ATM Shoulder-Surfing Resistant Pin Entry Using Based Pin and Base Text

Prof. G. Raja, Prof. M. Bavithra

Assistant Professor, Computer Science and Engineering, Dhanalakshmi Srinivasan Engineering College, Perambalur, Tamil Nadu, India

ABSTRACT

The main aim of this system is to develop a secure ATM in future. In general, all the keypad based authentication system having several possibilities of password identification by means of shoulder movements. Shoulder-surfing is an attack on password authentication that has frequently been hard to defeat. This problem has come up with a new solution by following two types of proposal idea one is designing shuffled Automated Teller Machine keypad which displays the shuffled texts in the Display which confuses person who standing near you to guess the password. Another one is to develop the GSM application between the user and Automated Teller Machine counter for communicating a password via the wireless medium. If someone tries to input the old password got by shoulder surfing a message containing the location of ATM and the ATM shutter will be closed.

Keywords : GSM, Embedded C, RF-ID Card Reader, Microcontroller.

I. INTRODUCTION

The Microcontroller based secure pin entry method is mainly developed for the prevention of theft of the ATM card and to control the usage of the ATM card by unauthorized person. The additional feature of this project is that no transaction can be done without the knowledge of the respective card holder. The main software's that are using in this project is embedded C. This system can be implemented in all the sectors where the ATM card is using like shopping, money transaction, and online payments.

Whenever the RF-ID Reader detects an active tag it generates a particular frequency digital signals and give these signals to the microcontroller whenever the microcontroller receives these digital signals from the RF-ID reader it will check for the list of mobile number that has been associated with the card frequency. Next the controller will generate a pin number of four digits and send this pin number to the embedded c program.

II. EXISTING SYSTEM

Authentication based on passwords is used largely in applications for computer security and privacy. However, human actions such as choosing bad passwords and inputting passwords in an insecure way are regarded as "the weakest link" in the authentication chain. Rather than arbitrary alphanumeric strings, users tend to choose passwords either short or meaningful for easy memorization. With web applications and mobile apps piling up,

people can access these applications anytime and anywhere with various devices. This evolution brings great convenience but also increases the probability of exposing passwords to shoulder surfing attacks. Attackers can observe directly or use external recording devices to collect users' credentials. To overcome this problem, we proposed a novel authentication system.

Pass Matrix, based on graphical passwords to resist shoulder surfing attacks. With a one-time valid login indicator and circulative horizontal and vertical bars covering the entire scope of pass-images, Pass Matrix offers no hint for attackers to figure out or narrow down the password even they conduct multiple camera-based attacks. We also implemented a Pass Matrix prototype on Android and carried out real user experiments to evaluate its memorability and usability. From the experimental result, the proposed system achieves better resistance to shoulder surfing attacks while maintaining usability.

DISADVANTAGES

- Assumed that the server and the client devices in our authentication system are trustworthy.
- Assumed that the surveillance cameras that are not under proper management

PROPOSED SYSTEM

Proposed a method which uses hybrid keypad and bio metric for authentication purpose. User has to register using the biometric method as well as username and PIN method. At the login time, the user can use any one of these methods for login. If the username and PIN, it makes the keypad to look in two ways when typing the PIN. The keypad will look like a normal one for the user but at the same time, it will look different for the shoulder – surfing person. This keypad uses the technique of hybrid images to

blend two keypads with different digit orderings. This is designed in such a way that it looks different to the user and the others who is observing from a considerable distance.

The keypad will be shuffled after each authentication. Biometric verification is added for the admin to login using the fingerprint verification. Visibility algorithm based on human visual perception is used. If the entered details match with the available details, an OTP will be generated and sent to the registered mail id. If the correct OTP is entered, the home page will be displayed.

ADVANTAGES

- The shoulder surfer can't predict the password either by brute force attack or by guessing attack.
- The PIN can't be guessed even if it's recorded through surveillance cameras

SYSTEM ARCHITECTURE

Structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behavior) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture; collectively these are called architecture description languages (ADLs).

Various organizations define systems architecture in different ways, including:

- An allocated arrangement of physical elements which provides the design solution for a consumer product or life-cycle process intended to satisfy the requirements of the functional architecture and the requirements baseline.
- Architecture comprises the most important, pervasive, top-level, strategic inventions, decisions, and their associated rationales about the overall structure (i.e., essential elements and their relationships) and associated characteristics and behavior.
- If documented, it may include information such as a detailed inventory of current hardware, software and networking capabilities; a description of long-range plans and priorities for future purchases, and a plan for upgrading and/or replacing dated equipment and software.

An architecture diagram is a graphical representation of a set of concepts that are part of architecture, including their principles, elements and components. Architecture diagram can help system designers and developers visualize the high-level, overall structure of their system or application, in order to ensure the system meets their users' needs.

Using architecture diagram, you can also describe patterns that are used throughout the design. It's somewhat like a blueprint that you use as a guide, so that you and your colleagues can discuss, improve and follow.
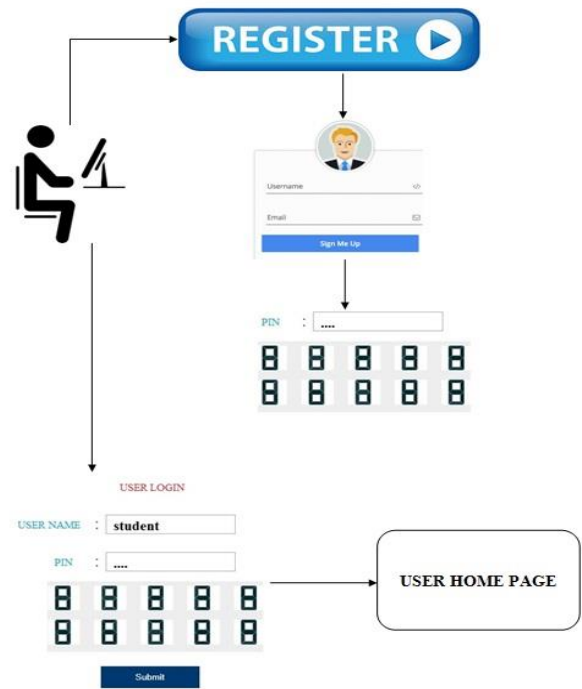
MODULE DESCRIPTION MODULES

- ➢ USER REGISTRATION
- ➢ USER LOGIN
- ➢ USER TRANSACTIONS
- ➢ ADMIN LOGIN
- ➢ ADMIN VIEW

USER REGISTRATION

In this module, user has to register with the basic details such as username, mobile number and PIN. These details will be saved in the database.

USER LOGIN

In this module, the login method is explained. Login can be done by using any of the two methods. First, username should be entered. Then user should select the login method as PIN method. In the PIN method is chosen, user has to enter the PIN. All the numbers in the keypad will look like number 8. If the entered details match with the available details, the user can proceed to the next step.

USER TRANSACTIONS

In this module, user transactions will be explained. Once the entered details are correct, user's home page will be displayed. User can do various transactions like withdraw, transfer money and deposit.

ADMIN LOGIN

In this module, user can login into the system using admin and admin as username and password respectively.

ADMIN VIEW

In this module, admin can view the list of users available with the system. Also, admin can view the list of transactions done between users.

III.CONCLUSION

The progress in science &technology is a non-stop process. New things and new technology are being invented. As the technology grows day by day, we can imagine about the future in which thing we may occupy every place. The proposed system based on MSP430 microcontroller is found to be more compact, user friendly and less complex, which can readily be used in order to perform several tedious and repetitive tasks. Though it is designed keeping in mind about the need for security purpose, it extended for other purposes such as industrial & research applications. Due to the probability of Embedded technology and GSM technology made this project("ATM SHOULDER SURFING RESISTANT PIN ENTRY BY USING BASE PIN AND BASE TEXT") a fully software controlled with less hardware circuit.

IV. REFERENCES

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