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Implementation on Banking System Using Fingerprint Module

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Abstract— This project aims at designing and developing biometric finger print technology based money transaction system. As more global financial activity becomes digitally-based, banks are utilizing new technologies to develop next-generation identification controls to combat fraud, make transactions more secure, and enhance the customer experience.

The sensor is a solid-state fingerprint sensor that reliably captures fingerprint information. It is designed to integrate into devices for improved security and convenience. The sensor provides a reliable, quick and user-friendly alternative to passwords, PIN's and other forms of user authentication. User need not carry any physical cards (credit, debit etc.) or mobile phones for money transaction. User just need to keep finger print enter transaction amount using keypad. This transaction information is sent to server over secure IoT (Wi-Fi) and further processing done there.

Keywords— Wi-Fi, next-generation, Singular Value Decomposition (SVD),2D Barcode,Steganography

I.INTRODUCTION

Theft is one of the major problem in today’s world places like in offices and other public places should not be secured so that issues to make secure our documents and precious things so we have decided to make this type of security system that will be more usable to all the people . This system assures the perfect use on the fingerprints for door opening and closing. Through the project we can provide high security to users. The fingerprint most of the banks have lockers such that one key is with the user and the bank has a master key. They also have password which the user has to tell the bank before going in the locker room, now if the user loses the key then, it is a big security risk. there are many thieves around us that they can easily or forcefully break our lockers so we can lost our property so to overcome this problem we are creating this type of security system Many of the bank lockers do not guarantee full safety of the user. In the fingerprint bank locker system we can easily add more than 1 fingerprint in the system so we can add our family member fingerprint as a nominee. And we can insert our multi hand fingerprint if we are facing accident and if we wound or a cut in our finger so we can use our nominee fingerprint or other multi hand fingerprint. If we are away from our house and we required urgent document or property so our family members can also use our lockers. this is a very a unique idea instead to keep keys or to protect that keys. Biometric devices are highly secured security identification and authentication device. Such devices use automated methods of verifying and recognizing the identity of a living person based on a physiological behavioral characteristic. These characteristics include fingerprints, facial images, iris and voice reorganization

Fingerprint - is unique and not similar to anybody and using fingerprint can provide more security .even illiterate people are also capable of using this security method. This method takes less time to be operated by the user. The fingerprint can also be used in forensic departments while catching the suspect who can be a murderer or a thief. Even the zoological experts use the fingerprint technique to check on the animals in the forest that if the animal is dead or alive by this way they carry on the census of the animals. The new species can also be discovered by using their fingerprint to check on to the new species and the already existing species

II. SIGNIFICANCE OF WORK

An embedded system is a special-purpose computer system designed to perform one or a few dedicated functions, sometimes with real-time computing constraints. It is usually embedded as part of a complete device including hardware and mechanical parts. In contrast, a general-purpose computer, such as a personal computer, can do many different tasks depending on programming. Embedded systems have become very important today as they control many of the common devices we use. Since the embedded system is dedicated to specific tasks, design engineers can optimize it, reducing the size and cost of the product, or increasing the reliability and performance. Some embedded systems are mass-produced, benefiting from economies of scale. Physically, embedded systems range from portable devices such as digital watches and MP3 players, to large stationary installations like traffic lights, factory controllers, or the systems controlling nuclear power plants. Complexity varies from low, with a single microcontroller chip, to very high with multiple units, peripherals and networks mounted inside a large chassis or enclosure. In general, "embedded system" is not an exactly defined term, as many systems have some element of programmability. For example, Handheld computers share some elements with embedded systems — such as the operating systems and microprocessors which power them — but are not truly embedded systems, because they allow different applications to be loaded and peripherals to be connected. An embedded system is some combination of computer hardware and software, either fixed in capability or programmable, that is specifically designed for a particular kind of application device. Industrial machines, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines, and toys (as well as the more obvious cellular phone and PDA) are among the myriad possible hosts of an embedded system. Embedded systems that are programmable areprovided with a programming interface, and embedded systems programming is a specialized occupation. Certain operating systems or language platforms are tailored for the embedded market, such as Embedded Java and Windows XP Embedded. However, some low-end consumer products use very inexpensive microprocessors and limited storage, with the application and operating system both part of a single program. The program is written permanently into the system's memory in this case, rather than being loaded into RAM (random access memory), as programs on a personal computer are. The uses of embedded systems are virtually limitless, because every day new products are introduced to the market that utilizes embedded computers in novel ways. In recent years, hardware such as microprocessors, microcontrollers, and FPGA chips have become much cheaper. So when implementing a new form of control, it's wiser to just buy the generic chip and write your own custom software for it. Producing a custom-made chip to handle a particular task or set of tasks costs far more time and money. Many embedded computers even come with extensive libraries, so that "writing your own software" becomes a very trivial task indeed. From an implementation viewpoint, there is a major difference between a computer and an embedded system. Embedded systems are often required to provide Real-Time response. The main elements that make embedded systems unique are its reliability and ease in debugging.

III. LITERATURESURVEY

Embedded systems often reside in machines that are expected to run continuously for years without errors and in some cases recover by them if an error occurs. Therefore the software is usually developed and tested more carefully than that for personal computers, and unreliable mechanical moving parts such as disk drives, switches or buttons are avoided. Specific reliability issues may include: The system cannot safely be shut down for repair, or it is too inaccessible to repair. Examples include space systems, undersea cables, navigational beacons, bore-hole systems, and automobiles. The system must be kept running for safety reasons. "Limp modes" are less tolerable. Often backups are selected by an operator. Examples include aircraft navigation, reactor control systems, safety-critical chemical factory controls, train signals, engines on single-engine aircraft. The system will lose large amounts of money when shut down: Telephone switches, factory controls, bridge and elevator controls, funds transfer and market making, automated sales and service. A variety of techniques are used, sometimes in combination, to recover from errors both software bugs such as memory leaks, and also soft errors in the hardware: Watchdog timer that resets the computer unless the software periodically notifies the watchdog Subsystems with redundant spares that can be switched over to software "limp modes" that provide partial function Designing with a Trusted Computing Base (TCB) architecture[6] ensures a highly secure & reliable system environment An Embedded Hypervisor is able to provide secure encapsulation for any subsystem component, so that a compromised software component cannot interfere with other subsystems, or privileged-level system software. This encapsulation keeps faults from propagating from one subsystem to another, improving reliability. This may also allow a subsystem to be automatically shut down and restarted on fault detection. Immunity Aware Programming

IV. .METHODOLOGY

The working principle of the fingerprint sensor mainly depends on the processing. The fingerprint processing mainly includes two elements namely enrolment and verification. In fingerprint enrolling, every user requires to place the finger twice. So that the system will check the finger images to process as well as to generate a pattern of the finger and it will be stored. When matching, a user places the finger using an optical sensor then the system will produce a pattern of the finger & compares it with the finger library templates. the system will evaluate the exits finger with a precise pattern which is selected within the module. Similarly, for 1: N matching, the scanning system will look for the complete finger records for the finger matching. In both situations, the scanning system will go back to the corresponding result, success otherwise crash.

V. RESULTS

When the finger is placed, the image of finger is captured and resized and gets enhanced. A dialogbox is appeared that the image is matched when it gets matched with the image in database. Likewise a dialog box is appeared when the image gets mismatched. The LCD will display therequired content

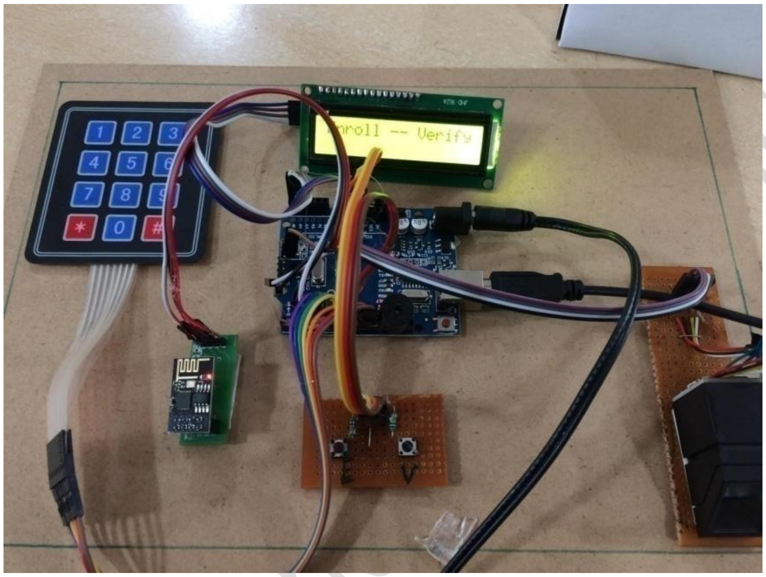

Fig1 : Output

VI. CONCLUSION

The Biometric finger vein bank locker system is a highly secured bank locker system which can provide access to only authorized persons and it prevents the concept of proxy because finger veins are unique for an individual. It can be employed in banking & finance, retail ATM, etc.

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