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Comprehensive Literature Survey on Different Lock Methodology to Access Systems

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ABSTRACT: During this survey paper, as we know these days Security framework is most significant fundamental time for any area. Security is the significant danger looked by the vast majority of the organization; thus, security is increasing more significance in nowadays. Remote system is one of the innovations that have been utilized to give remote screen and control to the framework. This comprehensive literature paper gives survey on different lock system using different control mechanism handled as well as remotely control lock system by unauthorized person using different techniques as IoT based lock system, RFID card, GSM system, embedded based Cryptography algorithm and generated Passcode or OTP. These lock systems used in offices, banks for locker system to prevent security to device and in door lock system to prevent robberies. The lock system which is access by authorized person only. There is tremendous research going on various lock system to prevent security or to provide more secure lock system.

KEYWORDS: IoT (Internet on Things), RFID card, passcode or generated OTP, embedded, cryptography algorithm, Security, Lock system.

I. INTRODUCTION

Nowadays security is playing a major role in different era. Without provides security to system, it will access through an unauthorized person and it loose metal satisfaction of authorized person. Therefore, researchers working on different secure system, which is IoT, based lock system. The IoT based system prevent security, less time required to execution and reduce cost of system. In general, some lock system based on RFID card, OTP and embedded based cryptography algorithm, which is used for door lock, vehicles lock, or any system like in offices and banks for locker system.

Today, we are living in the in the of embedded systems surrounded by devices that based on the embedded systems like cars, washing machine microwave-oven, medical equipment's etc. An embedded system is a computer system designed for specific control functions often with real time computing constraints. It is embedded as part of a complete device which often including hardware and mechanical parts. By contrast, a general-purpose computer, such as a personal computer (PC), is designed to be flexible to meet a wide range of end user needs. It controls many devices in common use today. For this system need a security to secure data or information or any things which is securely kept inside the system.

This survey organized as follow: Section 2 a pair of deals with the various lock system for different purpose, Section 3 conclusion.

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II. VARIOUS LOCK SYSTEMS

1. Mechanical Lock to Access System

Prior to the appearance of present-day electronic locking frameworks, locks were mechanical made utilizing switches, gears and wheels. These locks are fitted to the entryways or any lock system. These have two sections: key and lock. The criminals effectively break these frameworks.

2. Lock system using face recognition

Some lock system used GSM and GPS technology to track theft detection and trace location of vehicle. Therefore, for some reason it gives its own disadvantage. To overcome this by using face recognition methodology used to prevent security with including some parameters like gender, position, pose, lightening etc. However, if authorized some or owner of vehicle face is not recognized due to face burned or and environment condition then its permanently locked vehicle. This is one of drawback of this face recognition system [1].

Similarly, face recognition methodology used in door lock system. This lock system controlled by raspberry pi model with generated password to unlock the door by authorized person. However, here also same drawback occurred, if face is not recognized due to some medical reason and if cannot get password on email due to no coverage area [5].

3. IoT based Lock System using Cryptography algorithm

The IoT enables you to mechanize and control the undertakings that are done every day, maintaining a strategic distance from human intervention. Machine-to-machine correspondence keeps up transparency in the processes. Therefore, these benefits of IoT works in lock system using cryptography algorithm with android smart phone app. The generated passcode gets on mobile phone in text message or on mail. By used of this passcode unlock the door by authorized person only [2].

4. Voice Controlled Lock System

The door lock system controlled by voice. In this Arduino and MATLAB software is used to stored voice data. Door unlocked only by voice that is stored as data into Arduino memory in binary form. However, if voice will not be recognized due to throat with cold problem then door locked permanently. This is one of drawback of this voice-controlled lock system [3].

5. IoT based Cyber Security Lock System

IoT is always hot topic for researcher in any organization. IoT is cyber security as well as physically involved in any system. Before IoT, in lock system mechanical lock used to access door or any system. Therefore, it does not provide security and not prevents robberies. So that by using IoT system it will reduce time execution, gives more security and reduce cost of system too [4].

IoT give tremendous opportunity to user like to trace location-using GPS, Wi-Fi, less execution time and give more transparency to machine-to-machine system. The microcontroller controls the lock of vehicle and GPS. These systems used in vehicle door lock system by using password and unique web site to be controlled vehicle latch system. This system depends on internet speed. Therefore, the drawback for this system is if internet speed is slow then vehicle door lock gets more time to unlock the vehicle latch [8].

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6. Bluetooth based Lock System

In any lock system, they have their own advantages and disadvantages. In some of RFID card lock system and GSM lock system failed due to lack of range and It will access by unauthorized person so no more provides security to system. Therefore, to overcome these advantage researchers add one IoT based Bluetooth module, which controlled with android app and unique command to lock or unlock the car by authorized person. The drawback for this system is distance of Bluetooth module and mobile hardware Bluetooth within range then only car will be lock or unlock [6]. Similarly, IoT based Bluetooth controlled used in door lock system. This door lock system works on commands. If Bluetooth module and smart phone hardware Bluetooth in nearby range, then only door will be lock or unlock by an authorized person [7].

7. Lock system based on web application

Conventional lock need key to unlock or lock door. In this convention lock system added web application which is used passcode as command to unlock or lock system with raspberry pi board. Door connected with LAN cable of internet router and remotely controlled by user web application and physical key to access door. The drawback for this system is internet connection not in range or due to less speed of internet then door cannot be access through a web application then physical key needs to open or close the door [9].

8. RFID used Lock system for critical zone

IoT based lock system with Bluetooth, GSM, GPS, using OTP, cryptography algorithm these all system will hacked by unauthorized person so that to overcome this drawback with RFID card which generates code and it will encrypt by encryption method and get that code on user phone as text and that code by entering on door of digital keypad lock system that will encrypts code and door will be access by authorized person in critical zone where authorized person enters only. The drawback for this system is if RFID card is lost or forget somewhere then without RFID card door will not access by authorized person [10].

III. CONCLUSION

This paper provided a close survey on existing lock system used in door of home, offices, banks and locker system. In car also these lock systems are existing. In this paper all door lock and car lock system mention with their own advantages and disadvantages.

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