



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 5, May 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com

Fake Currency Detection

Aarti Amble¹, Shubham Gavhane², Akshay Pisal³, Rohan Shinde⁴, Dr. S. N. Gujar⁵

Under Graduate Students, Department of Computer Engineering, Navsahyadri Group of Institutions, Faculty of Engineering, Pune, India^{1,2,3,4}

Professor, Department of Computer Engineering, Navsahyadri Group of Institutions, Faculty of Engineering, Pune, India⁵

ABSTRACT: The stability of financial institutions and public confidence are seriously threatened by currency note counterfeiting. The development of sophisticated technologies has facilitated the production of believable counterfeit money by counterfeiters. This project offers an Android-based "Fake Currency Detection System" as a solution to this problem. A smartphone application called the Fake Currency Detection System for Android uses machine learning and image processing to detect fake currency notes. With the use of this application, people, companies, and financial institutions will be able to identify counterfeit money more quickly and correctly, which will help to stop the spread of fake money.

KEYWORDS: Counterfeit Money, Forged currency, Counterfeiting, Fake banknotes, Counterfeit detection, Currency fraud.

I. INTRODUCTION

Currency counterfeiting is a serious problem that jeopardizes the integrity of financial institutions, companies, and people. A Fake Currency Detection System for Android is made to address this issue by offering a practical and efficient way to identify fake currency. This system accurately detects counterfeit money notes by using machine learning algorithms, image processing, and cutting-edge technologies. The technique of detecting counterfeit or phony banknotes on Android smartphones involves the use of mobile programs made especially for these devices, which are known as fake currency detection apps. To avoid financial losses and preserve the integrity of the monetary system, it is essential for both individuals and businesses to be able to recognize counterfeit currency. To creating an advanced Android app with real-time phony cash detection capabilities. Any denomination or kind of currency must be reliably distinguished from counterfeit banknotes by the application. It ought to work flawlessly on a variety of Android smartphones, guaranteeing usability for a broad spectrum of consumers.

II. RELATED WORK

1. A.K. Sharma and Diksha Bharti The issue of counterfeit cash persists in the global financial scene, requiring ongoing progress in detection technologies and image quality enhancement strategies. This thorough analysis examines the convergence of two important fields: the identification of counterfeit money and the enhancement of image quality. A thorough examination of several approaches for detecting counterfeit currency is given in this part. These approaches include conventional methods like watermark and security feature verification, as well as more recent ones like computer vision and machine learning.

2. Prathmesh Shendge¹, Ravindra R. Ghugare², Dinesh Takale³, The spread of fake money has drawn the attention of governments, financial institutions, and corporations everywhere. The creation of cutting-edge instruments and technology is essential to addressing this problem. The "Fake Currency Detection App" is a creative approach meant to solve the issue of identifying counterfeit money. Using state-of-the-art image processing and machine learning techniques, this smartphone application enables users to recognize counterfeit banknotes with speed and accuracy. Because of its accessibility and ease of use, the app is a useful resource for both individuals and businesses.

3. Dr. Manish Sharma², Sohni Agarwal³, and Ashish Nagar¹ Since counterfeit money is a serious threat to financial institutions and businesses, effective and widely available counterfeit detection techniques are required. This study offers a novel method for spotting counterfeit money that makes use of digital image processing methods and Android smartphones. With smartphones becoming more and more common, this approach uses widely available technology to give users the option to confirm the legitimacy of banknotes. The suggested method makes use of the capabilities of

Android smartphones, which have powerful processors and high-resolution cameras. Digital image processing methods are used to derive unique characteristics from pictures of cash. These characteristics include a variety of security components found on real banknotes, including watermarks, security threads, and holograms.

4. Rajput Vishwajeet , Sarita Patil The global issue of counterfeit currency notes is becoming more and more serious, as it can result in substantial financial losses and jeopardize the stability of the monetary system. It is now critical to develop trustworthy and user-friendly techniques for detecting counterfeit currency in order to meet this challenge. This study focuses on developing a portable and affordable method for detecting counterfeit currency using smartphones and a variety of image processing techniques. The suggested method makes use of the high-resolution cameras found on contemporary smartphones to take pictures of bank notes. A variety of image processing methods, such as edge detection, colour analysis, texture analysis, and watermark verification, are used to process these images. The main objective is to identify important security features that are challenging to replicate in order to differentiate real currency notes from counterfeit.

5. Naina Shende; Pragati Patil, Prof. Currency note counterfeiting has long been an issue that jeopardizes financial stability and erodes public confidence in the monetary system. Finding counterfeit money is essential to preserving the integrity of the financial system and protecting the economy. Recent developments in image processing methods have made it possible to create effective and trustworthy systems for detecting counterfeit money. The use of image processing techniques to identify counterfeit currency notes is the main goal of this research project. The goal is to create a reliable and accurate system that can confidently identify counterfeit banknotes.

6. Vansh Kedia and Aman Bhatia. Currency fraud continues to be a serious threat to the integrity of global financial systems. Maintaining the security and confidence of financial transactions depends critically on the timely detection of counterfeit currency notes. This abstract presents a novel method for image processing and machine learning-based fake currency detection. The detection of counterfeit currency through machine learning and image processing is a crucial instrument utilized by financial institutions and law enforcement organizations, augmenting the general safety and steadiness of financial frameworks.

III.METHODOLOGY

- The prevalence of fake money and the requirement for a workable Android-based remedy.
- Genuine currency may have small, deceptively complex patterns or text that is hard to duplicate.
- It is usually printed on premium paper with a particular texture and thickness.
- Using appropriate detection techniques, examine antibody-antigen complexes under a microscope.
- Use reference materials from government or central bank sources that list the qualities and security features of real currency.

Proposed System:

MODULE: • Administrator

- The administrator must enter a valid user name and password to log in to this module. Once he successfully logs in, he can perform certain actions, like viewing all users and authorizing.
- See and Give Users Permission.
- The administrator can see a list of all enrolled users in this module. In this, the administrator can see user information like name, email address, and address, and they can also approve users.
- Examine the Charts and Results
- See the ratio of all products searched, the results of all keyword searches, and the ranks of all product reviews.
- Final User
- There are n numbers of users present in this module. Prior to beginning any operations, the user must register. The user's information is added to the database as soon as they register. Upon successful registration, he must use his authorized user name and password to log in. The user will perform certain tasks, such as managing their account, after successfully logging in.

DATA DESIGN:

Several steps are involved in designing a system for detecting fake currency: gathering data, preprocessing it, choosing a model, training it, and evaluating it.

- Verify that the photos depict a range of conditions, variations, and denominations.

- Expand the dataset to make it more diverse and enhance the generalization of the model. Methods comprise, adding noise, flipping, scaling, and rotation.
- Intend to use object detection models and label the bounding boxes surrounding each currency region picture.
- Make sure data privacy laws are followed, particularly when handling sensitive financial Details.

INTERNAL SOFTWARE DATA STRUCTURE: Determining how data is organized and represented within the software application is a necessary step in designing the internal software data structure for a fake currency detection system. Keep track of every currency note's detail, such as its denomination, place of origin, security features, and any other pertinent information.

GLOBAL DATA STRUCTURE:It is necessary to take into account a variety of characteristics and security precautions found in various currencies around the world when designing a global data structure for fake currency detection.

TEMPORARY DATA STRUCTURE When currencies are being examined during the processing or analysis phase, a temporary data structure for fake currency detection is usually used.

IV. SYSTEM ARCHITECTURE

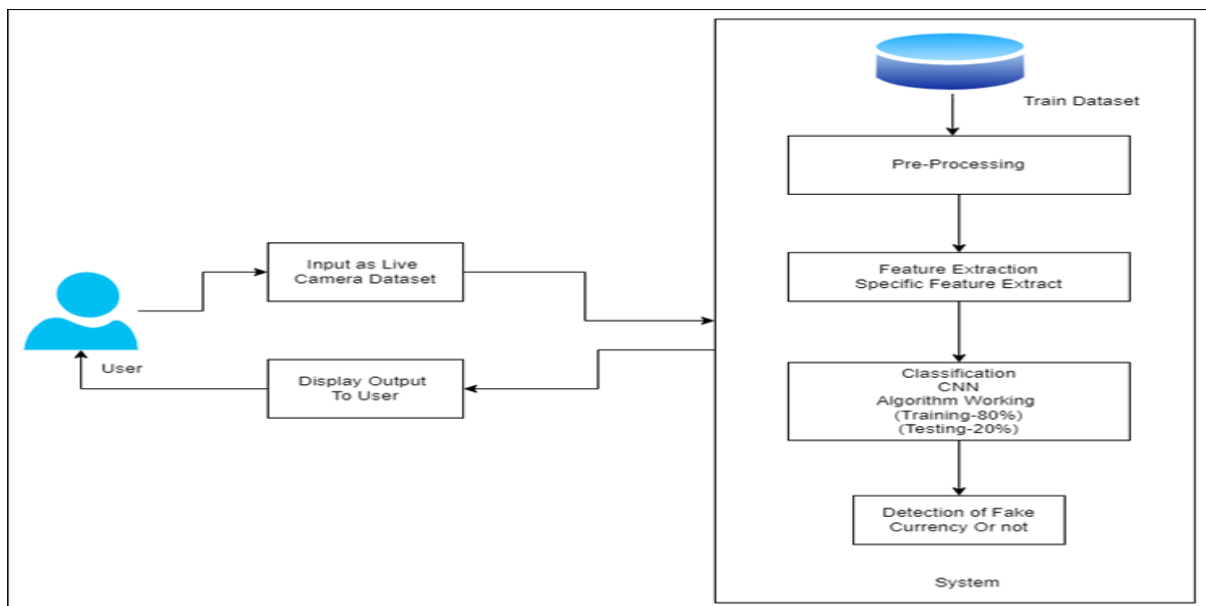


Fig. System Architecture

V.CONCLUSION

The creation of an Android app for spotting counterfeit currency is a big step in maintaining the integrity of financial transactions and the public's confidence in the financial system. The application can accurately identify counterfeit currency notes by utilizing cutting-edge technologies like image processing, machine learning, and database integration. This gives users and businesses a powerful tool to combat counterfeiting. The application helps to stabilize financial systems, prevent financial losses, and encourage safe financial transactions in society by tackling the problems caused by counterfeit money.

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