

# Fake Currency Detection Using Machine Learning Approach

Centurion University of Technology and Management Odisha

K. Sai Vasanth-210301120066

K. Dinesh Reddy-210301120063

Abantika Jena-210301120080

Siddharth mund-210301120224

Manobina Baliarsingh-210301120010

Guided by –

Dr. Chinmayee Dora,

Dr. Sujata Chakravarty

## ABSTRACT

The increasing prevalence of counterfeit currency has become a critical issue for financial institutions and governments, necessitating the development of robust and efficient methods for fake currency detection. This project presents a comprehensive approach to fake currency detection by leveraging advanced image processing techniques and machine learning algorithms.

Our methodology combines the power of Gray-Level Co-occurrence Matrix (GLCM) and Local Binary Pattern (LBP) features, along with color information, to enhance the discriminative capabilities of the detection system. GLCM captures spatial relationships in grayscale images, LBP extracts texture patterns, and color information provides additional cues for distinguishing genuine from counterfeit currency.

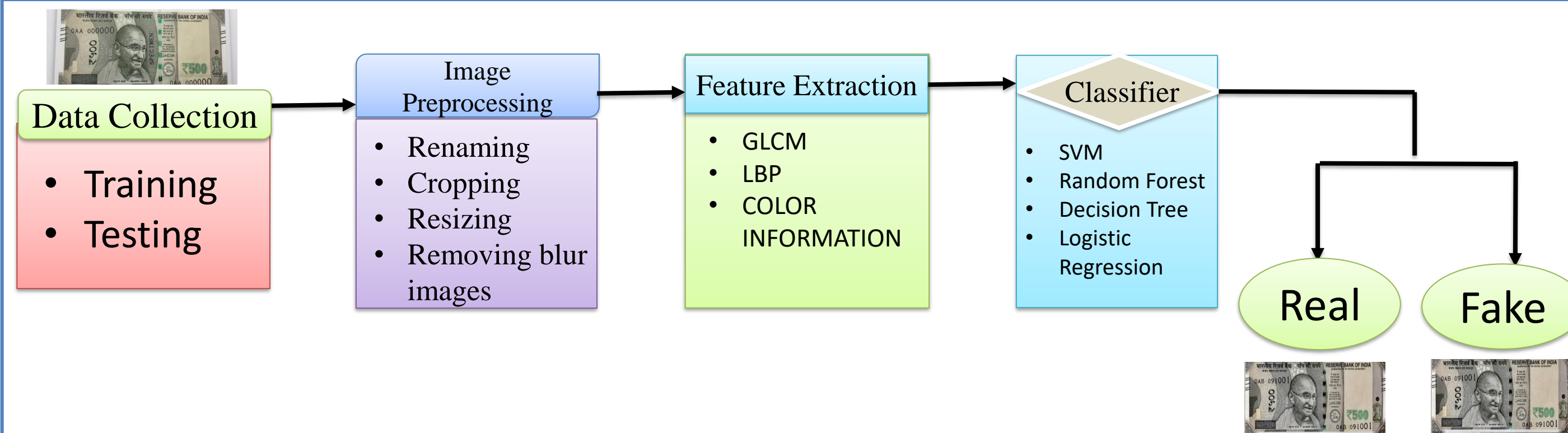
## INTRODUCTION

Technology has numerous benefits in human life Fake currency has a major effect in our economy. when fake currency enter in our economy it reduce the value of real currency which cause market to destabilize and also hampering trade . This fake currency can lead to legal trouble and financial losses if not handle properly Many developer is trying to develop a machine that is automatic currency detector and by now many techniques has been born to detect .but the best technique is to detect by using visible features of note .For example detecting size or color .So it is important how we extract the feature of image currency note and apply proper algorithm to improve the accuracy of the detection.

## OBJECTIVE

- Designing an algorithm for feature localization.
- Designing a feature extraction and recognition.
- Designing an optical character recognition for value detection.
- Scalability: Design the system to be scalable, accommodating increased transaction volumes and new currency designs or security features.

## METHODOLOGY



## RESULT



Fig:1



Fig:2



Fig:3



Fig:4

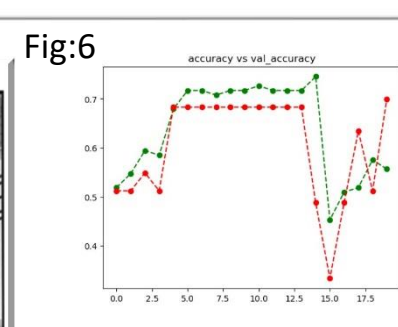


Fig:6

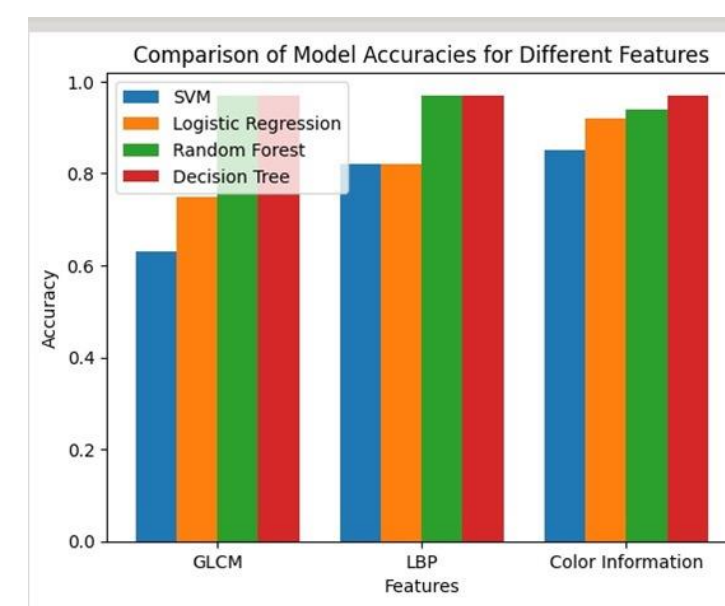


Fig:5

## CONCLUSION

The project aimed to identify counterfeit currency notes through machine learning models utilizing distinct feature extraction techniques. The analysis involved three feature extraction methods: GLCM, LBP, and Color Information, with various classifiers, including SVM, Logistic Regression, Random Forest, and Decision Tree. LBP and Color Information feature extraction techniques outperformed GLCM in most classifiers, suggesting that they capture more discriminative features relevant to counterfeit detection in currency notes. Random Forest and Decision Tree classifiers consistently yielded high accuracies across feature extraction methods, showcasing their potential in counterfeit currency detection.

## REFERENCE

- [1] Fake Indian Currency Note [Online]. Available: [https://en.wikipedia.org/wiki/Fake\\_Indian\\_currency\\_note](https://en.wikipedia.org/wiki/Fake_Indian_currency_note)
- [2] Chinmay Bhurke, Meghana Sirdeshmukh, Prof. Mrs. M.S.Kanitkar, —Currency Recognition Using Image Processing|| International Journal of Innovative Research in Computer and Communication Engineering, Vol. 3, Issue 5, May 2015
- [3] Trupti Pathrabe G and Swapnili Karmore 2011 Int. J. CompTrends Tech 152-156