

# Sensor Encrypted And Automated Logistic System

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**Abstract-** *Sensor Encrypted and Automated Logistic System(SEALS) is an application for Home Automation. The main purpose of SEALS is to provide controlled access to domestic and corporate edifices. It provides controlled security by using bio-metrics of authorized single or multiple users. It prevents worrying about lost or copied keys. The motto of SEALS is to develop a simple and secure keyless security system for modern society. Lock, unlock and monitor your door from anywhere.*

**Keywords-** Biometrics, Sensor, Home Automation, Security and Internet of Things

## I. INTRODUCTION

SEALS is acronym of Sensor Automated And Encrypted Logistic System. We provide security for house by providing multiple fingerprint feature. It can be used almost at any location home, research facilities, bank etc...

SEALS Smart Lock retrofits to your existing deadbolt in around 10 minutes. It just works. We provide two layer biometric security. This simple fingerprint sensor project using Internet of Things can be very useful for door security and automation. The whole system works under a simple algorithm called matching algorithm, which is used to compare previously-stored templates of fingerprints against users' fingerprints for authentication purposes.

A key is normally used for traditional door opening, but it provides very poor security by providing loopholes in security measures such as duplication of key or most common phenomenon that is misplacing the key and unable to find it. Send keyless access to family, friends, housekeepers and others, without worrying about lost or copied keys.

Wi-Fi is often used for remote monitoring and control. Home devices, when remotely monitored and controlled via the Internet, are an important constituent of the Internet of Things. Modern systems generally consist of switches and sensors connected to a central hub sometimes called a "gateway" from which the system is controlled with a user interface that is interacted either with a wall-mounted terminal, mobile phone software, tablet computer or a web interface, often but not always via Internet cloud services.

Seals lock comes with DoorSense™ and Auto-Lock technologies, so that you'll know your door is both closed and locked. Locks automatically as you leave. Never worry if your door is locked again. In this project, only when an authorised person places a finger on the sensor, the door unlocks and the LCD displays a welcome message along with that person's name. A 24/7 Activity Feed helps you track activity at your doorstep.

## II. LITERATURE REVIEW

The tasks of a modern security system include identifying a non authorized person from gaining access to the private property and alerting the proprietor about the intrusion, preventing the non authorized entry to the property, and gathering or collecting evidence regarding the intrusion so that the perpetrators can be brought to justice." The advancement of technology has contributed to the changing concept of security in modern edifices. It has changed from a simple lock and key security concept to implementing sophisticated security systems using smart phones, cameras, microphones, contact sensors, proximity sensors, alarms, silent alarms, etc. By connecting modern homes to the Internet which is very popular today, users can access and control their homes remotely at any time and from anywhere in the world. An increase in processing power of newly-designed processors and size of new electronics devices enables people to know and control every aspect of their home, like which door is open, which device or light is switched on, and which rooms are occupied. Inhabitants can keep an eye on their home using live video and audio feeds from different parts of their property. They can also be aware of different environmental factors inside and outside their home, like humidity, temperature, and light intensity. In a Wireless Sensor Actor Network, sensors gather information about the physical world or environment around them. Actors perform the appropriate actions on the environment as directed by the user or any other party. Improvements in Wireless Sensor Actor Networks are certainly a contributing factor in the popularity of smart homes. Combining Ubiquitous Computing, Internet of Things and the popularity of the Internet has allowed designers, engineers, and researchers to come up with efficient methods to allow home inhabitants to access and control each and every aspect of their home, including the environment.

**Z-Wave**



Z-Wave[1] is a wireless home automation protocol that is relatively new, but has grown significantly over the last few years. Z-Wave uses extremely low amounts of power and runs on a mesh network. The group behind it, the Z-Wave Alliance, now boasts over 1,000 different compatible devices, giving consumers a wide range of options when it comes to automating their homes.

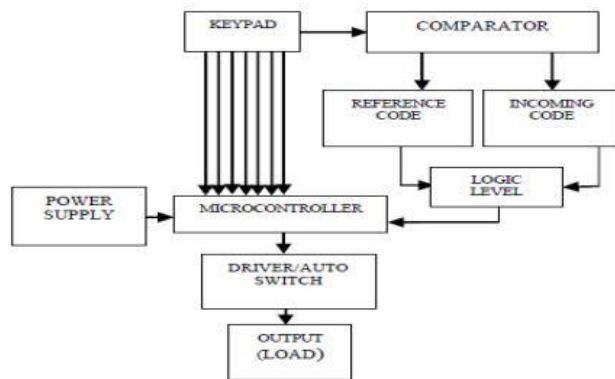
Z-Wave communicates in a sub-gigahertz frequency range, around 900MHZ, competing with a few cordless phones and consumer devices, but steering clear of Wi-Fi, Bluetooth and other systems that operate in the crowded 2.4GHz band. The protocol is optimized for reliable, low latency communications, unlike Wi-Fi, which is generally designed for high-bandwidth data applications.

Z-Wave utilizes mesh network architecture, and can begin with a single controllable device and a controller. Additional devices can be added at any time, as can multiple controllers, including traditional hand-held, key-fob, wall-switch controllers, along with PC applications designed for management and control of a Z-Wave network. Using multiple controllers allows Z-wave to extend to long ranges to cover homes both large and small.

The downside of Z-Wave is, of course, it is not in your Smartphone or tablet, and it is not in your home – unless you specifically buy a controller to put it there.

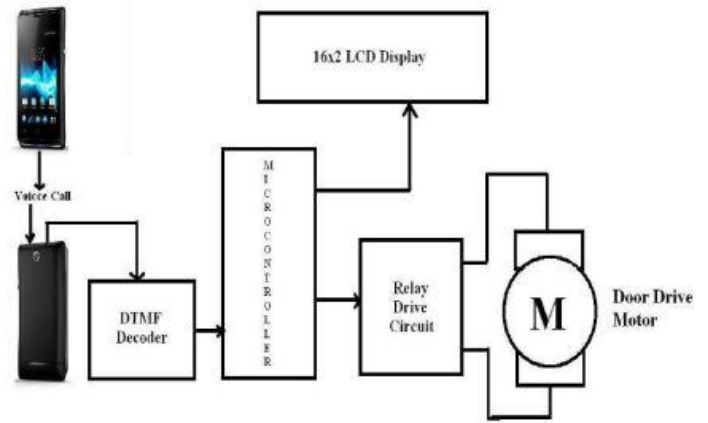
**Password Based Systems**

The programmable electronic code lock device is programmed in such a way that it will operate only with the correct entry of predefined digits. It is also called an integrated combinational type lock. The programmable code lock is shown in Fig 1 as below.



**Fig 1: Programmable Electronic Code Lock**

Electronics safe is its example. Based on the programmable electronic code lock, the reprogrammable digital door locks [2] were invented in that the password can change any time as it stored in PROM. For operating the device, GSM/CDMA module can be used. When any person calls up from his phone, the call will be received by the system. And the door will opens only if the call is from specified user.



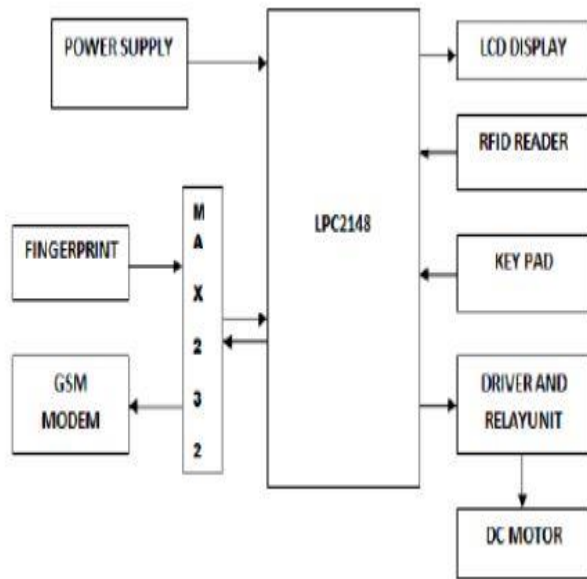
**Fig 2: Password Protected Door Locking System based on Cell Phone**

A cell phone controlled password protected door lock system [3] is as shown in Fig 2 which was proposed to open the door with the help of cell phone device by entering a specific code. The user can make a call to a system’s number. This call is responsible for opening or closing of the entry with the use of correct password. In latest password based system, a more advanced system [4] develops which communicates the owner of the office or house, when any unauthorized person tries to open the code, by giving correct code as well. While closing the door of office/home, the owner has to press the „0“ key available on the hex keypad and leave the system. The system developed by Annie P. Oommen et. al. [5] allows for changing the password. To open the lock, the entered password must matches with the changed one. In some systems the security dial-up enables through the GSM modem [6], when the unauthorized person enters an invalid password then the controller informs to the safe owner through GSM modem. Latest security system [7] is designed where the locking security system can be enhanced with the help of RF and GSM wireless technology by using a 4 digit password which provides the authentication.

**Combined System**

The locker security system is as shown in Fig in view of RFID, FINGERPRINT, PASSWORD and GSM technology [34] containing door locking frameworks which can be without much of a stretch, initiated, authenticated and validated by the

authorized person. It unlocks the locker door in real time manner.



### III. SYSTEM IMPLEMENTATION

SEALS is a home automation application works on smart phones. It provides security to home, research facilities, banks and other valuable buildings. It provides biometrics security via home automation controlled by smart phones sensors. There are many smart locks available in market but none of them is truly keyless and provides wireless biometrics security. The main purpose of this application is to provide simple, secure and keyless environment.

The application will work in following way:

1. Installation of Smart Lock on door.
2. Connect user's smart phone with Smart Lock using Wi-Fi.
3. User just have to use registered fingerprint on smart phones in order to lock/unlock door.
4. Door can be lock/unlock by clicking on lock/unlock buttons provided in application.
5. Multiple fingerprints can be used to lock/unlock through application.
6. Application also provides time controlled access through unique entry codes that only works in specific time intervals.
7. Send keyless access to friends, family members, colleagues, house hold helpers like cleaner, pet trainer, baby sitter etc. without worrying about lost or copied keys.
8. A 24/7 Activity Feed helps you track activity at your doorstep.
9. Seals lock comes with DoorSense™ and Auto-Lock technologies, so that you'll know your door is both closed and locked.

10. Home automation product like Google Home, Apple Home-Kit, Amazon's Eco and Alexa devices etc. can also be connected to smart lock.

### Companies Cited

- ABI Research
- AllSeen Alliance
- Android
- Apple
- Atmel
- August
- Belkin
- Broadcom
- Chamberlain
- Dell
- GE
- Google
- Homeseer
- Honeywell
- Insteon
- Intel
- iSmartAlarm
- Jawbone
- Kevo
- Koji
- Kwikset
- LG
- Lockitron
- Logitech
- Mercedes-Benz
- Microsoft
- Nest
- Nexia
- Panasonic
- Philips
- Qualcomm
- Revolv
- Samsung
- Schlage
- Sharp
- Smartlabs
- SmartThings
- Sonos
- Staples
- Trane
- Whirlpool
- Wind River
- Yale
- Z-Wave
- ZigBee

#### IV. CONCLUSION

In 21st century which is considered the era of Technology and Innovation, autonomous systems are gaining rapid popularity so the advancement in latest technology is continuously and rapidly made on different latest automatic door lock security systems. The need for an advanced door lock security systems using new technologies is increases day by day as security become a very important or serious issue for everybody. Due to the recent trends in various methods of security for home, buildings, companies" vehicles etc, there is no need to worry about this security any longer, as automatic security systems are here to deal with it. This paper tries to focus all recent door lock security systems in a comprehensive way.

For future work in the field of home automation security, we encourage the researchers to consider a home automation system as a whole and develop behaviour prediction using artificial intelligence and advanced sensing parameters using deep sense learning that can help to elevate the security level. Security is vital for the proper implementation and development of the home automation systems.

#### REFERENCES

- [1] Wireless Technologies for Home Automation: Confusion Reigns for Mainstream and DIY Consumers June 2014 Copyright ©2014 Moor Insights & Strategy
- [2] Mohammad Amanullah "MICROCONTROLLER BASED REPROGRAMMABLE DIGITAL DOOR LOCK SECURITY SYSTEM BY USING KEYPAD & GSM/CDMA TECHNOLOGY", IOSR Journal of Electrical and Electronics Engineering (IOSR - JEEE), Volume 4, Issue 6 (Mar. - Apr. 2013).
- [3] Ashish Jadhav, Mahesh Kumbhar, Mahesh Walunjkar, "FEASIBILITY STUDY OF IMPLEMENTATION OF CELL PHONE CONTROLLED, PASSWORD PROTECTED DOOR LOCKING SYSTEM" , International Journal of Innovative Research in Computer and Communication Engineering, Vol. 1, Issue 6, August 2013.
- [4] P. K. Gaikwad, "DEVELOPMENT OF FPGA AND GSM BASED ADVANCED DIGITAL LOCKER SYSTEM", International Journal of Computer Science and Mobile Applications, Vol.1 Issue. 3, September2013. [5] Annie P. Oommen, Rahul A P, Pranav V, Ponni S, Renjith Nadeshan, "DESIGN AND IMPLEMENTATION OF A DIGITAL CODE LOCK", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol. 3, Issue 2, February 2014.
- [5] Arpita Mishra, Siddharth Sharma, Sachin Dubey, S.K.Dubey, "PASSWORD BASED SECURITY LOCK SYSTEM", International Journal of Advanced Technology in Engineering and Science, Volume No.02, Issue No. 05, May 2014.
- [6] E.Supraja, K.V.Goutham, N.Subramanyam, A.Dasthagiraiah, Dr.H.K.P.Prasad, "ENHANCED WIRELESS SECURITY SYSTEM WITH DIGITAL CODE LOCK USING RF &GSM TECHNOLOGY", International Journal of Computational Engineering Research, Vol 04, Issue 7, July – 2014.
- [7] Raghu Ram.Gangi, Subhramanya Sarma.Gollapudi , "LOCKER OPENING AND CLOSING SYSTEM USING RFID, FINGERPRINT, PASSWORD AND GSM", International Journal of Emerging Trends & Technology in Computer Science (IJETCS) , Volume 2, Issue 2, March – April 2013.
- [8] Arun Cyril Jose and Reza Malekian "SMART HOME AUTOMATION SECURITY: A LITERATURE REVIEW" Smart Computing Review, vol. 5, no. 4, August 2015
- [9] Pradnya R. Nehete , J. P. Chaudhari, S. R. Pachpande" LITERATURE SURVEY ON DOOR LOCK SECURITY SYSTEMS" International Journal of Computer Applications (0975 – 8887) Volume 153 – No2, November 2016.