

Bio-Metric Recognised Cash Banks

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Abstract: Identification and verification of someone nowadays may be a common thing; which can embrace door-lock system, safe box and vehicle management or perhaps at accessing bank accounts via CASH BANK, etc that is critical for securing personal data. The standard ways like ID card verification or signature doesn't offer perfection and dependability. The systems utilized at these places should be quick enough and strong too. Use of the CASH BANK (Automatic Teller Machine) that provides clients with the convenient note commerce is facing a brand new challenge to hold on the valid identity to the customer. Since, in standard identification ways with CASH BANK, criminal cases are increasing creating monetary losses to customers. For resolution the bugs of ancient ones, the author styles a new CASH BANK terminal client recognition systems. The chip of S3C2440 is used for the core of microchip in ARM9, moreover, Associate in Nursing improved enhancement algorithm of Thumb Impression image increase the security that client use the CASH BANK machine.

Keywords:Terminal,Thumb Impression Recognition, Image Enhancement, Gabor Filtering.

I. INTRODUCTION

An automated teller machine was initial introduced in 1960 by town Bank of latest York unproven basis. The conception of this machine was for client to pay helpful (utility) bills and acquire a receipt while not a teller. ancient banking industries square measure undergoing advancements terribly fastly for instance the self service banking system has nice extent popularization with twenty four hours top quality service for client. The banking operation system provides the money to client through cash machine Machine at anyplace anytime. CASH BANK may be a computerised telecommunication device that allows the shoppers to perform the monetary transactions like deposit, transfers, balance enquiries, mini statement and withdrawal etc with none want for a cashier or human clerk. There square measure 2 forms of CASH BANK: initial one may be a easy one that is employed for money withdrawal and to receive a receipt of account balance and other is complicated that is employed for deposits and cash transfer. the primary one CASH BANK is most generally and often utilized by individuals [3]. Now a days, crimes at CASH BANKs are extensively increasing. In CASH BANK, identification of individuals is finished with the assistance

of personal identification number that is

confidential. In such cases there's risk of hacking passwords and private data is a lot of and a few time it's troublesome to recollect the personal identification number.

The protection of client account isn't bonded by PIN. Suppose by mistake if the cardboard of client is lost and therefore the word purloined, then the criminal draw all the cash within the shortest time. Many of us square measure unlikely to study the PIN. Therefore there's want of security in CASH BANK transactions. The PIN is that the four digit range given to all or any CASH BANK card holders. The PIN numbers square measure completely different from every others. The word is barely thanks to determine the client once they have the cardboard and proper word. Once the word and CASH BANK card is purloined by the wrongdoer they will take all cash from the account within the shortest time. In recent years, the algorithmic rule that the Thumb Impression recognition incessantly updated, that has offered new verification suggests that for U.S.A., the original word authentication methodology combined with the biometric identification technology verify the clients' identity higher and reach the purpose that use of CASH BANK machines improve the protection effectively.

II. LITERATURE REVIEW

To implement this concept, we have studied different research works and found following information. For Thumb Impression recognition, a system needs to capture Thumb Impression and then follow certain algorithm for Thumb Impression matching. The research paper discusses a minutiae detection algorithm and showed key parameters of Thumb Impression image for identification. For solving the bugs of traditional identification methods, the author of designs a new CASH BANK terminal customer recognition system. The chip of S3C2440 is used for the core of microprocessor in ARM9 and an improved enhancement algorithm of Thumb Impression image increase the security of bank account and the CASH BANK machine. For image enhancement, the Gabor filter algorithms and direction filter algorithms are used. In research paper, authors showed that Gabor filters (GFs) play an important role in the extraction of Gabor features and the enhancement of various types of images. For the purpose of enhancing curved structures in noisy images, curved GFs that locally adapt their shape to the direction of flow can also be used. If images of Thumb Impression are poor- quality images, they result in missing features, leading to

the degrading performance of the Thumb Impression system. Thus, it is very important for a Thumb Impression recognition system to estimate the quality and validity of the captured Thumb Impression images.

Existing approaches for this estimation are either to use of local features of the image or to use of global features of the image. Traditional Thumb Impression recognition approaches have demerits of easy losing rich information and poor performances due to the complex type of inputs, such as image rotation, poor quality image enrollment, incomplete input image, and so on. Thus in order to overcome these shortcomings, in research paper [8], a new Thumb Impression recognition scheme based on a set of assembled invariant moment (geometric moment and Zernike moment) features to ensure the secure communications is proposed. In paper, fuzzy features match (FFM) based novel method on a local triangle feature is set to match the deformed Thumb Impressions.



Thumb Impression here is represented by the fuzzy feature set: the local triangle feature set. In paper, a test chip has been fabricated using a 0.5 μm standard CMOS process.

The total execution time for acquiring and processing a Thumb Impression image is less than 360 ms at 10 MHz and the power consumption is below 70 mW at 3.3 V supply voltage. We found development of a sensor with CMOS technology in. Also, a chip architecture that integrates a Thumb Impression sensor and an identifier in a single chip is proposed in. The sensing element senses capacitances formed by a finger surface to capture a Thumb Impression image. To have good speed of operation for Thumb Impression matching, in depending on the spectral minutiae features two feature reduction algorithms are given: the Column Principal Component Analysis and the Line Discrete Fourier Transform feature reductions. It can efficiently compress the template size with a reduction rate of 94%. Spectral minutiae Thumb Impression recognition system shows a matching speed with 125000 comparisons per second on a PC with Intel Pentium D processor 2.80 GHz, 1 GB of RAM.

III. RESEARCH BACKGROUND

Crime at CASH BANKs has become a nationwide issue that faces not only customers, but also bank operators and this financial crime case rise repeatedly in recent years. A lot of criminals tamper with the CASH BANK terminal and steal customers' card details by illegal means. Once user's bank card is lost and the password is stolen, the user's account is vulnerable to attack. Traditional CASH BANK systems authenticate generally by using a card (credit, debit, or smart) and a password or PIN which no doubt has some defects. The prevailing techniques of user authentication, which involves the use of either passwords and user IDs (identifiers), or identification cards and PINs (personal identification numbers), suffer from several limitations. Biometrics can be defined as measurable physiological and behavioral characteristic that can be captured and subsequently compared with another instance at the time of verification. It is automated methods of recognizing a person based on a physiological or behavioral characteristic.

Figure1. Hacking CASH BANKs with just a text message.

A. Hardware Design

The S3C2440 chip is used as the core of entire hardware. The modules of LCD/Touch-screen, keyboard, Thumb Impression recognition, GSM Module are connected with the core S3C2440. The SRAM and FLASH are also embedded in this system. The system consists of following modules:-

- 1. LCD module:** The OMAP5910 is used as LCD module in LCD controller, it supported 1024*1024 images of 15 gray-scale or 3375 colors.
- 2. Keyboard/Touch-Screen module:** It is used for inputting passwords.
- 3. Thumb Impression recognition module:** FIM3030 Thumb Impression module is used for recognition of is used for recognition of Thumb Impressions. This module uses optical sensor for capturing and detecting of Thumb Impression images.
- 4. GSM Modem:** A GSM modem (SIM 300) provides an interface that allows sending and receiving messages over the modem interfaces.



Figure2. Block diagram CASH BANK sec

Figure 2 shows the block diagram CASH BANK security system before providing CASH BANK access, the Thumb Impression module will compare scanned Thumb Impression with Thumb Impression taken at the time of opening account, if the figure print is correct 4 digits OTP is send to registered mobile number of user. The block diagram of hardware architecture is shown in Figure 2.

IV. SOFTWARE DESIGN

The system operates in below two modes. Admin mode: In this mode the user finger print and mobile number are collected and saved at the time of opening the account. User mode: In this mode the user finger print is validated with saved Thumb Impression for the identification which is required to perform transactions. This software system is designed as follows: first of all the Linux kernel and the File systems are loaded into the ARM 9 controller. In next step, the system is initialized to check specific task, such as checking CASH BANK terminal, GSM module and so on, and then each module is reset for ready to run commands. Before accessing CASH BANK system, the mobile number and Thumb Impression of the customer are needed to be at

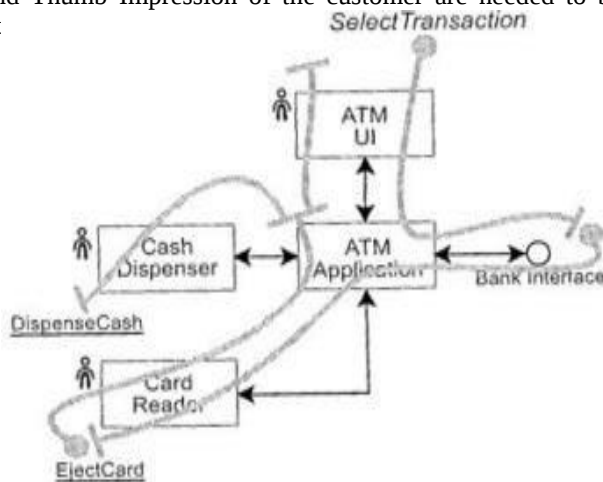


Figure3. Software design.

V. CONCLUSION

The style of CASH BANK terminal system based mostly on Thumb Impression recognition took benefits of the stability and dependableness of Thumb Impression characteristics, a new biological technology based mostly on the image sweetening rule of physicist and direction filter. Additional, the system additionally contains the original verifying strategies that was inputting owner's watchword. The security options were increased for the most part for the stability and dependableness of owner recognition. The whole system was build on the technology of embedded system that makes the system additional safe, reliable and straightforward to use.

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