Synchronized Webcam Based Authenticated ATM Centre for End Users

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***Abstract* - The Automated Teller Machine is widely used in day-to-day life for commercial application by the people for their deposit, withdrawal and transaction of money. ATM card fraud transaction and withdrawal of money is the huge problem for the all the people. In the existing system, there is no guarantee whether the authenticated person is using the ATM account. A secured protocol is defined for perpetual authentication via continuous user verification. The protocol determines timeouts based on the frequency, quality and type of biometric data transparently acquired from the user. But the existing system does know an identity of the user interacted with the system. The main mechanisms of proposed framework include contour-based tracking for interrupted motions and capture the snapshot of person using the ATM. The application uses the Image compression standard which is used to reduce the image size without reducing quality of the image. The images are stored in the bank database along with the transaction details in the centralized database. Since the application uses the Image compression technique it saves the storage space at the server side and the images are saved in JPEG format. The image compression reduces the data correlation and replacing it with the simpler data form.**

***Index Terms* - ATM, ATM pin, bitmap algorithm, image, compression algorithm**

I. INTRODUCTION

These days examination is going ahead in the field of crime discovery and evasion in the ATM, till now there is no best technique came in the field of ATM. So the thought of planning and execution of security for ATM undertaking are conceived from the perception of our genuine episodes happening around us. In the course of recent decades customers have come to rely on upon and trust the ATM to advantageously meet their managing an account needs. Lately there has been an expansion of ATM cheats over the world. The suspicious activities in ATM are numerous. In the wake of breaking down its resulting movement highlights, diverse anomalous occasions like crimes and theft can be adequately identified through recordings. This paper deals correlation existing advancements and propose another casing work for ATM security in collaboration ATM programming. The proposed strategy will utilize various article identification technique and occasion acknowledgment methods of PC vision. Authentication plays an important role in computer based communication in day-to-day life in every online transaction. Continuous user authentication is mandatory for authenticating the person through continuous user verification. Even though continuous authentication of the user is verified by the system there is still chance to misuse some other persons ATM account and the unauthorized person is not caught easily.in order to detect the fraud transaction in the ATM, the proposed system helps to detect the unknown person who misuses some other persons ATM account.

II. AUTOMATED TELLER MACHINE

An automated teller machine (ATM) is an efficient money transfer gadget which helps the people to transfer money, withdraw and deposit money. It helps all kind of people to transfer money to any one account to another account at the time of emergency. The first ATM was introduced in USA in 1969.It charm all classes of people to use ATM, because in bank there is delay in the transaction, deposit and withdrawal of money. In the ATM, it is very easy to draw the money within a fraction of seconds. So, all the people are using ATM daily. The utilization of ATM is increasing day by day. According to the survey, there are about 2.3 million ATMs are in the worldwide. The crime and theft in the ATM are also increasing day by day. Even though many technologies arise to avoid the theft in the ATM, the corruption is happening every day. Even though usage of the machines has dropped in recent years, because more people make purchases using credit and debit cards as a replacement for cash, the ATM continues to have a place in present world. ATM fraud is not forced to the robbery of trade out the ATM. Several ATM attacks try to obtain a purchaser's close to home data, for example, their ATM card number and PIN of the specific ATM
card . While these kinds of ATM fraud assaults require more push to net money for culprits, the outcome is the same illegally getting cash. There are different types of ATM attacks such as card skimming, salisi gang attacks, cash trapping, fake assistance, shoulder surfing, eavesdropping, fake pin pad overlays, hold ups, transaction reversal fraud, logical attacks and physical attacks.

III. RELATED WORKS

A strong authentication of the user and a perpetual verification process uses the multi-modal biometric. Verification failure along with a conventional estimate of the time essential to challenge the computer can automatically lock it up [1].In this system even though continuous authentication is done, the other person can misuse it if they know the password clearly.

In this ATM system model, it uses the facial recognition system which needed the digital camera to operate. The digital camera is available for the always. In this method, the photo of the account holder should be registered in the bank. This system suddenly initiates the face recognition procedure. When the computer identifies a human face in the digital camera, it obtains a picture of the person who is using the ATM. After capturing the image of the person it compares the image of the person with the image which is already stored in the database. The ATM machine will certainly recognizes the person. This smart ATM system removes the necessity to carry the ATM card each time when one person wishes to access the bank ATM account. This idea makes the banking friendly for all users and they access easily. It also avoid the usage of the ATM account by the unauthorized person because anyone can access the account by knowing the personal identification number (PIN).The digital camera uses the biometrics to identify the account holder image, the account holder appearance of the face such as distance between the eyes, location of the cheekbones, size of the nose and proportion of the nose to the mouth. After authenticating the person, the customer is asked to enter their PIN of the ATM account [2].The main drawback of the system is only the owner of the ATM card only permitted to use the account; because facial verification is done .In case of emergency, other person cannot use it.

The complexity of the multifactor authentication is avoided. When the person insert the ATM card into the ATM machine, then the PIN should be entered for making transaction and withdrawing money. If the PIN gets confirmed by the ATM machine, it makes a call to the user of the particular account holder. If the user replies to the ATM machine then the transaction is carried on. This model uses the GSM modem for calling the user from the ATM and to get reply from the user. If the user enters the amount and secondary password correctly from the mobile then the transaction is performed. If the robbers try to damage the ATM machine then the vibrations are identified by the vibration sensor then the vibration sensor gives the alert message to the nearest police station [10].

The biometric verification includes the verification of the PIN of the account holder. It uses the fingerprint recognition algorithm to verify the person .The fingerprint verification has perpetually updates the algorithm which is used for perfect biometric identification [11].Nowadays the biometric verification is also hacked by some other people.

The intelligent system has three parts in the ATM machine. Each part is responsible for performing some specific operations. The first part comprises a video camera which is used for capturing the images. The second part contains the multiple object detection which detects the existence of more than one person in the ATM room. If the system detects the existence of more than one person it will displays the prompt of the user. If multiple persons are involved then the information is passed to the activity recognition module. This module detects the behavior of the human. If the interaction of a person with an ATM machine is normal, the transaction takes place. If the module identifies multiple objects, it does not allow multiple object inside the ATM room and it creates an alarm and calls the nearest police station [12].If the sensor fails it will never detects the thieves.

In the video, it first detects the presence of moving objects. If it detects the moving object, then it will find the face region and extract the facial region features and detect the fraud. It uses the HSV color space for detecting the face region. This also uses hole filling, morphological closing and opening of the face region for generating the face region. The face region mask is applied to the moving object which is used for detecting face region of a person.
When the ATM machine is damaged by the attacker, the vibration detection sensor will get activated .the message is send to the nearby police station with the help of GSM modem. The GSM modem is a SIM card and it operates like a mobile phone .These GSM modem is mostly useful for transfer and reception of SMS and MMS messages.

The increase in electronic transaction leads to the greater demand for fast and exact user identification and verification. The traditional method of identification of a specific person is based on the ownership of ID cards or password such as primary password and secondary password. If the credit card or debit card or ATM card is lost or stolen, an unauthorized person can easily access their account. The hacker can easily guess the PIN's, password, phone number and some other social security numbers. This method uses tracking chip which will trace the location of the ATM card which will help in providing the users support.

IV. PROPOSED SYSTEM

Visual object tracking is an active research topic in computer vision. The general object tracking which uses fixed coarse shape models, such as rectangles or ellipses, to characterize objects, active contour-based tracking offers more complete object shape information. In general, visual object tracking is more difficult than general tracking of the object. The main aim of the contour tracking is to recover finer details of the object, i.e., the border of the object, and the calculation of the boundary of the object is liable to effects from the background disturbance.

V. SYSTEM ARCHITECTURE

The function of proposed system is united with the role of ATM software .The architecture of proposed intelligent system is divided into two parts. The first part comprise on digital camera which detect the activity of the user like entering personal identification number. Second part is to capture the photo of the person using ATM. The bitmap algorithm is used which maps the image by pixel by pixel.

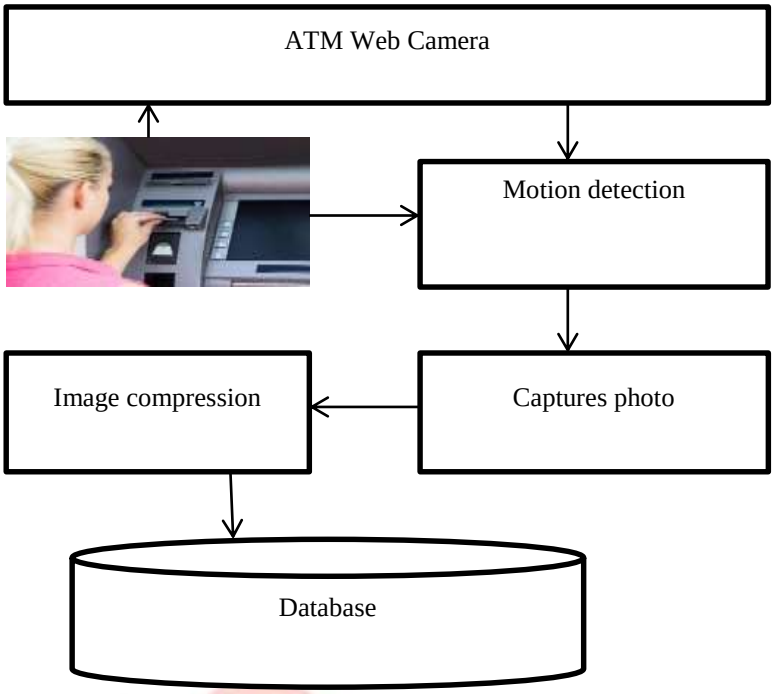

Figure 1.Architecture Diagram

MODULES:
The modules of the system includes the following
1. Motion Detection
2. Capturing image
3. Image compression
4. Storage and retrieval of images

A. Motion Detection

This module detects the activity of the user. It identifies the PIN entered by the user. If the user enters the PIN, it will automatically capture the photo of the person using ATM and stores it in the database with the transaction details.

B. Capturing Image

This module detects the entry of pin by the user .when the user enter the pin, and then it will automatically capture the picture of the person. The picture of the person will be stored in the database.

C. Image Compression

This module comprises of compression of an image. It uses the lossless image compression algorithm which is used to compress the image without loss of data and the image quality is maintained.

D. Storage And Retrieval Of Images

The stored pictures were stored in the bank database. Even if someone misuses the other persons account, the unauthorized person's pictures were stored in the bank database which will be retrieved later in case of detection of thief.

VI. METHODOLOGY

The method uses the bitmap algorithm and image compression algorithm. The bitmap algorithm is used for mapping the image pixel by pixel. The captured images were stored in the database. The application uses the image compression algorithm which compresses the size of the image and reduces the mbs size. The lossless image compression is used for compressing the image size without affecting the quality of the data. The quality of the data is maintained even after compressing the size of the image.

VII. CONCLUSION

After the completion of the thesis the problems in the existing system will be addressed. The Novel Image Capturing Technique Using Bitmap is computerized to reduce human errors and to improve performance and the efficiency. The main goal of this project is to detect the criminals who misuses the ATM and to less the human efforts. The images are stored in database, so the data can be retrieved easily. The web camera observes the behavior of the user. The cam should take images if there any transaction is done by the user. The list of captured image can be viewed by the user in this application itself.

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