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## Identify the Fake Currency in Automatic Teller Machine

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**ABSTRACT:** Authentication and Authorization are very significant to do any transaction in online. When we are doing any transaction in ATM the authentication and authorization are checked by the respective banking servers. Sometimes when we are providing authentication and authorization to the ATM machines the customer got fake currency from the ATM machines. In this paper we proposed a architecture which will check authentication and authorization of the customer and will identify the fake currency. The proposed architecture helps to stop the fake currency. The proposed architecture helps to stop the fake currency and issue the original currency to the customer.

**KEYWORDS:** Authentication, Authorization, ATM, Fake Currency.

### I. INTRODUCTION

The Development of computer networks has lead to a world full of connected computational resources. The ubiquitous nature of networks has provided human society with the capability of solving problems in a distributed but yet collective manner [3]. However, the boon of communication is accompanied with the concern for security. For an end to end security, it is thus not only sufficient to secure the network, but also imperative to consider threats which may exist because of the loop- holes existing in the computational systems. Building correct and fault –free a system is an extremely difficult task. [2] With the complexity of modern computers and systems, a bug free design is impossible. Designers try to ensure that the bugs do not hamper the normal functionality. Thus, although we know systems have bugs, they are mostly adequate for normal functions. However, security has more stringent requirements [5]. A single bug may compromise all the security measures adopted, as a system is as strong as its weakest defense.

In spite of the importance of security, it has remained an extra feature and an afterthought. This approach makes the job of the security designers even more challenging [1]. Along with the needed security, the designers are pressed with the additional challenge of maintaining transparency to the user and also not increasing the cost of the service significantly [4].

### II. PROPOSED SYSTEM

“ATM S which stands for “Automated Teller Machine” is an easy way to access your bank account anywhere in a convenient way. If you are new to ATM you need not be worried about it because it is very user friendly since each and every instruction is clearly visible and how to use is it also visible and the technique is available anywhere anytime across the globe. Once you have an account created a bank account you can avail the services by using ATM.

#### Process

Practice basic safety procedure:

ATM uses are often subjected to cyber crimes and robberies & other crimes, so you will want to be sure to be. First a fall makes sure that you are all alone while operating ATM screen& key masked. You also have to look at ATM



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only or else you will be distracted. When there is no universal signal devices called card skimmers are very popular while giving and taking ATM. If you have a problem in the current machine it is better to cross in another machine Usage of ATMs only throughout the day in fine trafficked areas, if promising?

Cross verify that your bank networks:

ATM is same or not with this you need not pay handling and extra fees too. When you are using same bank networks to the ATM which you are using in case any problem incurs while using ATM they can check it through website ATM will not incur a processing fee.

When you walk up (or) drive up to the ATM centre of the particular bank:

You have children around or with then they are chances of having distraction so ask them to maintain silence and also instruct them not to read the pin number while you are entering using key pad provided.

Insert your debit card into the ATM:

Generally you can insert two types of cards one is credit card and another one is debit card in ATMS. They are linked to the exact amount you have in your bank account. Credit cards can be used in some cases, but fees & interest rates usually. Make then expensive to use insert your card into the card slot, facing in the path indicated by the image on the machine. Particular machines may have a peculiar fee which should be labeled on the machine. If you travel out the country, there may be extra fees coupled with the distance (or) currency change. You have an account by means of pin number additionally; some of the services accessible like you can change the language

Enter your (personal identification number) when prompted:

It's a four- digit PIN number you need to type that number make sure you do it correct and spectator can't see it. You should also observe cameras security measures are provided to check whether the person who is doing the transaction is only taking money or not so as to reduce the criminal problems. If in case you forget the money you can go to the bank the and collect and they will check CC TV footage if at all the person who did the transaction is you then they will give the money or else a serious action will be taken.

Go Touch or press withdraws from the main menu:

You can withdraw money from any ATM, regardless of the associated bank (through labeled on the machine). This is usually Rs.1000, Rs.2000, or Rs. 5000Target withdrawal.

Fast Cash:

This allows you to specify the withdraw amount. Every bank has different limits it varies for different banks & your account type, but limits between Rs.20000-Rs.25000 are common. Deposit Money You can deposit cash as well, as extensive safe use as you get to use the ATM account only related to bank you are using. You should have choice to deposit the amount in the account you want like current account or savings account you desire the money deposited into. The transfer may not be available immediately. One is manually other way is through means of machine location directly return to the machine ,insertion of card can also be done once again to check your account balance: You should have option to check how much balance you have by means of an ATM related with related bank. The balance acknowledgment is known by receiving a piece of paper, although it might be displayed on the screen well.

Deposit Cash:

This is usually fed into the machine, though periodically a deposit envelope may be required. If you are using a recent ATM, you should be able to insert a mound of bills, often between 30-50 bills at a time, & the machine will count them up automatically.



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## Deposit checks:

Earlier machines may require that you use a deposit slip in order to deposit a check, but for most modern machines you can just feed the check into the ATM. The ATM will provide you with specific instructions, a deposit envelope if you don't have one. You need to fill out a deposit envelope, it's better to get the envelope from the machine & then exit from the transaction, filling out the details & inserting the check into the envelope in your car or other safe location directly return to the machine, reinsert your card, & start the process over again once the envelope is prepared.

## Check your account balance:

You should have option to check your account balance or how much money you have on hand in your account, so long as you are by means of an ATM related with your bank. This balance is often printed out on a receiving or piece of paper, although it might be displayed on the screen well.

## Transfer of money or make payments:

Many bank ATMS will allow you to transfer the amounts to multiple accounts of bank or even shift money to other people. If you want to withdraw money you can type how much money you want then you can withdraw. If you would type press or touch ENTER or confirm keep in mind that most ATMS only give exchange in increments of Rs.100, so don't request Rs.75, Rs.85, etc Wait while the machine processes your transaction: The ready money will come out of a slot generally located if at all you don't have enough money you can't withdraw the money

## Fake currency process:

While the transaction is under the process there is a chance of fake notes that will dispense from the ATM machine. In this paper I propose a model for identifying the fake notes in ATM machines. Fake currency detection is a process of finding the forgery currency. The main purpose of this paper is fake currency detection using the image processing in ATM machines. After choose the image apply pre processing. In pre processing the picture to be crop, smooth & adjust convert the image into gray color.

After translation apply the image segmentation. The features are and reduce. Original or forgery images are compared finally. In this image of paper currency will be acquired by simple scanner or digital camera. The image acquired is RGB image then it will be transformed into gray scale. Edge detection of the whole gray scale image will be performed. After detecting edges, the 4 characteristics of the document exchange will be extracted. The characteristics of study image are compared with the actual pre-stored image in the system. If it matches the currency is genuine otherwise counterfeit.

This fake currency detection process is implemented in the following phases

## Overall Algorithm:

- A. Image of paper currency will be received by simple scanner or digital camera.
- B. The image acquired is RGB image and then it will be transformed into gray scale.
- C. Edge detection of the whole gray code picture will be performed.
- D. After identifying edges, the four characteristics of the paper exchange will be cropped and segmented.
- E. After dividing into modules, the characteristics of the paper exchange will be extracted.
- F. The characteristics of study image are compared with the original pre-stored picture in the system.
- G. If it matches then the exchange is genuine otherwise counterfeit.



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## Phases:

### Image Procurement:

Image procurement is the first stage of any vision system. Many different vision tasks are performed Image Procurement in image processing many devices like camera or scanners are used to acquire the image. Performing image in image processing is always the initial step in the workflow.

### Pre-processing:

The main object of pre- processing is to improve the visual appearance of images. Pre-processing performs the main data analysis & information extraction. Image pre processing is also called as picture restoration. Which performs the distortion correction; degradation & noise popularized during the image process several filter operations are also used to reduce the certain image details enable an easier or faster evaluation.

Image modification is performed by image interpolation which means the tasks like zooming, rotating, shrinking & geometric corrections can be made. The important step is to remove the noise from the image. Noise affects segmentation & pattern matching. The neighbor of the pixel is used during the smoothing process. A new value of pixel is created later.

### Gray Scale conversion:

Acquired image will be in the form of RGB color. The processing of gray scale converted one will be easier than to process 3 components RGB (respectively red, green & blue).In order to take RGB values for each pixel the output has to be assumed and calculated for each channel as average of (R+B+C)/3. If the output is dominated by green color than method weighted average has to be done e.g.: 0.3R + 0.59G + 0.11B.

### Edge Detection:

Edge detection is used to identify points in a digital image that contain mathematical methods which helps in brighting the image sharply that may even discontinuities. Brightness changes at a point in a image is organized into set of curve lines and segments. Finding discon in 1D signals is also problem that lead to discontinuities over time. It is often refer to change detection In image processing, machine vision, Computer vision this edge detection and feature extraction plays important role. Image processing technique contains edge detection that involves identifying objects within the image. The discontinuities in brightness can be detected using edge detection. The one- dimensional analysis and two dimensional analysis are followed. 2-D spatial gradient helps in measuring image. Gray scale magnitude of input grayscale image is calculated. The gradient has to be calculated by using x-direction (rows) and direction (columns).Convolution becomes smaller than actual image. A result is the manipulated square image of pixels.The mask image is obtained by using sobel mask image using formula

$|G|=|Gx|+|Gy|$  the code for the Sobel edge detector is shown below and uses the above gradient approximation

-1	0	+1
-2	0	+2
-1	0	+1

+1	+2	+1
0	0	0
-1	-2	-1

$$|G|=\sqrt{Gx^2} + \sqrt{Gy^2}$$

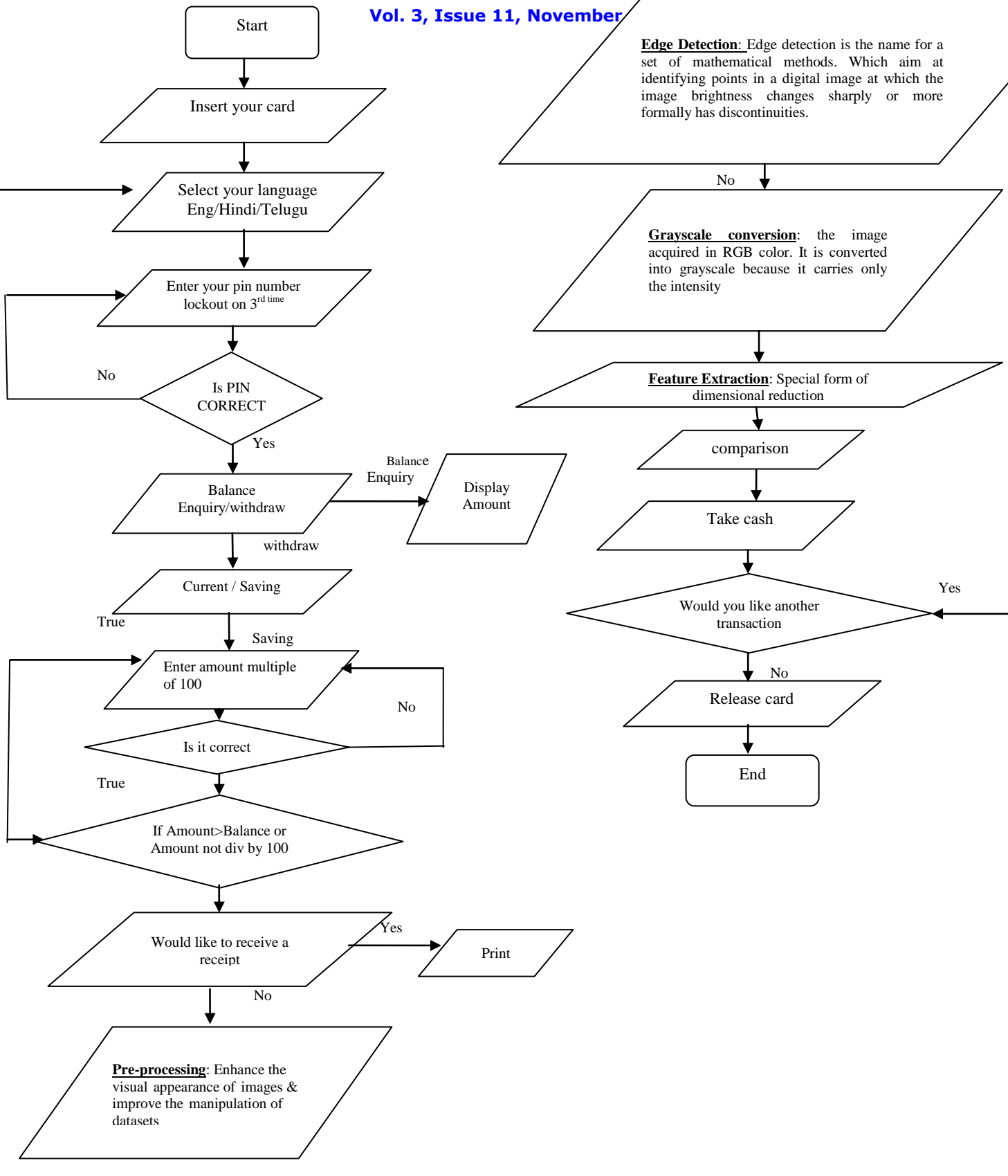
### Image Segmentation:

Subdividing of images into many parts is called as image segmentation. Image contains pixels many pixels collectively called as super pixels. In the process of segmentation we can add more features and we can change features and analyze image. Understanding image becomes easier. Image segmentation helps in identifying objects that are present in image in detail.

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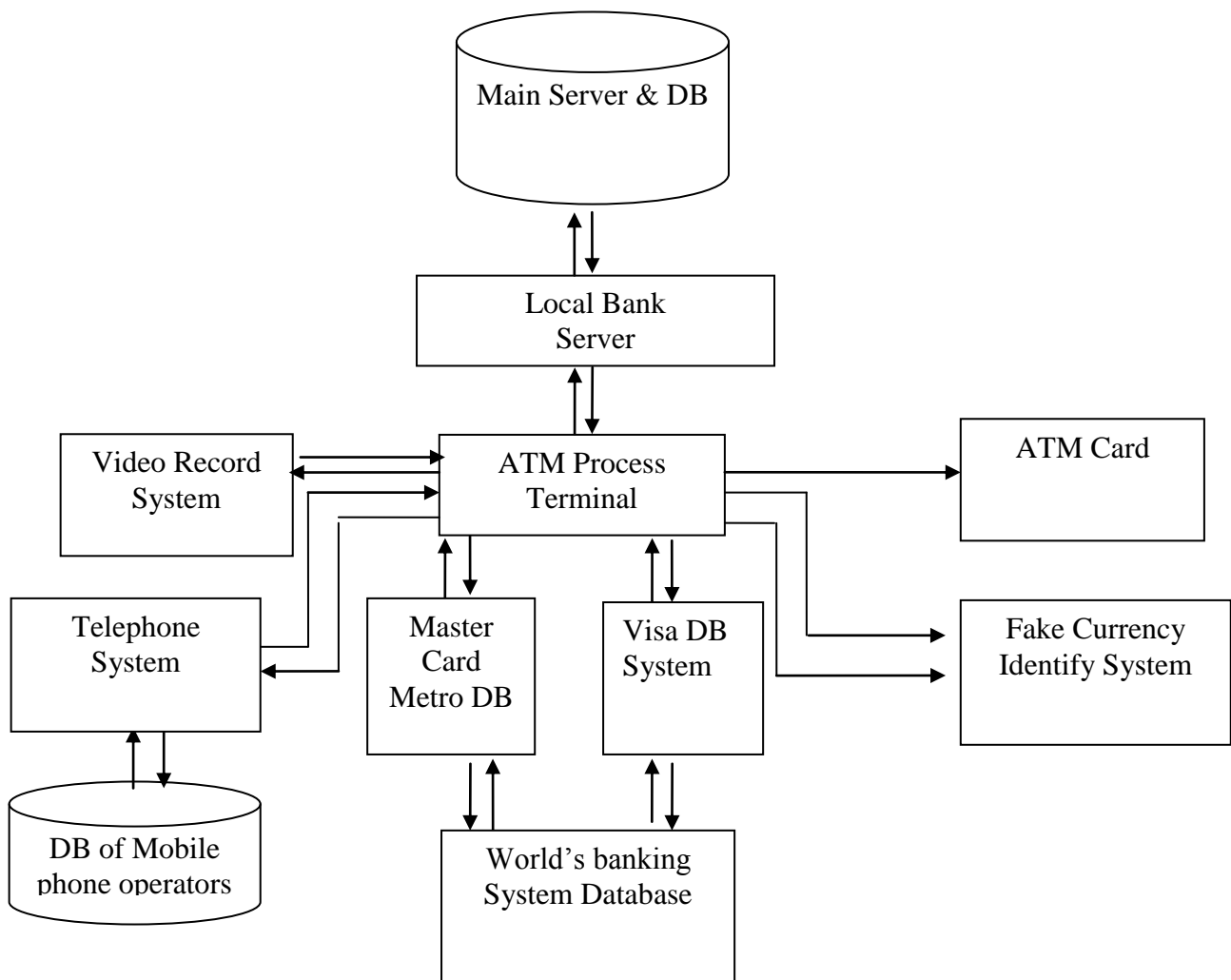
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## Feature Extraction:

One form of dimensional reduction is feature extraction. If the input data sent to algorithm is too large it follows following steps step one is redundant data is suspected and second step input data is transformed and third step is data is reduced and sent. Procedure that is followed in second step that is transformed data is called data transformation. Data that has to be extracted has to be carefully done for the desired task. Press we get an option in ATM to have receipt or not it is better to have receipt so that we can cross verify. Take your cash & receipt: Always count your money to make sure that you have received correct amount that is exact money you want if not go to the bank within business hours that is working hours of bank rectify the problem. Decide if at all you want to make another transaction and make transfers between checking & savings accounts or to make a deposit if your ATM offers these features. Press yes or No the screen want to know if you want to make another transaction. Once you have done your transaction, you will have to follow the steps given by the ATM in order to exit out the shortcut generally used is red X is a like to the option on a computer. Don't forget to take your card & sometimes there is chance of forgetting currency at that time sudden need of money instead of asking someone mobile banking will be helpful in order to withdraw money we can also use mobile banking bank with one of the foremost banks.

Mobile banking is generally available in smart phones where you check balance and transfer of money can be done many other services can be done through ATM

## ARCHITECTURE DIAGRAM OF PROPOSED SYSTEM





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The customers who are providing authentication and authorization to the ATMS is very difficult to detect the fake currency. The customers faced problems when they got fake currency from the ATM machines. To avoid this problem we proposed the architecture which will provide the authentication and authorization of the customer and identify the fake currency, issue the original currency to the respective customers.

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