

FINGERPRINT BASED DOOR LOCKING SYSTEM USING GSM MODULE

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Abstract

The main purpose of this project is to design and implement high Security system. Security is a prime concern in our day-to-day life. Perhaps the most important application of accurate personal identification is securing limited access systems from malicious attacks. Access control system forms a vital link in a security chain. The fingerprint-based security system presented here is an access control system that allows only authorized persons to access a restricted area. We have implemented a locker security system based on fingerprint, password and GSM technology containing door locking system which can activate, authenticate, and validate the user and unlock the door in real time for locker secure access. Fingerprints are one of many forms of biometrics, used to identify individuals and verify their identity. This high security system based on fingerprint, and GSM technology which can be organized in bank, secured offices and homes

Key words: Fingerprint, GSM, Door Locking System, etc.

1. INTRODUCTION

"Smart Home" is the term commonly used to define a residence that has appliances, lighting, heating, TVs, computers, security, and camera systems that are capable of communicating with one another and can be controlled remotely by a time schedule, from any room in the home, as well as remotely from any location in the world by phone or internet. The Internet of Things is a phrase that refers to the objects and products that are interconnected and identifiable through digital networks. This web-like sprawl of products is getting bigger and better every day. All the electronics in your home are fair game for this tech revolution, from your fridge to your furnace.

Any device in your home that uses electricity can be put on your home network and at your command. Whether you give that command by voice, remote control, tablet or smart phone, the home reacts. Most applications relate to lighting, home security, home theatre and entertainment, and thermostat regulation. The idea of a smart home might make you think of George Jetson and his futuristic abode or maybe Bill Gates, who spent more than \$100 million building his smart home. Once a draw for the tech-savvy or the wealthy, smart homes and home automation are becoming more common. Much of this is due to the jaw-dropping success of smart phones and tablet computers. These ultra-portable computers are everywhere, and their constant Internet connections means they can be configured to control myriad other online devices. It's all about the Internet of Things. Home automation has a long and fitful history. For many years, tech trends have come and gone, but one of the first companies to find success is still around.

2. LITERATURE SURVEY

Subhash H. Jadhav focused on the design and implement a highly secured and reliable smart bank locker security system based on RFID, Biometric fingerprint, password and GSM technology. This can be organized in bank, offices, schools and homes. In this system only the authentic person can open the lock and collect the important documents or money from the lockers. In this security system RFID, biometric fingerprint, password and GSM technology systems are used.

Omidiora E. O. refused the traditional methods of locking system for the bikes, they introduced finger print based locker which is the robust security mechanism in various security domain. In their prototype software module is used for the database storage of valid users and hardware is provided for the interfacing. Programming was done with the help of Visual Basics, Visual C and Visual C++. The programming of this prototype was done in Visual Basic 6.0 Enterprise Edition. The prototype was tested with 20 test images stored in the database. The implementation was successful, and the microcontroller was clearly differentiated between authorized and unauthorized users.

Crystallynne D. Cortez focused on the development of microcontroller-based biometric locker system with short message service. A 9-12Vdc was used to supply power to the system. The microcontroller ATMEGA 644 housed in Arduino board was utilized to interface the input and output hardware devices. Input devices include the fingerprint sensor for biometric recognition, keypad was for the encoding of passcode and real time clock for display of current date and time.

Sagar S. Palsodkar proposed project was for Bank lockers security system using biometric and GSM. In our proposed system first the user will enroll his user name password and his mobile number .then the camera of pc will automatically on and capture the face store with face id then the person will put finger on finger print module finger print will be scan and store with finger id . In this way user will enrolment process will be completed. Then user will perform login operation during login operation user face of person will detect and finger print will be scan.

3. PROPOSED MODEL

Our proposed system overcomes all the security problems in existing system and provides high security and efficiency. This is a perfect/optimal solution for saving/protecting one from the hassle of stolen/lost key or an unauthorized entry. Fingerprint is a boon solution for these problems which provides high level of recognition accuracy. The skin on our palms and soles exhibits a flow like pattern of ridges called friction ridges. The pattern of friction ridges on each finger is unique and immutable. This makes fingerprint a unique identification for everyone. Fingerprint door lock incorporates the proven technology. Fingerprint scanner scans the fingerprints of users and used for ensuring authentication. Fingerprint scanning is more accurate and cost-effective method and duplication is virtually impossible. A Fingerprint recognition system can easily perform verification. In verification, the system compares an input fingerprint to the enrolled fingerprint of a specific user to determine if they are from the same finger. Now the security of our home/office is literally in our hands or rather on our fingertips tightly wrapped around the door's lock and the servo horn gets a tight grip with the lock.

4. RESULTS

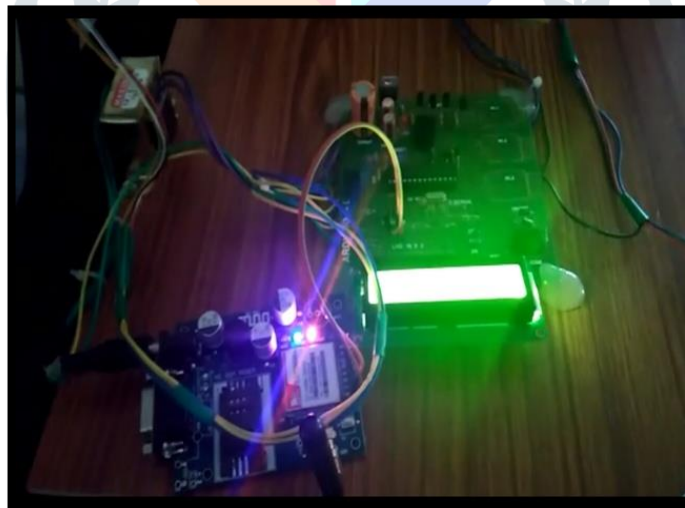


Fig 1- Working of Arduino.

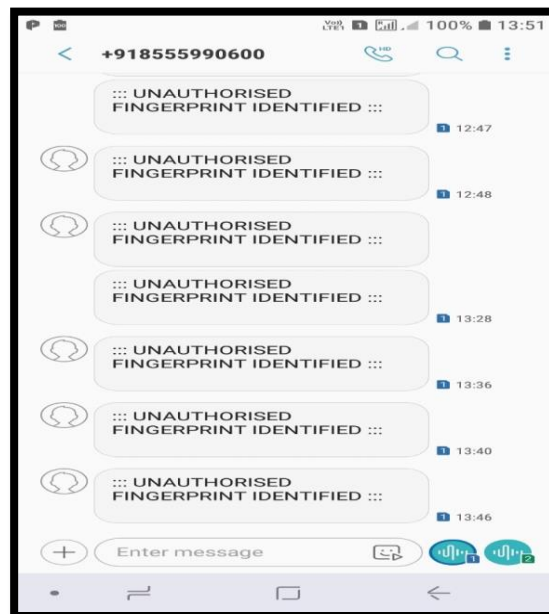


Fig 2 – Snapshot of Result

5. CONCLUSION

A step by step approach in designing the microcontroller-based system for securing the Transactions of the user and providing the security for the locker system and even more for the Passport verification using a finger print scanner has been followed. The result obtained in Providing the security is quite reliable in all the three modes. The system has successfully Overcome some of the aspects existing with the present technologies, using finger print Biometric as the authentication Technology.

The aim of the work is to design a fingerprint lock system that can be used to lock and unlock a door system, but its use can be extended to other electronic locking systems such as vaults. Having realized the device and found it working properly according to its design specifications and couple with the facts that relatively cheap components were involved in its realization, the aim of the research can be said to be achieved. The system can be used as an effective security lock.

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