorithm has solved the major issues related to currency recognition.

One of the initial feature of this system is obtaining the image and it basically focuses on an image that can be obtained by using number of different equipment’s, such as cameras or Scanner.

One approach is basically based on conversion of RGB value into HSV value and we also maintain the distance of each image by calculating Euclidean distance formula and then compare the distance with test image which give accurate result

##TEAM MEMBERS

1. Yuvanshankar kannan
2. Faizal Ahamed.R

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y is first converted to gray scaled image. Conversion to gray scale facilitates further pre-processing. The task

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pre-processing is achieved by converting colored

currency images into grayscale, then black-white images. After

that, the edge of the image is filtered using Prewitt method. Then, the image edge is detected using Canny’s edge

detection method. Different stages of an image are shown

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Muhammad Sarfraz / Procedia Computer Science 65 ( 2015 ) 538 – 545

1. Introduction

Object recognition

1-7

is an important and highly demanded area of pattern recognition. An object can be

anything in real life. It can be text in a document, a license plate of a vehicle, an iris in a person’s eyes, a sign in a

sign language, a face of a person, and so on. Similarly, paper currency recognition

8-15,17-20

is as important as any

other object recognition.

Some authors, in the recent years, have contributed to th

e subject of paper currency recognition systems. For

brevity, the reader is referred to

9-15

. These existing paper currency recognition methods, in the literature, mainly

involve image processing and/or neural network techniques

11-15

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This paper deals with a simple, efficient and very accurate approach in the system design. In designing such a

s

ystem, it considers different dimensions, areas, Euler numbers, correlations as features. A different method using

radial basis Function networks, is utilized for developing an intelligent system which can recognize paper currency.

This research is specifically designed for recognizing paper

currency from the Kingdom of Saudi Arabia (KSA). It

uses fourth series (1984–2007) of currency issued by Saudi Arabian Monetary Agency (SAMA)

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as a model

currency under consideration. The proposed paper recognition technique has been designed in such a way that it can

be u

sed for recognizing paper currency form different values in KSA. To overcome the problem of recognizing dirty

bankn

otes, the pre-processing stage is also considered.

The proposed scheme is different f

rom various existing methods

1-21

because of its approaches in the recognition

phases. Specifically, for example, symmetrical masks have been used in

11

for considering specific signs (images) in

a paper currency. Using this method, the summation of non-masked pixel values in each banknote is computed and

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ed to a Neural Network (NN). The technique in

20

deals with Pakistani paper currency with very different feature set

which is specific to regional currency marks and color of the currency. Similarly, the technique introduced in

21

is

different from the proposed technique as it introduces much more number of features than the ones introduced in the

proposed method.

The organization of the paper is as follows. Section 2 introduces the overall mechanism for PCR, In Section 3, the

pre-processing steps are briefly introduced. Section 4 describes the problem formulation for the Saudi PCR System

(SPC

RS). The proposed PCR approach, together with feature extraction method as well as classification has been

completely discussed in Section 5. Section 6 describes details of dem

onstration for the case of KSA Paper Currency.

Finally, Section 7 concludes the paper.

2. Structure of Typical PCR System

The system presented is designed to recognize paper currency. Input to the system is an image acquired by a

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er or a digital camera, containing the paper currency and its output is the features of the paper currency. The

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ystem consists of the modules: Image acquisition, pre-processing including noise removal, feature extraction,

classi

fication and recognition. The structure of the system is shown in Fig. 1.

3. Pre-processing

In the proposed system a high resolution scanner is used to acquire the image. The acquired image of a paper

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