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BLUETOOTH CONTROLLED DOOR LATCH

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Abstract

Door locks are essential. They provide and safety and security like no other appliance or tool. They act as the barrier to keep your facility and workshop safe and help maintain privacy. Either there are cases in India where housebreaking is just done by breaking the door lock and stealing the properties in the houses. The main objective of our project is to safeguard the house even more securely than the door locks used. We are living in a smart world today, and smart phones have a major contribution in it. A smart phone is now a very common device that everyone carries with them all the time. Smart phones have enabled us to perform various tasks while using a single device. Considering this phenomenon, we can exploit the idea of remote-controlling a door with the help of a smart phone. Physical keys and a lock are the basic requirements for a door. However, managing these keys has become cumbersome. To overcome this, we present a solution which is a smart and a secure way of remote controlling the door using a smart phone.

1. INTRODUCTION

Using physical keys to lock or unlock the door is the most natural way and everyone is acquainted with it. The physical key is a well-tested and well-known technology, but it also has its flaws. There can only be one unique key for a lock. For different locks you have different keys. Furthermore, carrying a large number of keys is a burden and increases the chance of keys getting stolen, misplaced or lost. Our goal is to design a solution for secure access control that can replace physical keys for accessing door. We propose a solution using digital keys on smart phones providing wireless and automatic unlocking via Bluetooth. The design will allow easy implementation and distribution of keys and the device will work autonomously. This will enhance the security and will eliminate the need of carrying physical keys. The most commonly used system for locking and unlocking the door is a lock and a physical key. The entire process is a mechanical one. If the key is lost, misplaced or stolen, then the entire locking mechanism has to be replaced. This problem with the

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physical keys intensifies when it comes to big companies where employees are needed to carry several keys for different doors. Apart from the extra burden, all the keys add to become vulnerable to getting lost. An alternative used for physical keys currently is RFID (Radio-Frequency Identification). There are RFID cards being used as pass keys. The RFID card reader unit is installed near the door. When the card is brought near the reader, it identifies the radio frequency of the card and thus verifies the key. To overcome all such problems, we propose a solution using a smart phone as a replacement for existing systems.

2. RELATED WORK

We have started reading some journals from internet to know more about locks and we came up with some problems that authors have written in their journals. The most commonly used system for locking and unlocking the door is a lock and a physical key. The entire process is a mechanical one. If the key is lost, misplaced or stolen, then the entire locking mechanism has to be replaced. This problem with the physical keys intensifies when it comes to big companies where employees are needed to carry several keys for different doors. Apart from the extra burden, all the keys add to become vulnerable to getting lost. An alternative used for physical keys currently is RFID (Radio-Frequency Identification). There are RFID cards being used as pass keys. The RFID card reader unit is installed near the door. When the card is brought near the reader, it identifies the radio frequency of the card and thus verifies the key. Multiple cards can be paired with the device. But again, they are vulnerable to theft or getting lost. It also does not solve the purpose of not carrying a key. To overcome all such problems, we propose a solution using a smart phone as a replacement for existing systems. And there are smart locks which are secure and strong. But the problem we get is about its price which becomes to be a bit expensive. The research papers which we referred are SMART DOOR LOCK SYSTEM, International journal for modern trends in science and technology by Nayana R and Shasidhar R ,Received on 08-2-2019, Revised on 22-02-2019,Accepted on 10-03-2019. SMART DIGITAL LOCK FOR HOME AUTOMATION by Yong tae park, Pranesh sthapit, jae-young pyun ,Department of information and communication engineering, Chosun university, Gwangju, South Korea. SMART DOOR SECURITY USING ARDUINO AND BLUETOOTH APPLICATION, Ketan Rathod ,Department of Electronics Engineering,

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3. IMPLEMENTATION

In order to make sure that every door is safe, people now look for counter measures to protect their doors. With the vast and different forms of keeping doors locked from unauthorized persons many people tend to use low means of protection. Meanwhile the deployment is of more advanced technology like the use of smart door security is a step forward. This project aims to keep doors safe and also ease access. The latching of the door is solely controlled by smartphone via the Bluetooth connection established between the device and the microcontroller.

The project seeks to follow the following steps:

• To provide password protected access

• Eliminate the need to carry a key or any extra remote, as the user's phone is used

• The entire process requires virtually no time

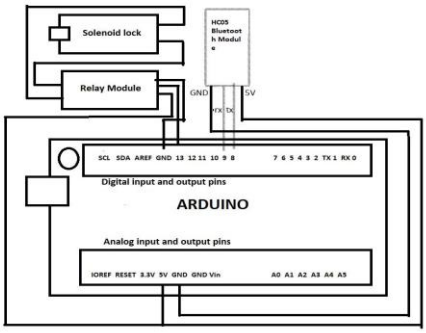
• Bluetooth based short range communication with no interference due to another Bluetooth media

• Customizable keys for each user

• The application software can be installed on any smart phone

• Real time monitoring of the system status

In today's world, smart home control system is necessary in daily life. As the technology is emerging a lot it's time for us to be more technical related to home secure security and easy access to the user. This technique basically deals with key less door lock system using smart phone in which SMS, E-mail, Image, anti-burglar will be used and for guest users it will generate b-id. This will allow the guest user key to access the door for a given particular time only. The system also includes motion detectors that will help to determine the user. If an unauthorized person is trying to access the door, then camera will take snaps of user at the door. These snaps will be sent to owner. Furthermore, this approach can be applied and extended to different institutions like banks and offices.



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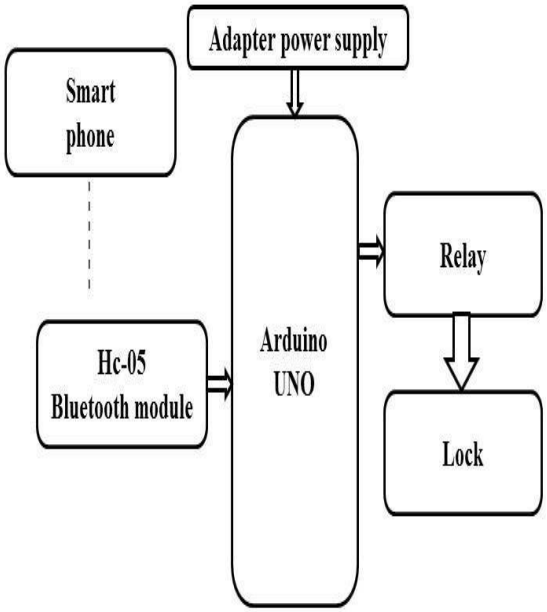

4. EXPERIMENTAL RESULTS

A smart lock is a device that may be opened wirelessly without the need for a physical key. All you need is connect it to the Bluetooth or Internet Wi-Fi connection. You have the option to automatically unlock it using a key-fob, click a button, tap on your smartphone, or a user code on the dial pad. Smart locks are considered a part of automation into home security. One good example of a device where a smart lock is incorporated is door locks.Using physical keys to lock or unlock the door is the most natural way and everyone is acquainted with it. The physical key is a well-tested and well-known technology, but it also has its flaws. There can only be one unique key for a lock. For different locks you have different keys. Furthermore, carrying a large number of keys is a burden and increases the chance of keys getting stolen, misplaced or lost. Our goal is to design a solution for secure access control that can replace physical keys for accessing door. We propose a solution using digital keys on smart phones providing wireless and automatic unlocking via Bluetooth. The design will allow easy implementation and distribution of keys and the device will work autonomously. This will enhance the security and will eliminate the need of carrying physical keys.The most commonly used system for locking and unlocking the door is a lock and a physical key. The entire process is a mechanical one. If the key is lost, misplaced or stolen, then the entire locking mechanism has to be replaced. So, this problem can be overcome using our device that is having a smart lock that is using android to unlock and lock the door. The Padlocks are portable locks but, in some cases, it can also be used safely to lock the front door of your house. As most of the people still use padlocks, the pin padlocks offer an enhanced level of security from the thefts. It also offers the advantage of being keyless which doesn't require the hassles of using keys for unlocking the door. Safety level: Very strong even its safety level is strong it nearly costs up to Rs 7000. this can be replaced using our device. It is something which can

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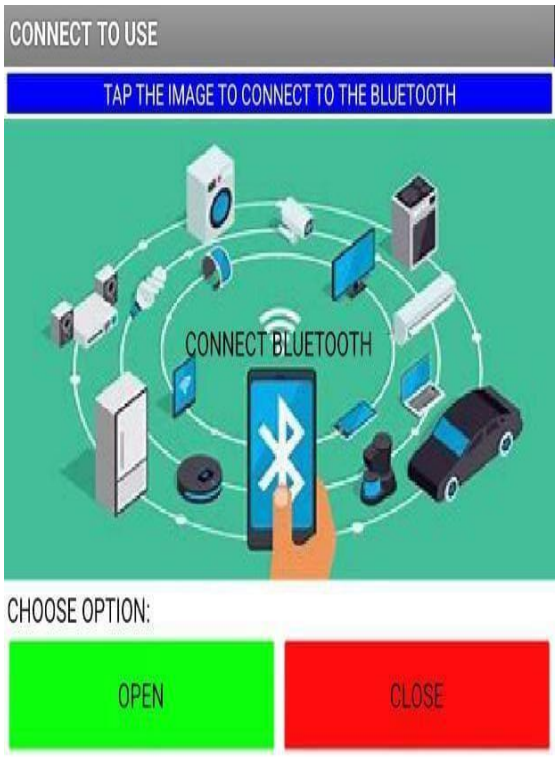
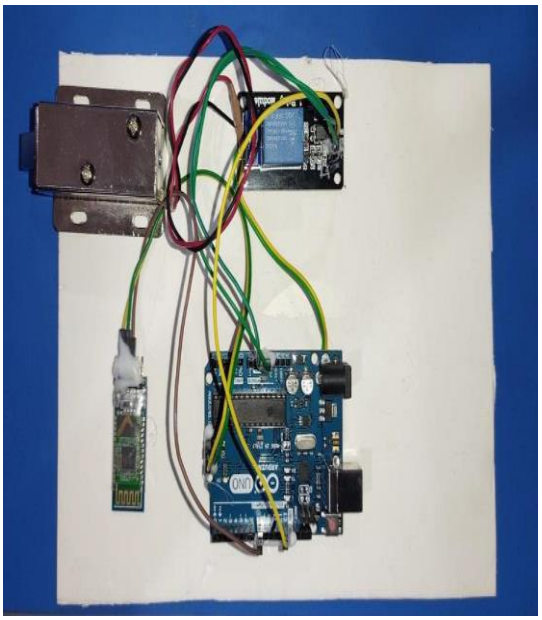
breakable from outside.so, we are doing our solution from inside so that it would be difficult to break the lock.





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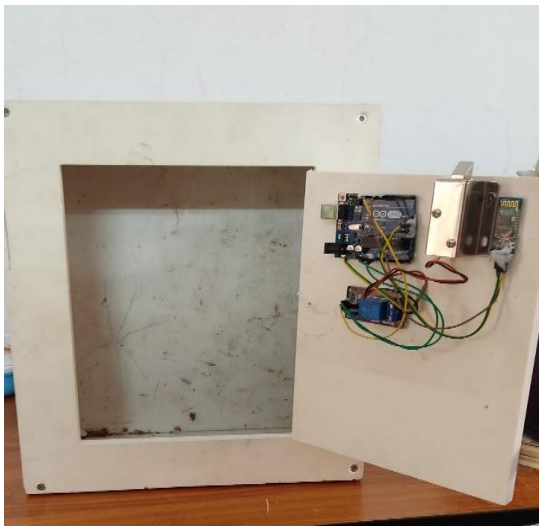

5. CONCLUSION

The proposed system allows remote access to lock or unlock the door without physical user interaction. The system fulfils the requirements of supporting autonomous locking device and easy key distribution compared to physical keys. The system has minimum requirements for hardware and supports customization of keys. The intrusion alert enhances the security of the system. The prototype-built shows that the design consumes minimal power and the locking/unlocking of the door happens in 4 seconds on an average. Thus, the system proposed is feasible.

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