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Detection of Fake Currency using Image Processing

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***Abstract*— In recent years a lot of fake currency note is being printed which have caused great loss and damage towards society. So, it has become a necessity to develop a tool to detect fake currency. This project proposes an approach that will detect fake currency note being circulated in our country by using their image. Our project will provide required mobility and compatibility to most peoples as well as credible accuracy for the fake currency detection. We are using image processing and cloud storage to make this app portable and efficient.**

Keywords — Machine Learning, Image Processing, SVM algorithm, Cloud Storage.

I. INTRODUCTION

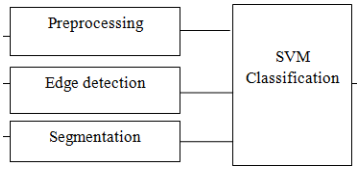
Fake currency detection is a serious issue worldwide, affecting the economy of almost every country including India. Currency duplication also known as counterfeit currency is a vulnerable threat on economy. It is now a common phenomenon due to advanced printing and scanning technology. The possible solutions are to use either chemical properties of the currency or to use its physical appearance. The approach presented in this paper is based upon physical appearance of the Indian currency. Image processing algorithms have been adopted to extract the features such as security thread, intaglio printing (RBI logo) and identification mark, which have been adopted as security features of Indian currency. Hence, we propose a more user friendly and portable solution to this problem in form of an mobile app coupled with cloud storage.

II. LITERATURE SURVEY

1. Ms. Monali Patil, Prof. Jayant Adhikari, Prof. Rajesh Babu they proposed a system which uses image processing to distinguishes between features of a real note and a fake note. They used K-means algorithm for feature clustering and SVM algorithm to train their data model.[1].
2. Mayadevi A.Gaikwad, Vaijinath V. Bhosle Vaibhav D Patil. In their research paper they have suggested a methodology of detecting fake currency from the real by comparing their visual features such as distance between Gandhiji's portrait and other notations. This methodology can be useful for a system purely based on software processing.[2]
3. Renuka Nagpure, Shreya Sheety, Trupti Ghotkar. They have proposed a system which uses the floral designs on the notes provided by RBI to distinguish between real and fake notes.[3]
4. Neeru Rathee ,Arun Kadian, Rajat Sachdeva ,Vijul Dalel, Yatin Jaie. In their paper they have suggested image processing along with supervised machine learning to learn the distinguishing feature of a real note from fake one which will increase the precision of this method.[4]
5. Akanksha Upadhyaya Research Scholar, Vinod Shokeen Associate Professor, Garima Srivastava. In their study they have proved that image processing along with logistic regression gives an accuracy of above 99%.[5]

III. EXISTING SYSTEM

In existing system, Image processing Is being used with legacy version of machine learning algorithm. Also, they are using local database which reduces the portability of system and because of their system is limited to PC device user friendliness is not good.



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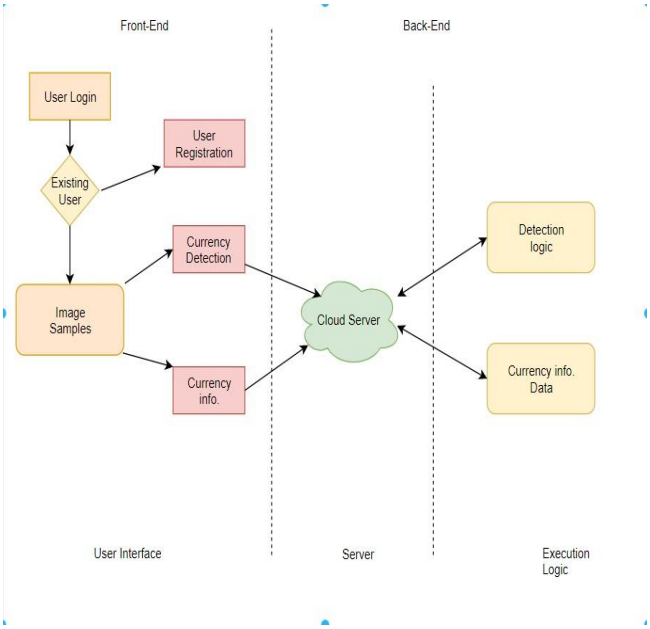
IV. PROPOSED APPROACH

In proposed work, we will develop a system that would perfectly assess the features of fake note and real notes based on the paper by "Ms. Monali Patil, Prof. Jayant Adhikari, Prof. Rajesh Babu". Our proposed system will be capable of performing real time detection of fake currency as we are using cloud storage for execution of our image processing logic simultaneously reducing the size of the smartphone app which plays crucial role in memory management of daily users.

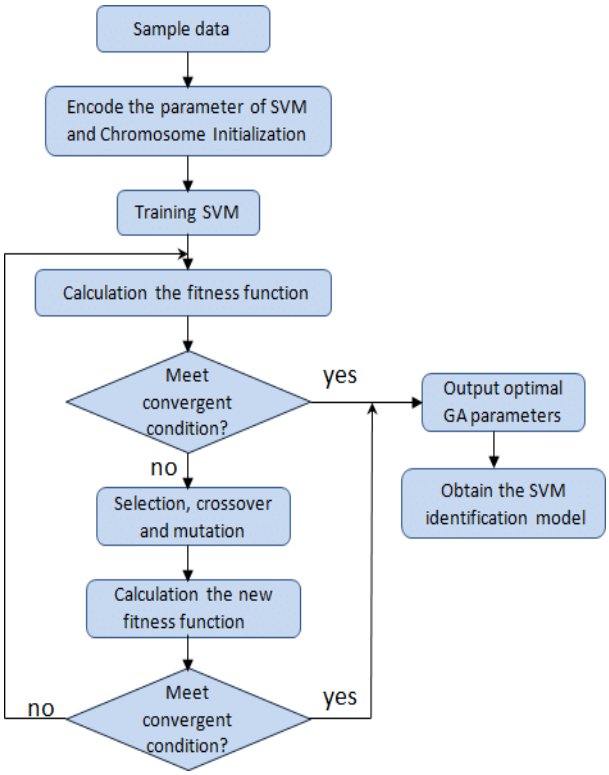
Also, our system will give live update of the identified currencies stock market values w.r.t other currencies around the globe.



System Architecture

V. ALGORITHM USED

1. SVM Algorithm: In machine learning, support vector machines (SVMs, also support vector networks) are supervised learning models with associated learning algorithms that analysis data used for classification and regression analysis. Given a set of training examples, each marked as belonging to one or the other of two categories, an SVM training algorithm builds a model that assigns new examples to one category or the other, making it a non- probabilistic binary linear classifier (although methods such as Platt scaling exist to use SVM in a probabilistic classification setting).



CONCLUSION AND FUTURE SCOPE

Our System will be helpful for the regular peoples who are technically not involved in daily life with background processes. A smartphone app will provide its user an concise way to perform a very necessary task.

In forthcoming future, as discussed by "Akanksha Upadhyaya Research Scholar, Vinod Shokeen Associate Professor, Garima Srivastava." In their study that precision of above 99% can be achieved with image processing and supervised learning. Our proposed system could replace the hardware system in some initial stages of currency verification process.

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