SASI INSTITUTE OF TECHNOLOGY & ENGINEERING
(Approved by AICTE-New Delhi, Affiliated to JNTUK-Kakinada and SBTET-Hyderabad)
TADEPALLIGUDEM - 534101, West Godavari District, Andhra Pradesh
☎ : 08818-244986,987,989,990 Fax:08818-244628 Web : www.sasi.ac.in., hodece@sasi.ac.in
Department of Electronics & Communication Engineering

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Annexure I

1. Project Title: FAKE CURRENCY DETECTION USING IMAGE PROCESSING

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1. Abstract & Objective

1.1 Abstract

Currency recognition is a simple process of identifying the denominational value of a currency. It is a simple job for normal human beings, but for a visually challenged person the currency recognition is a challenging task. The currency detection is a challenging task for the both visually challenged and machines. Moreover humans can identify currency by the pattern recognizing ability inherently available within them. But currency detection is a complicated task when machines are involved.

The input amount is detected and verified. Dataset is prepared and done by collecting dataset of the images of the currencies. All these images are stored in a directory. Detection and recognition process involves reading the image, and then identifying the value of money. In this method preprocessing steps like edge detection and character extraction are involved. After feature is extracted, pattern recognition technique is used to find the value of money.

1.2 Motivation

The main motivation behind development of this project was to make a system for easy and quick detection of genuine and fake currency notes. This is a MATLAB based system for automatic recognition of security features of currency.

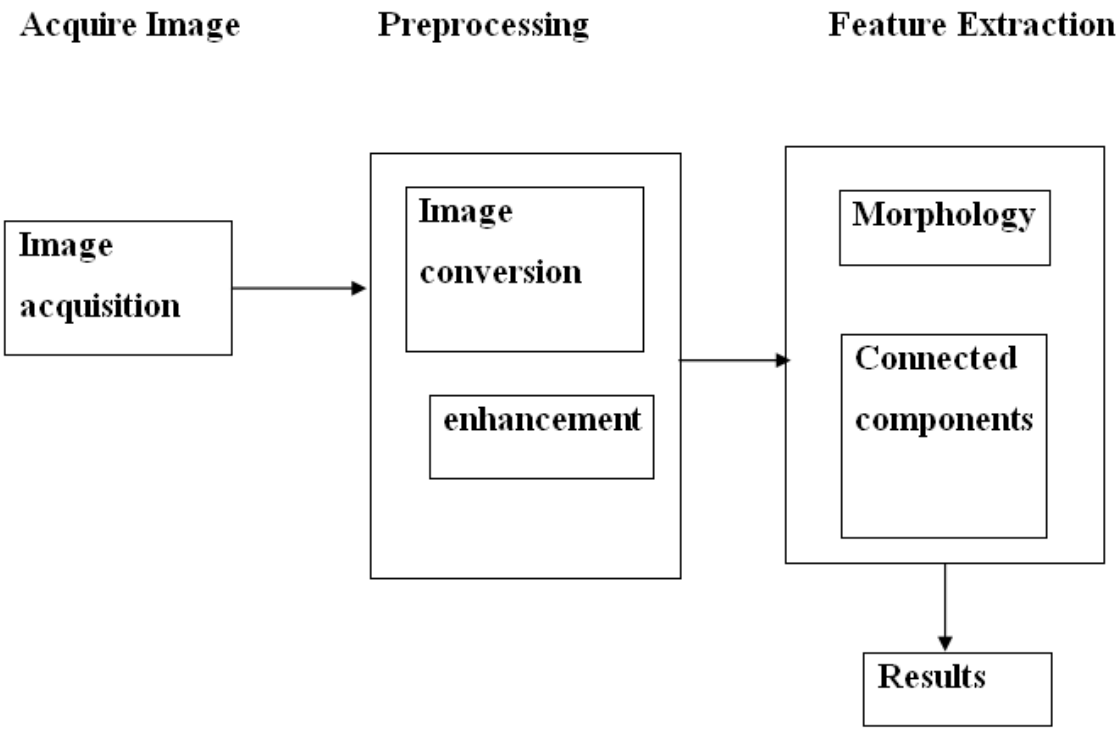
1.3 Objective

The main objective of the project is to identify the fake Indian currency notes automatically using Morphological Algorithm. Although there were many methods in existence, this method was designed to overcome the drawbacks of the previous methods. This method gives a faster and more accurate output when compared to the other techniques.

2. Block Diagram & Technical Specifications

2.1 Block Diagram and Working:

2.1.1. Block Diagram:



2.1.3. Working:

The above block diagram describes algorithms for automated determination of fake or original currency. Image Acquisition toolbox was used to capture the input currency image. The image was preprocessed for normalization and enhancement. ROI (region of interest) was extracted for different regions of the currency based on denominations. The ROI regions were processed with image and object analysis using morphology algorithm. Based on the feature extracted values, results were calculated. Pre-processing refers to removal of any noise and other disturbances in the image so that the image is all set for feature extraction. In the preprocessing stage, region of interests are selected and extracted using different methods. Morphology is a broad set of image processing operations that process images based on shapes. Image segmentation by using threshold method is quite simple but very powerful approach for segmenting images based on image-space region i.e. characteristics of the image. Contrast-Limited Adaptive Histogram Equalization (CLAHE) is used for

image enhancement. After the regions of interests have been selected then they are extracted using segmentation. Based on the feature extracted values, results were calculated.

2.2 Technical Specifications:

2.2.1. Hardware requirements:

- PROCESSOR : 733 MHz Pentium III Processor
- RAM : 128 MB
- HARD DRIVE : 10GB
- MONITOR : 14" VGA COLOR MONITOR
- KEYBOARD : 104 Keys
- FLOPPY DRIVE : 1.44 MB
- MOUSE : Logitech Serial Mouse
- DISK SPACE : 1 GB

2.2.1. Software requirements:

- PROGRAM LANGUAGE : MATLAB
- TOOL : MATLAB R2012a
- OPERATING SYSTEM : Microsoft Windows 7, Windows XP

2.3. Budget Estimation:

S. No	Name of the Equipment	Specifications	Quantity	Unit Cost (In Rs)	Total Cost (In Rs)
1	Currency Scanning	10,20,50,100 and 500,1000 rupees notes	30	25	750
2	Colour printing	10,20,50,100 and 500,1000 rupees notes	30	25	750
3	Pen drive	4GB	1	500	500
Grand Total					**2000**

3. Conclusion

3.0. Conclusion

Implementation of this project will enable to detect the money automatically near toll plazas. Money will be detected based on the type of the vehicle from the owner‘s account. This will reduce waiting time of vehicles at the toll plazas. Theft vehicles can also be identified with the help of presence of RFID tag in that vehicle.