

**Wireless Identification Of RFID,  
Fingerprint & IRIS****Ms.Geetha Hanumanthu**

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***Abstract:***

*Automatic identification technology becomes a urgent need of production and life, authentication technology gained worldwide attention because of its high reliability, fingerprint identification technology which applied to social security system can accurately determine protects a person's identity and prevent the phenomenon of the pension of falsely claim that solves this one long-term puzzling problem. Based on the preeminent fingerprint identification algorithm is improved, and combining with actual demand the improved algorithm, Using the fingerprint identification and IC card combination way realization of distributed fingerprint authentication system collection. Through the practical efficiency test analysis proves the whole system is feasible, and the running effect is good by practical application. This paper proposes an approach for network security by means of biometrics. As we all know biometric systems are generally used to control access to physical assets (laboratories, buildings, cash from ATMs, etc.) or logical information such as personal computer accounts, secure electronic documents etc., The human biometrics such as hand geometry, face, fingerprint, retina, iris, DNA, signature and voice can be effectively used to ensure the network security.*

***Keywords:*** ARM processor, microcontroller, keil software, RFID, fingerprint, IRIS

### **1.Introduction**

Security is very important in every domain like (Banking system, office purpose, military purpose...etc). Only authorized persons have to enter in the secure area by using their identity cards. Unknown persons can misuse their ID cards if they know their passwords or PIN number. This paper describes how to resolve these sorts of problems by using Biometrics.

In “Wireless Identification of RFID and Finger print”, the system is designed in such a way that initially the users will enrol their figure prints that will be saved in the data base. First the user is made to show a RFID tag to the reader. If it is a valid one then the user will have to enter the correct password, if the password is incorrect buzzer will be ON. If the password entered is correct, the controller asks for a fingerprint access. If the finger print accessing is failed, it will move to the initial condition i.e. RFID tag showing step. If fingerprint access is matched with stored fingerprint then the controller asks for IRIS identification. If the IRIS is matched with the authorized person’s eye image, then he or she will have access to that Particular accessories or things and the process goes.

### **2.Literature Review**

At present in the existing system the person who ever wants to access his things or take his amount from Bank Lockers has to show his id card in front of the card accessing machine. If the card is valid then he will have to enter the password in a particular machine. If the password is correct then only the locker system will be opened. So likewise the person can access his things from bank lockers.

Not only in banking systems, for suppose in military areas, only authorized persons will have to enter in the restricted secure area.

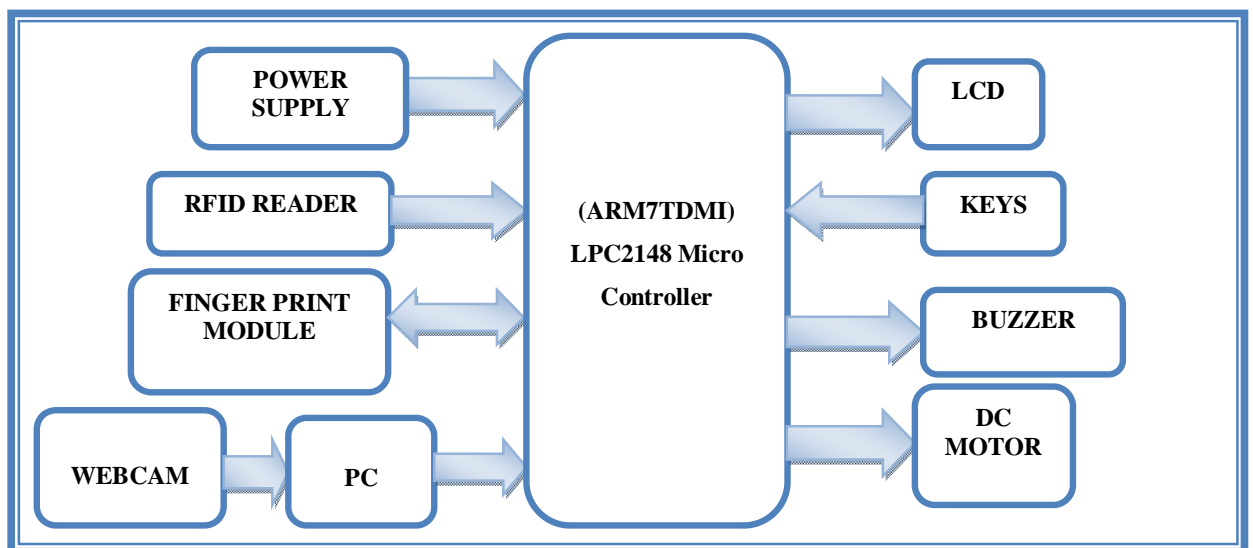
### **3.Disadvantages Of Existing System**

- The main disadvantage of this existing system is if person’s ID card is stolen by his colleagues or family members and the password is known to them then, they make use of it.
- In military applications also, by using authorized person’s identity card any other person can enter in the restricted area.

In the proposed system, initially the users will enrol their figure prints that will be saved in the data base. Initially the user is made to show a RFID tag to the reader. If it is

a valid one then the user have to enter the correct password, if the user will entered the wrong password it will not move to the next step and the buzzer will be on, if the password accessing is continuously failed then process will move to the initial condition i.e. RFID tag showing step. If the user enters the correct password then controller asks for a fingerprint access, if the finger print accessing is continuously failed for then process will move to the initial condition i.e. RFID tag showing step. If fingerprint access is matched with stored fingerprint or authorized person finger print then controller moves to further IRIS identification process. In the IRIS identification the person who ever wants access to their accessories or things first he/she has to place his eye in front of the PC camera. If the captured image of eye matches with the previous eye images stored in the database then only the process will move further. This whole process of IRIS identification can be done with the help of matlab code. If the captured image does not matched with first taken image then the controller gives a halt to the process and moves to the initial step. Nevertheless, if RFID tag is an invalid card then the controller stops the whole process.

**Block diagram:**



*Figure1: Block diagram of the System*

#### 4.Description Of The Block Diagram

- ARM7TDMI: The ARM7TDMI-S processor is a member of the ARM family of general-purpose 32-bit microprocessors. The ARM family offers high performance for very low-power Consumption and gate count. The ARM architecture is based on *Reduced Instruction Set Computer* (RISC) Principles. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs. This simplicity gives:
  - A high instruction throughput
  - An excellent real-time interrupt response
  - A small, cost-effective, processor macro cell.
- Microcontroller: A Micro controller consists of a powerful CPU tightly coupled with memory (RAM, ROM or EPROM), various I / O features such as Serial ports, Parallel Ports, Timer/Counters, Interrupt Controller, Data Acquisition interfaces-Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), everything integrated onto a single Silicon Chip.

Any microcomputer system requires memory to store a sequence of instructions making up a program, parallel port or serial port for communicating with an external system, timer / counter for control purposes like generating time delays, Baud rate for the serial port, apart from the controlling unit called the Central Processing Unit.
- LCD Display Section: This section is basically meant to show the status of the project. Here Liquid Crystal Display is used to display / prompt for necessary information.
- RFID: RFID is an acronym for Radio Frequency Identification. In general terms, RFID is a means of identifying a person or object using a radio frequency transmission. In other words RFID is an electronic method of exchanging data over radio frequency waves. The technology can be used to identify, track, sort or detect a wide variety of objects.

There are three major components of an RFID system: the reader, the antenna, and the tags. Each tag is associated with a unique number. When a tag is in the detection range of the reader, the number is read. Two types of tags can be found: active tags with a longer detection range and passive tags with a shorter detection range. An

RFID tag is usually attached to an object and the information of the object along with the RFID number are recorded in the database. Whenever the RFID tag is sensed, the object can thus be identified.

- **Finger Print Scanner:** A fingerprint sensor is an electronic device used to capture a digital image of the fingerprint pattern. The captured image is called a live scan. This live scan is digitally processed to create a biometric template (a collection of extracted features) which is stored and used for matching.

It supports wide range of fingerprint sensor interoperability giving you a freedom to select suitable sensor that most fits to your application. Furthermore, the fingerprint data for enrollment and verification are compatible among different sensors, even if they are based on different technologies. This feature of unification presents application manufacturers and system integrators with much more flexibility than ever before.

- **Keys Section:** With the help of these keys the users can enroll their Finger prints and deleting their figure prints.
- **MAX- 232:** To allow compatibility among data communication equipment made by various manufactures, an interfacing standard called RS232 was set by the Electronic Industries Association (EIA). This RS-232 standard is used in PCs and numerous types of equipment. However, since the standard was set long before the advent of the TTL logic family, its input and output voltage levels are not TTL compatible. In RS-232, a 1 is represented by -3 to -25V, while a 0 bit is +3 to +25V, making -3 to +3 undefined. For this reason, to connect any RS-232 to a microcontroller system we must use voltage converters such as MAX232 to convert the TTL logic levels to the RS-232 voltage levels and vice versa. So here MAX-232 is used to have compatibility between the Finger Print Scanner and microcontroller.
- **PC Cam Section:** This section is basically meant to capture the IRIS of the persons and to transfer this captured IRIS for Processing.
- **IRIS:** In this we are using the Iris recognition technique. Iris recognition analyses the features that exist in the colored tissue surrounding the pupil, which has 250 points used for comparison, including rings, furrows, and freckles. Iris recognition uses a regular video camera system and can be done from further

away than a retinal scan. It has the ability to create an accurate enough measurement that can be used for Identification purposes, not just verification.

The probability of finding two people with identical iris patterns is considered to be approximately 1 in  $10^{52}$  (population of the earth is of the order  $10^{10}$ ). Not even one-egged twins or a future clone of a person will have the same iris patterns. The iris is considered to be an internal organ because it is so well protected by the eyelid and the cornea from environmental damage. It is stable over time even though the person ages. Iris recognition is the most precise and fastest of the biometric authentication methods.

- Buzzer: This is the output device which we are using to indicate the unauthorized person.
- Locker System: Here DC motor is demonstrated as the Locker for the authorized persons in the Locker system mode.

## **5. Biometrics**

A biometric system provides automatic recognition of an individual based on some sort of unique feature or characteristic possessed by the individual. Biometric systems have been developed based on fingerprints, facial features, voice, hand geometry, handwriting, the retina and the one presented in this thesis, the iris.

Biometric systems work by first capturing a sample of the feature, such as recording a digital sound signal for voice recognition, or taking a digital color image for face recognition. The sample is then transformed using some sort of mathematical function into a biometric template. The biometric template will provide a normalized, efficient and highly discriminating representation of the feature, which can then be objectively compared with other templates in order to determine identity. Most biometric systems allow two modes of operation. An enrolment mode for adding templates to a database, and an identification mode, where a template is created for an individual and then a match is searched for in the database of pre-enrolled templates.

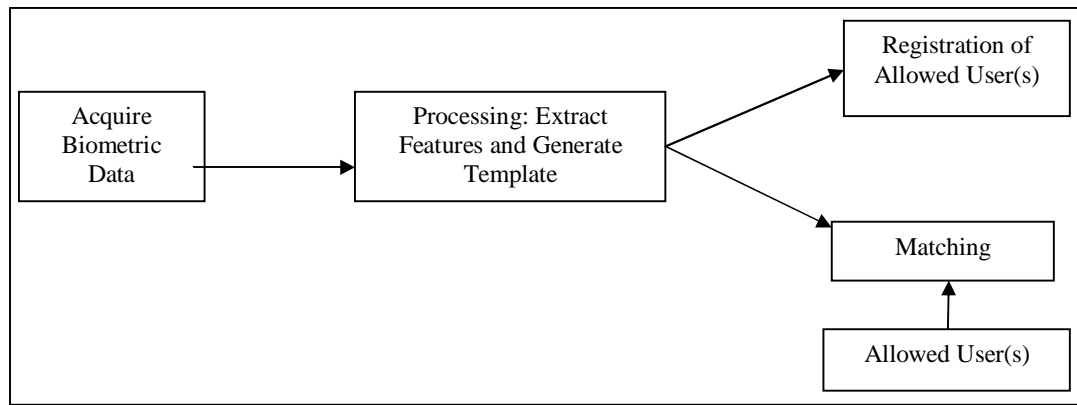


Figure 2: Biometric system Process flow diagram

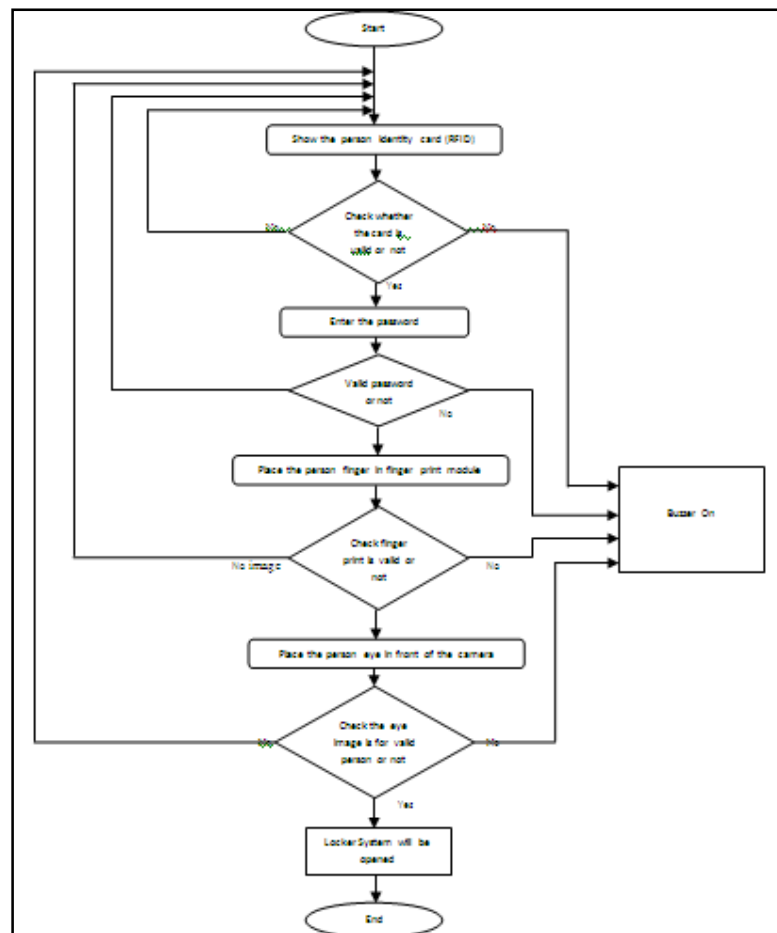


Figure 3

## 6.Applications

- High Security in the Bank Transactions
- Passport Verification

- Person identifying
- In Military Application
- In CBI verification
- In Educational universities
- Security systems

### **7.Conclusion**

The ID Authentication System based on Fingerprint and Iris identification proves to be very effective in providing security. A step by step approach in designing the id authentication system based on fingerprint and iris identification giving security to the users banking system and providing the security for the locker system using a finger print scanner and Iris can be done. The result obtained in providing the security is quite reliable in all the three modes.

### **8.Future Scope**

The future scope can be extended to face recognition. IRIS recognition can be used as secondary identification for security in any secured sector because no two people have same IRIS. The best application is in CBI verifications.



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