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THREE LAYER SECURITY SYSTEM

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ABSTRACT:

Fingerprint recognition technology allows access to only those whose fingerprints that are pre stored in the memory. Stored fingerprints are retained even in the event of complete power failure or battery drain. These eliminates the need for keeping track of keys or remembering a combination password, or PIN. It can only be opened when an authorized user is present, since there are no keys or combinations to be copied or stolen, or locks that can be picked. The fingerprint based lock therefore provides a wonderful solution to conventionally encountered inconveniences. This report focuses on the use of fingerprints to unlock locks, as opposed to the established method of using keys. Here we are using RFID for recognition of authorized persons. GSM module will be generating the different OTP for every person.

Keywords: GSM, RFID, OTP, DC motor.

1. 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

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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 recognising the identity of a living person based on a physiological behavioural characteristic. These characteristics include fingerprints, facial images, iris and voice recognisition.

OVER VIEW:

From earlier times, security was and also till now is an issue of concern in our households and also in office, shops, etc. Everyone has a fear of unauthorized person entering to their home or office without their knowledge. The normal door can be fitted with locks which are capable of breaking with the use of an alternate key. Alternatives to this system can be found like the

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password or pattern system in the locks which again has the possibility of getting exposed and opening the lock. So, a solution to such problems can be by combining door lock with biometrics. Biometric verification is any means by which a person can be uniquely identified by evaluating one or more distinguishing biological traits. Unique identifiers include fingerprints, hand geometry, earlobe geometry, retina and iris patterns, voice waves, DNA, and signatures. Here we will use fingerprint for biometric verification as it is one such thing which is unique to every individual and the use of fingerprint as the key to door locks can overcome the security problem of unauthorized people trespassing to our homes, shops, offices, etc to a great extent as duplicacy in such key is not possible. Also, this system will not lead to problems like losing keys because we do not require carrying keys if this system is used instead of traditional locks. So, using arduino we will try to implement the system with features which will increase the security level.

2. RELATED STUDY

This paper is about solving the problem regarding security of unauthorized people trespassing in our home, shops or offices. Security issues can be fixed using traditional locks but there is always possibility of someone opening the lock even without breaking it with the use of duplicate key. Using these kinds of locks also create problem if we lose keys and also we have to carry keys along with us always. Again, using patterns in the locks can increase security but again it can be opened if somehow the passwords or patterns are known. So, leaving every system in this project we will implement a system using biometrics.

2.1 "Arduino Based Smart Fingerprint Authentication System."- In today's world Home, offices, shops, banks need excessive

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security measure for safety motive. To supply security for these area, smart lock system is initiated. There are numerous innovational smart door locks are created to lock and unlock the system. These type of locks has fingerprint, RFID card, pin, password or IOT by unlocking the system using mobile phone. User using these kinds of bolting system either utilize pin number or fingerprint or RFID card to unlock the system. These system does not have security pecking order to grow the security.

2.2 "Design and Implementation of a Fingerprint Based Lock System for Shared Access."- Nowadays office/corporate territory security is a vital problem faced by everyone when far from home or at the home. When it comes to the security systems, it is one of the key worries in this occupied-merciless world, where people cannot get ways to provide security to their important possessions manually. Instead, they finds a different solution that provides better, dependable and atomized security. This is a time, where everything is attached through network, where anyone can get hands on information from anyplace around the globe.

2.3 "A smart door access system using finger print biometric system."- In this paper a survey is done to provide high security for such high end security applications. The aim of this study is to design a smart door access system using finger print module. Both hardware and software technology are used to design it. An emergency beep sound is provided to protect the system by giving alarm if any unauthorised person intrudes into the system.

2.4 "On securing a door with finger print biometric technique" - In this paper, the project was constructed done in three different stages, the writing of the code (driver) which controls the Microcontroller using C language,

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the implementation of the whole project on a solder-less experiment board, the soldering of the circuits on Vero-boards and the coupling of the entire project to the casing. The implementation of this project was done on the breadboard as a prototype, the power supply was first derived from a bench power supply in the electronics laboratory, in all the development guaranteed security for illegal intrusion of illegal entity to room, the mechanism can be implemented in a broader sense on a door where a there is restriction of access.

3. AN OVERVIEW OF PROPOSED SYSTEM

Once the enroll part of the program has been uploaded in the Arduino Uno, go through the Arduino IDE and then open the serial monitor by opening tabs like tools and then select serial monitor options. It is necessary to set the baud rate to a value lower than the serial monitor window to 38400. At the same time choose Newline option. And now, one by one execute the instructions given on the serial monitor. Once you place a finger on the fingerprint module, type an ID number. It can be any whole number. Then when send key is entered, the corresponding ID number is transmitted to the main portion i.e. Arduino Uno form the serial monitor section. Thus sent information (fingerprint) is digitized and converted into storable form which is piled up in R305 module database. This system can withstand a total of 200+ fingerprints which is remarkable. However, each fingerprint must have unique ID number assigned since this is the prime factor to be utilized in identification of the valid individual's name. The serial monitor assists the client in an effective way. Every real-time information of when to place the finger on the sensing module and when it is okay to remove, is all

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provided by the serial monitor which makes this project more user-friendly. If you prefer to debug the system without implementing LCD display, initially upload the fingerprint program and then set the same settings as mentioned above for the serial monitor configuration. Here again the serial monitor performs the guide function. This technique of implementing circuit is employed to make necessary comparisons between the current sensed fingerprint sample with the samples already stored in the database. The programming flexibility feature permits customer to amend necessary changes in names and ID number by changing the code to a slight extent as per the requirement.

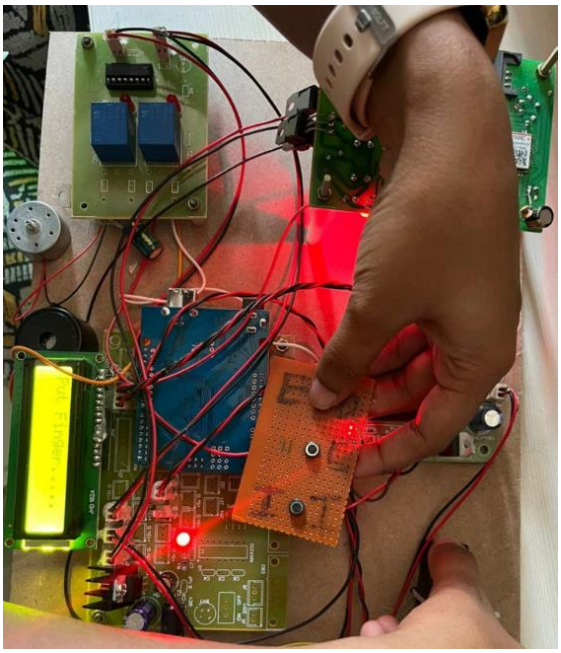

Fig.1. Finger enrolling.

The finger print scanner serves as the main input into this embedded security system. Finger prints read are compared to those ones pre-programmed into the memory of the microcontroller. When a match is made, the microcontroller outputs a HIGH which activates the transistor-relay switching stage that controls opening and closing of the modelled motorized door granting access into the protected building.

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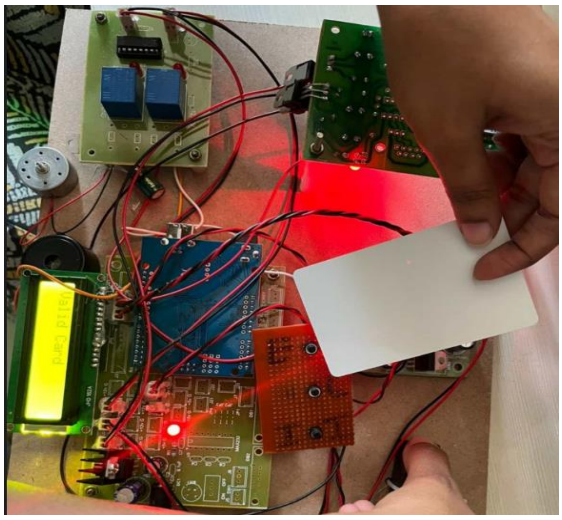

Fig.2. RFID card authentication.

An alphanumeric liquid crystal display (LCD) is used in this design to show the operating status of this embedded security system. By default it displays a welcome message requesting that the user should enter a finger print. And when a match is made it displays “ACCESS GRANTED” otherwise it displays “ACCESS.

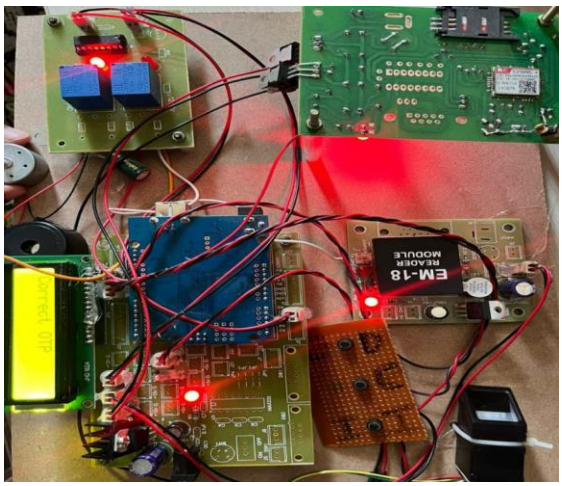

Fig.3. OTP authentication.

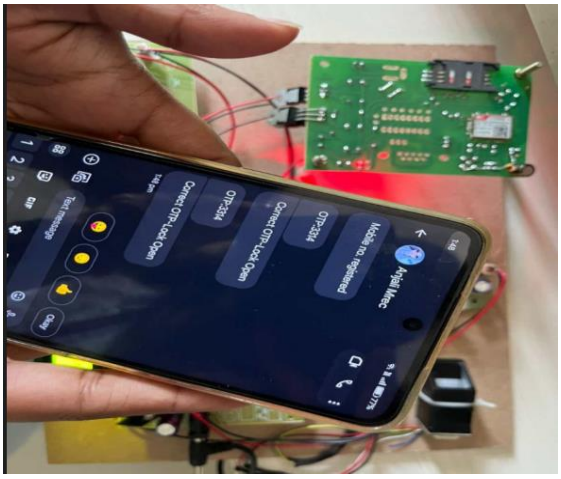

Fig.4. OUTPUT in authority person mobile

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4. CONCLUSION

In this project, we reviewed some papers which have worked on this project. In our paper we introduced biometric based locker which provide high degree of security. Any authorized user will unable to access the locker. We use fingerprint as the verification system as duplication of fingerprint is like unable. The system is cheap and easy to use. This system can be mounted anywhere, where you need high degree of security the low cost of the project is very important factor in this project. This locker system is very reliable and safe.

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FUTURE SCOPE:

We can use this biometric system in bikes for antitheft system, this biometric system will use in bike locking and to ignite the engine of the bike to provide an advancement in car biometric system can be implement which is good idea for ignite the engine and to run the car so that only owner of the car can drive the car. Retina scanner can be implemented at the place of fingerprint.

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