Secured lock control.

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ABSTRACT

Multichannel audio systems have become ubiquitous with the advent of new and effective audio compression, multimedia storage, and delivery method. Voice recording and reproduction is an electrical or mechanical inscription and re-creation of sound waves, this concept contains the architecture and implementation of an Internet Of things based mobile application for a Server room access control security system. This implementation has two devices i.e. Mobile and the Door, both are connected to the internet. The sensors are connected to the internet (IoT) to be monitored remotely from anywhere in the world. This system save log of door status information i.e. the lock unlock information is saved on the server and is displayed on the mobile application. The application also includes several other security features to enhance the security level and make the key management process easy.

Keyword:- *Internet of Things (IoT), Smart lock, Android Application, Lock log, Access control, Hashid Encoding & Decoding, AES Encryption & Decryption.*

1. INTRODUCTION

Digital home security systems are becoming inevitable in modern lifestyle. There may be situations when nobody is inside the house, but the owner of the house wants to allow the access to the house to the system proposed can be basically used for offices, laboratories and libraries where it is essential to keep a record of the people entering and exiting. Research on home automation systems include several such sophisticated systems. It has often been seen that sometimes it becomes necessary for the supervisor of a particular office or lab or library needs to monitor the people coming in or going out immediately when it happens.

The technology of keys and locks remained the same for the last century while everything else is evolving exponentially. So why not use current technologies and apply it with old ones to build something new and innovative. Around 4000 years ago, the concept of Locks and Keys were invented, and until today, regardless of some minimal variation in security and sustainability; locks are installed in doors stimulated mechanically by the right key. Recently, the Internet was enhanced, and everything was connected to it (phones, televisions, laptops, tablets, cars and so on). This was done because we wanted to make systems smarter, in other term more productive. Why not do the same thing with Locks? Enhancing the locks mechanism by connecting them to the internet, making them more robust and productive. Today, the number of mobile device users including smartphone users has rapidly been increasing worldwide, and various convenient and useful smartphone applications have been developed. Now smartphones are not only used to send and receive phone calls, send text messages, and perform mobile banking operations, but they also are used to control various other devices in our real everyday lives. Through a mobile operating system and internal applications, we can remotely control a variety of external devices such as TVs, projectors, computers, cars, etc. People normally operate ordinary locks with keys or keyword locks such as a pin code. However, these locks have few drawbacks such as misplacing keys or forgetting passwords. Using smartphones, the remote lock can be easily managed. Furthermore, the proposed system has wide range of applications and can be used for various types of locks and systems, such as lockers, bicycles, cars, etc. Smart-Lock-System is a complete

reinvention of the standard Key-Door lock, where all the digital keys are stored in a Digital Keychain kept on the owner's phone. Encrypted and secured Smart-Lock-System can be connected to the Internet via internet cable (UTP) or wirelessly (Wi-Fi).

1.1 Wi-Fi

Wi-fi is the name of a popular wireless networking technology that uses radio waves to provide wireless high speed internet and network connection. a common misconception is that the term Wi-Fi is short for "wireless fidelity", however this is not the case. Wi-Fi is technology for wireless LAN with device base on the IEEE 802.11 standard. Wi-Fi compatible devices can connect to the internet via a WLAN and wireless access point. Wi-fi is trademark of the Wi-fi alliance which restricts the use of the term Wi-fi certified to products that successfully complete interoperability certification testing. Devices that can use Wi-fi technology include personal computer, video game televisions, printers, phone and tablets, digital cameras, smart TV, digital audio. such an access point or hotspot has a range of about 20 meters (66 feet) indoors and greater range outdoor. Wi-fi most commonly uses the it is simple to set Wi-fi network but keeping it secure takes much more effort, access point of Wi-fi do not deploy encryption. it is required to be done as a network is enable. secured Wi-fi network can be easily attacked by hackers to steal private information. Wi-fi transmits data at 2.4 GHz making susceptible to interfere Bluetooth enabled devices, mobile phones, cordless, microwaves and other communication devices, closer the interfering devices are the poor communication will be and vice versa Wi-Fi technology may be used to provide Internet access to devices that are within the range of a wireless network that is connected to the Internet. Wi-Fi provides service in private homes, businesses, as well as in public spaces at Wi-Fi hotspots set up either free-of-charge or commercially, often using a captive portal webpage for access
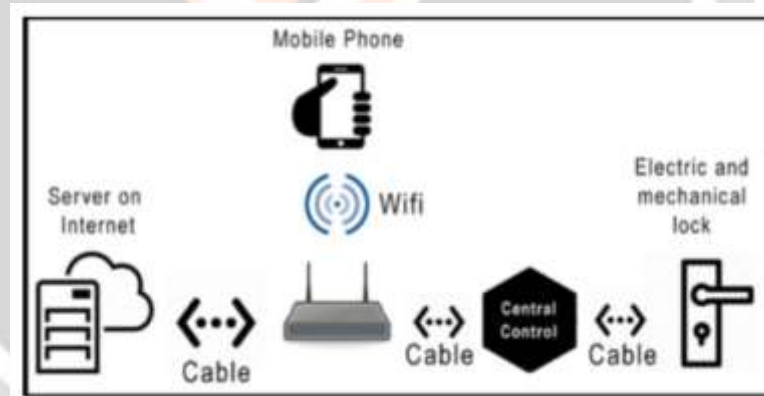

Fig-1: Hardware System design

1.2 Android Application

Android is a mobile operating system developed by Google, based on the Linux kernel and designed primarily for touchscreen mobile devices such as smartphones and tablets. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics Android applications ("apps") can be downloaded from the Google Play store, which features over 2.7 million apps as of February 2017. Android has been the best-selling OS on tablets since 2013, and runs on the vast majority of smartphones Android is popular with technology companies that require a ready-made, low-cost and customizable operating system for high-tech devices.

1.3 Ardunio

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB

cable or power it with an AC-to-DC adapter or battery to get started. The Uno diers from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter. Uno means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Uno and version 1.0 will be the reference versions of Arduino, moving forward. The Uno is the latest in a series of USB Arduino boards, and the reference model for the Arduino platform; for a comparison with previous version Arduino The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started. The Uno diers from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter. Uno means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Uno and version 1.0 will be the reference versions of Arduino, moving forward. The Uno is the latest in a series of USB Arduino boards, and the reference model for the Arduino platform; for a comparison with previous version Arduino UNO is used to control the operations of RFID reader at the doors as well as the transmitters and receivers. Arduino UNO is a microcontroller board which is based on the ATMEGA 328P [5]. It has 14 digital Input /Output pins, 6 Analog Input/ Output pins, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It also includes: Flash Memory 32 KB (ATmega328) of which 0.5 KB used by boot loader, SRAM 2 KB (ATmega328) EEPROM 1 KB (ATmega328).

1.4 Servomotor

A servomotor is a rotary actuator or linear actuator that allows for precise control of angular that allows for precise control of angular or linear position, velocity and acceleration. It consist of suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servomotors. Servomotor are not a specific class of motor although the term servomotor is often used to refer to a motor suitable for use in a closed loop control system. A servomotor is a closed loop servomechanism that uses position feedback to control its motion and final position. The input to its control is a signal representing the position commanded for the output shaft. The motor is paired with some type of encoder to provide position and speed feedback. In the simplest case only the position is measured. The measured position of the output is compared to the command position, the external input to the controller. if the output position differs from that required, an error signal is generated which then causes the motor to rotate in either direction, as needed to bring the output shaft to the appropriate position. As the position approach, the error signal reduces to zero and the motor stops Servomotor are used in application such as robotics, CNC machinery or automated manufacturing. Are also use in door lock system for lock open and closed system.
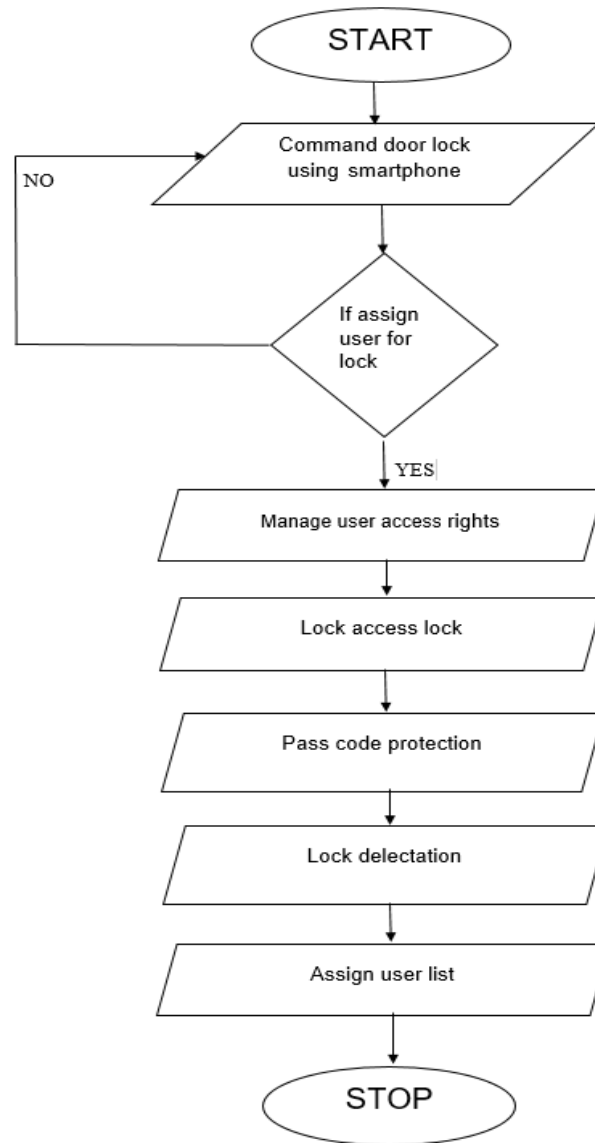
2. FLOW PROCESS

Fig-2: Flow Chart

3. CONCLUSION

In conclusion, the Smart-Lock-System will open the door leading to a wide range of innovations in the world of lock systems wherever they may be. With its ease of installation and use, minimum complexity, wide applicability options, and strong feasibility, SLS guarantees a huge aspiring step forward into a better future lock system. All of the above can't be considered authentic or even possible without considerately taking into account one of the most vital aspects to the innovation: security. Therefore, after examining the detailed evaluation and explanation of this phase, the project really tackles the security concerns to eliminate any worries which might cause a threat to the systems success and prosperity

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