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Fake Currency Detection Using Image Processing

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Abstract

The one important asset of our country is Bank currency and to create discrepancies of money miscreants introduce the fake notes which resembles to original note in the financial market. During demonetization time it is seen that so much of fake currency is floating in market. In general, by a human being, it is very difficult to identify forged note from the genuine not instead of various parameters designed for identification as many features of forged note are similar to original one. To discriminate between fake bank currency and original note is a challenging task. So, there must be an automated system that will be available in banks or in ATM machines. To design such an automated system there is need to design an efficient algorithm which is able to predict whether the banknote is genuine or forged bank currency as fake notes are designed with high precision

I INTRODUCTION

Financial activities are carrying out in every second by many persons in which one most important asset of our country is Banknotes Fake notes are introduced in the market to create discrepancies in the financial market, even they resemble to the original note. Basically they are illegally created to complete various task In 1990 forgery issue is not much of concern but as in late 19th century forgery has been increasing drastically . In 20th century technology is increasing very vastly that will help the frauds to generate fake note whose resemblance is like genuine not and it is very difficult to discriminate them. This will lead to financial market to its lowest level. To stop this and to conduct smooth transaction circulation forged bank currency must be conserved. As a human being it is very difficult to identify between genuine and forged bank currency. Government have designed banknote with some features by which we can identify genuine. But frauds are creating fake note with almost same features with nice accuracy that make it very difficult to identify genuine note . So, now a days it is required that bank or ATM machines must have some system that can identify the forged note

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from the genuine note. To determine the legitimacy of the banknote artificial intelligence and Machine learning (ML) can play a vital role to design such a system that can identify forged note from the genuine bank currency. Now a days, supervised machine learning (SML) approaches for classification problem is widely used. For medical disease its shows even promising results [2]. Few authors have only applied SML algorithms on bank currency authentication. To identify weather a note is genuine or fake we have to develop an automation system. Initially, the input is an image of note and from different image processing techniques we can extract the features of note. Further these images are given as an input to the SML algorithms to predict whether note is original or fake. In review we can see that not much of work is done on this side.

II LITERATURE SURVEY

Tushar Agasti, Gajanan Burand, Pratik Wade and P Chitra, —Fake currency detection using image processing‖ 14th ICSET-2017

Fake Currency has always been an issue which has created a lot of problems in the market. The increasing technological advancements have made the possibility for creating more counterfeit currency which are circulated in the market which reduces the overall economy of the country. There are machines present at banks and other commercial areas to check the authenticity of the currencies. But a common man does not have access to such systems and hence a need for a software to detect fake currency arises, which can be used by common people. This proposed system uses Image Processing to detect whether the currency is genuine or counterfeit. The system is designed completely using Python programming language. It consists of the steps such as gray scale conversion, edge detection, segmentation, etc. which are performed using suitable methods

Eshita Pilania, Bhavika Arora,-Recognition of Fake Currency based on Security Thread Feature of Currency‖ International Journal Of Engineering And Computer Science, ISSN: 2319-7242

In the last few years a great technological advances in color printing, duplicating and scanning, counterfeiting problems have become more serious. In past only authorized printing house has the ability to make currency paper, but now a days it is possible for anyone to print fake bank note with the help of modern technology such as computer, laser printer. Fake notes are burning questions in almost every country. Counterfeit notes are a problem of almost every country but India has been hit really hard and has become a very acute problem. Fake Indian currency of 100, 500 and 1000 rupees seems to have flooded the whole system and there is no proper way to deal with them for a common person. There is a need to design a system that is helpful in recognition of paper currency

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notes with fast speed and in less time. Our system describes an approach for verification of Indian and other countries currency banknotes.

NayanaSusan jose, SherminSiby, Juby Mathew, MrudulaDas,Android BasedCurrency Recognition System for Blind, International

In recent years, a lot of illegal counterfeiting rings manufacture and sell fake coins and at the same time fake note currency is printed as well which have caused great loss and damage to the society. Thus it is imperative to be able to detect fake currency We propose a new approach to detect fake Indian notes using their images. Currency image is represented in the dissimilarity space, which is a vector space constructed by comparing the image with a set of prototypes. Each dimension measures the dissimilarity between the image under consideration and a prototype. In order to obtain the dissimilarity between two images, the local key points on each image are detected and described. Based on the characteristics of the currency, the matched key points between the two images can be identified in an efficient manner. A post processing procedure is further proposed to remove mismatched key points. Due to the limited number of fake currency in real life, SVM is conducted for fake currency detection, so only genuine currency are needed to train the classifier.

Komal Vora, Ami Shah, Jay Mehta, A Review Paper on CurrencyRecognition System,

In this paper, an algorithm based on the frequency domain feature extraction method is discussed for the detection of currency. This method efficiently utilizes the local spatial features in a currency image to recognize it. The entire system is pre-processed for the optimal and efficient implementation of two dimensional discrete wavelet transform (2D DWT) which is used to develop a currency recognition system. A set of coefficient statistical moments are then extracted from the approximate efficient matrix. The extracted features can be used for recognition, classification and retrieval of currency

III EXISTING SYSTEM

In existing project, review of those applied machine learning approaches to classify whether not is original or not. Yeh et. al. implemented SVM based on multiple kernels to reduce false rate and compared with SVM (single kernel). To classify real and forged network. Author's Hassanpour et. al. used texture-based feature extraction method for the recognition and to model texture Markov chain concept is used. This method is able to recognize different countries' currencies. To classify whether the note is forged or not global optimization algorithms are applied in Artificial Neural Network (ANN) training phase, and they have observed good success in classification of note.

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Disadvantages

- Accuracy is Low.
- The technology is increasing very vastly that will help the frauds to generate fake note whose resemblance is like genuine not and it is very difficult to discriminate them

IV PROPOSED SYSTEM

Fake currency is serious issue worldwide, affecting the economy of almost every country including India. The counterfeit currency is one of the major issues faced throughout the world nowadays. The counterfeiters are becoming harder to track because of their use of highly advanced technology. One of the most effective methods to stop counterfeiting is the use of counterfeit detection software that is easily available and is efficient. The background of our topic is image processing technology and applies it for the purpose of verifying valid currency notes. The software will detect the fake currency by extracting features of notes. The success rate of the software can be measured in terms of accuracy and speed. So our aim is to work on those parameters which will be impossible to implement on counterfeit notes so we started working on parameters which will be enough to differentiate between fake and original note.

Advantages:

- Accuracy is Very high.
- Classification of fake and original notes is very easy.

V IMPLEMENTATION

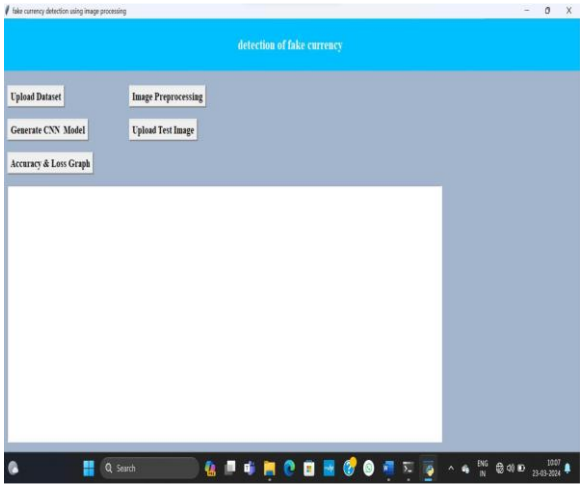
User

In this application the user can do the following activities to run this project. Firstly, he/she needs to select an image from the data provided next select a video from the data provided and then start webcam to access the object finally, detect the objet.

Applications

A formal request to be considered for a position or to be allowed to do or have something, submitted To an authority, institution, or organization:

VI RESULTS



Now click on 'upload dataset' button to upload data from system

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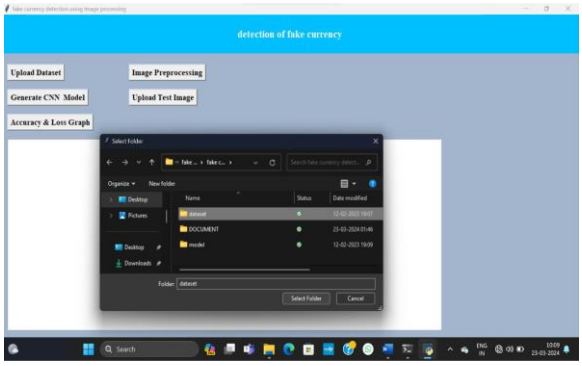
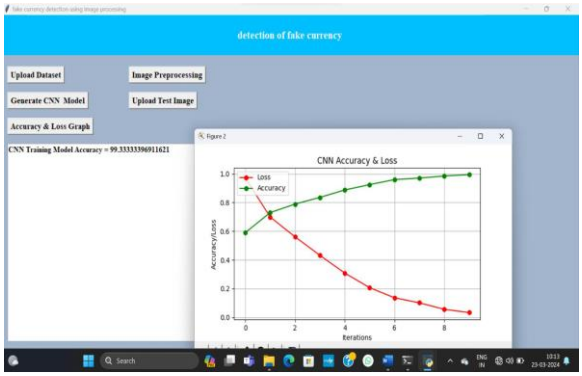
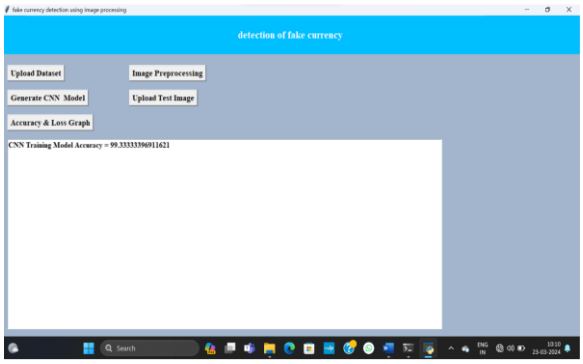


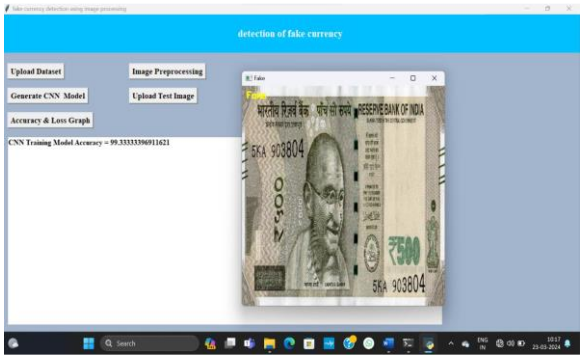
after upload will get below screen



Accuracy and loss Graph' to represent the CNN accuracy and loss graph



Generate CNN Model' to generate CNN training accuracy



VII **CONCLUSION**

In this way fake currency can be detected by using image processing method. We can stop the flow of the fake currency in the market using this method. The difference between the original currency and fake currency can be easily identified

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