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DETECTION AND RECOGNITION OF COUNTERFEIT CURRENCY NOTES

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Abstract:

Counterfeit currency notes is a major problem occurring in money transactions. It is observed that fake notes are increasing day by day, due to advancements in printing machines. The proposed algorithm is based on detecting and recognizing whether the currency note is fake or genuine. By using RGB and HSV color space model in Image processing, we can make the currency detection more effective. New 500 and 2000 notes can be detected quicker by taking samples of these currency notes. This system is used for automated currency recognition by Image Processing.

Key words:

Image Processing, currency notes, feature extraction, grey image, and currency recognition

1 Introduction:

Physical Testing of the currency notes needs large amount of time. To avoid these kind of aspects, we need one detection with less time and good accuracy. Due to demonetization in India there are lot of problems raised with respect to currency notes. Government has introduced this technique for clearance of corruption. But we had a good development in printing fake currency notes. Even though the notes are in different material, we are getting counterfeit note very easily. Mat lab software is used for detection in Image processing sector. A mat lab code can be created with the features of original currency note. Features like water marking, register mark,

fluorescence, identification mark, security thread etc., can be used. Inputs can be given as the features of notes like grey image with bar graph and calculating grey values of the image after grey conversion. A small algorithm can be used to define the processing steps involved. Actual project can be done by using with Microcontroller and a scanner with high pixels clarity. This is because the scanner has to detect the inner and hidden parts of the currency notes. Using small interface of microcontroller with pc, we can get output shown on the screen whether the note is fake or genuine

2 Proposed methodology

The proposed methodology consists of five blocks are shown in Fig.1. Firstly the image got read by the system using image acquisition. Pre-processing stage is followed by the acquisition state which tells about the grey image. Then the features are extracted from the segmented image. After the feature extraction, image is classified.

It can be compared by using template matching.

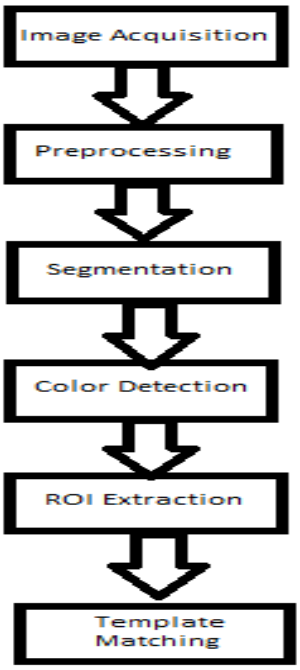
BLOCK DIAGRAM

Image acquisition in image process are often broadly speaking outlined because the action of retrieving a picture from some supply, sometimes a hardware-based supply, therefore it are often gone through no matter processes got to occur after. Playing image acquisition in image process is often the primary step within the progress sequence as a result of, while not a picture, no process is feasible. The image that's non inheritable is totally unprocessed and is that the results of no matter hardware was wont to generate it, which may be vital in some fields to own a homogenous baseline from that to figure. one amongst the last word goals of this method is to own a supply of input that operates at intervals such controlled and measured pointers that a similar image will, if necessary, be nearly absolutely reproduced underneath a similar conditions therefore abnormal factors area unit easier.

Proposed Methodology

The image Pre-processing stage starts with image improvement; the aim of image enhancement is to boost the interpretability or perception of data enclosed within the image for human viewers, or to supply higher input for different machinecontrolled image process techniques.

image improvement techniques are often



divided into broad. Categories like abstraction domain strategies and frequency domain strategies. sadly, there's no general theory for determinative what "good" image improvement is once it involves human perception. In machine learning, pattern recognition and in image process, feature extraction starts from associate in Nursing initial set of measured knowledge and builds derived values (features) meant to be informative and non-redundant, facilitating the next learning and generalization steps, and in some cases resulting in higher human interpretations. Feature extraction is

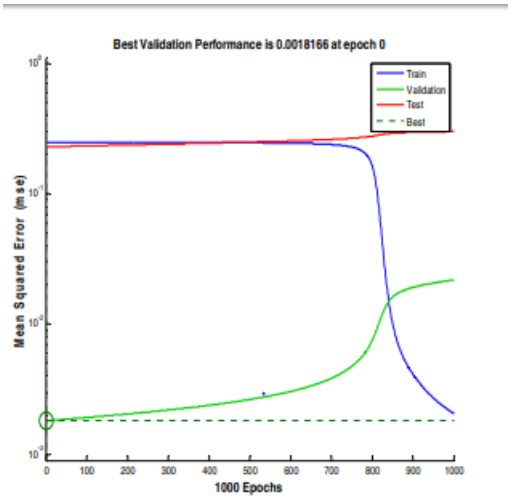


Fig 3: Performance of network classifier

said to spatiality reduction. When the computer file to associate in Nursing rule is just too giant to be processed and it's suspected to be redundant.

After pre-processing stage, segmentation can be done. Image segmentation actually defined as the comparison of segmented images. The total picture of a currency note can segmented into many parts so that we can reduce the error percentage and can able to increase the accuracy. Security thread and water mark features can be easily detected by using segmentation block. Edge and forms play a overwhelming part in human vision and likely in numerous other natural vision frameworks too. Not just are edges outwardly striking, yet usually conceivable to portray or remake an entire figure from a couple of key lines.

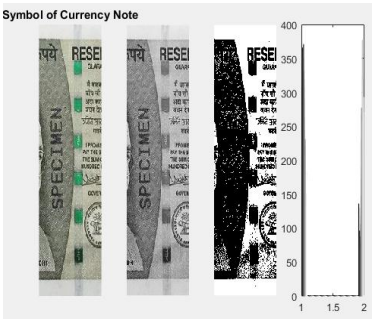
HSV is one of the colour formats to select a colour from a colour wheel.

RGB model is red green blue that indicates all the colour detecting stages.

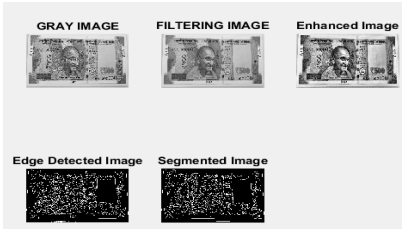
3 Results

The results can be obtained by step by step process given below. As per the features of the original note , we can detect by using step by step.

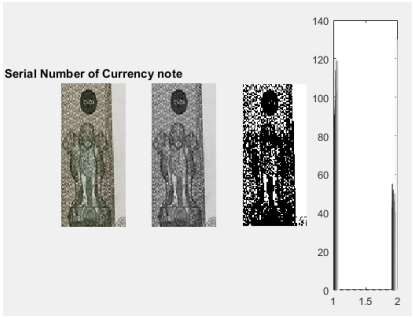
Image acquisition



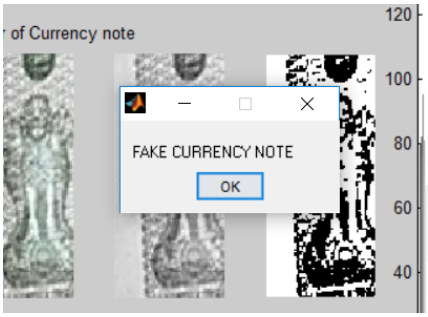
Step verification



Serial number dtection



Final output



4 Conclusion

Image processing plays an important role in the detection of currency notes. Here, the first objective is to detect and classify the features of the. The main goal of this project is to detect whether the note is fake or not. The main motivation of the project is to detect the notes easily and quick access to the user.

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