Door Automation Security System Using OTP

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Abstract: **Smart Home in Smart Apartment is the term commonly used to define a living that uses a home controller to integrate the residence's various home and building automation systems A system called "Door Automation Security system Using OTP". In past days the research is gone on various door lock security systems like old security systems which gives the signals in terms of alarm, Some door lock security systems can used and based on microcontroller, GSM, many sensors, software like MATLAB, biometrics like face recognition scanners, RFID, Smart Card , password etc. We want to make a system that will give services (like Providing Alert to registered Owner AND Security guard of apartment). With the help of registered password (The password is divided into two part like first is static password that will know to the owner and second is OTP). This Door Automation Security system Using OTP will give user more secure and low cost way of locking-unlocking system.**

Keywords: **One time Password, Door Lock Security, Alarm, Display, mobile device, user interface.**

1. INTRODUCTION

In day to day life security of any object or place is plays an important role and various control systems have been designed over the years to prevent access to unauthorized user. **"Door Automation Security system Using OTP"** have become a standard feature on many different types of buildings and homes. Home security has a major problem because of the increase in crime rate and everybody wants to take proper action for prevention of unauthorized access. With the help of registered password (The password is divided into two part like 1ST is static password that will know to the owner and second is OTP) .Our system that will also give services (like providing Alert to registered Owner AND Security guard of apartment). OTP (One Time Password).This project is the next step to the existing password protected security systems because in this project special and important feature of one time password is added. Following are some reasons which make this system strong. That is the password is valid once and for a short time for example like valid for only 2 to 5 min minimum. The algorithm for generation of each password or OTP is not reversible.

1.1. DOOR-AUTOMATION SYSTEM USING ANDROID FOR MOBILE PHONE:

This paper gives idea about how to control Door security for smart Buildings And homes especially for door locks. We use android door lock system for indoor and outdoor key lock system. This project based on Android platform which is Free Open Source. So the implementation rate is more inexpensive and it is reasonable by a common person. With the wireless connection in android system permits the system installation and application installation in more easy way

1.2. AUTOMATIC PASSWORD BASED DOOR LOCK SYSTEM:

This paper gives information about android system has been given in which we can unlock the door by using passwords. It increases the security level to prevent an unauthorized accessing done by attacker. In case the user forgets the both passwords, this system gives the flexibility to the user to direct access of system giving the answer of one private question that will answer only knows to owner and its close family members. This automatic password that contain two type of password one is static password and another is OTP (One Time Password)static password is only knows to owner

and OTP is dynamic password it will get on real time from android device this type of password based lock system will give user more secure way of locking-unlocking system. First the user Password will be compared with prerecorded password which are stored in the system memory and database. User cannot go for certain number of wrong passwords after 3 wrong attempts occur then alert (alarm) will send to the owner android phone and security guard of home and building .The door will be unlocked if user password matches with the password. This project has considered about this and created a secure access for a door which needs a password to unlock the door. Using keypad it enters a password to the system and if entered password is correct then door is open by motor which is used to rotate the handle of the door lock. When it is entered incorrectly at the first time it will give three attempts to enter the password if password is wrong then its sent alerts to both owner and security guard. Some extra features like adding new users and changing old password and adding guest are configured by the keypad as usual. To display messages to the user LCD module that is android device is used. Now a day's most systems are automated in order to face new challenges to achieve good results.

1.3. PROBLEM STATEMENT:

Security becomes an important part for everything. Conventional security systems keep homeowners, and their property, safe from thieves and unauthorized user by giving the indication in terms of alarm .The previous security systems were generally expensive and costly very hard to monitor, for some systems man power is required and some are time consumed. In traditional alarm system, the amount of alerts becomes unmanageable however, our door lock security system offers many more benefits like alerts and alarms etc.

2.   LITERATURE REVIEW

2.1. EXISTING SYSTEM:

The main features of the existing system are as follows:-

Existing system has door lock security systems like old security systems which gives the signals in terms of alarm, various door lock security systems are based on microcontroller, GSM, GPS, many sensors etc .

Attacker and unauthorized user who does not know the password can make OTP attempt. Therefore, if an attacker mistype the OTP more than given number of time then alarm transfer to the home owner mobile device.

The OTP based door lock security system is proposed to complement the drawbacks of the different security systems such as a digital door-lock and mechanical door-lock security based system.

2.2. PROPOSED METHODOLOGY:

A. *OTP (One Time Password):*

This project is the next step after static password is to the existing password protected security systems because in this project special feature of one time password is added.

Following are some reasons which makes this system strong. These few characteristics make the OTP a strong authentication protocol. The password is valid once and for a short   time. The algorithm for generation of each password is not reversible.

B. DISPLAY:

One display is used in this system, one is on the door to display the messages and for entering the inputs to device.
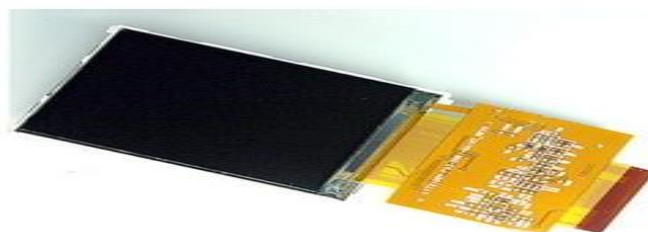

Fig. 1

C. BUZZER:

A buzzer is used for giving indication by making sound.

Fig. 2

D. RELAY:

Relay which used to close or open the door.

This unit is responsible for actual control of load.

Fig. 3

E. ANDROID DEVICES(Low Costly):

A android device is used like Adriano Uno kit and platform in which perform actions like OTP sending and also entering inputs and password into system and hardware handling etc. And another android device used for user mobile in which user get alert and OTP likes services.

F .WORKING PROCEDURE:

Step1:

Initialize the system.

Step2:

Display starts working.

Step3:

Select your name.

Step 4:

Then enter your secret password.

Step 5:

If password is wrong then software send alert to registered owner or home owner and security guard of home.

Step 6:

If user enter right password then. OTP is generated by the software.

Step 7:

OTP sends to user's mobile phone.

Step 8:

OTP enters through the keypad on *the door*

Step 9:

If OTP are match and right then.

Step10:

The door opens.

Step 11:

If OTP is wrong then software send alert to registered owner or home owner and security guard of home.

Step 12:

If mobile is OFF, or do you not have OTP then click to the Text that I forgot my password on keypad then security question will ask by software or system .

Step 13:

Answer the security question.

Step 14:

The door automatic get opens.

G. FLOWCHART:

Figure 4 shows the flow of proposed system. First of all initialize the system. When Display turned ON, Select your name if you are home member. After selecting your name then you have to enter the private password with the help of user interface display .If entered password is wrong then software send alert to registered owner or home owner also the security guard of home. If user *enter right password then OTP generates by the software* and OTP sends to user's mobile phone. OTP enters through the keypad on *the door. If OTP are match and right then* The door opens. If OTP is wrong then software send alert to registered owner or home owner and security guard of home. If mobile is OFF, or do you not have OTP then click to the Text that I forgot my password on keypad then security question will ask by software or system . Answer the security question. The door automatic get opens.
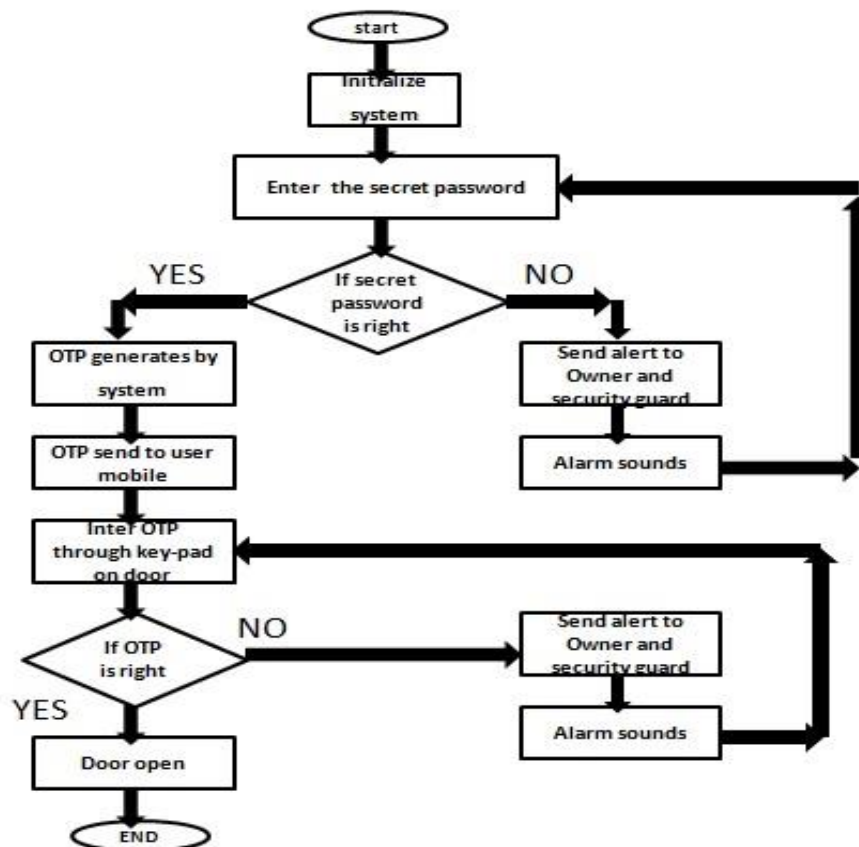

Fig 4: Door automation security system using OTP

3. SOFTWARE REQUIREMENT

Solution is developed using Below Technologies & platforms:-

- Application Development- Android .

- Web Application Development- php html.

- Database management- SQL Server

- Android Application Development- Sublime Text 3 in php then converted into android application.

- Web Application Development- Sublime Text 3.

4. HARDWARE REQUIREMENTS

Solution is developed using Below Hardware's:-

One android device used as a system device.

One android phone where user get OTP.

Alarm device.

5. RESULTS

This implementation is done on the server and Smartphone that based on android. Implementation on the server is done using php while the implementation of Smartphone is using android. The application is tested on Android Smartphone version Lollipop 5.0.1.
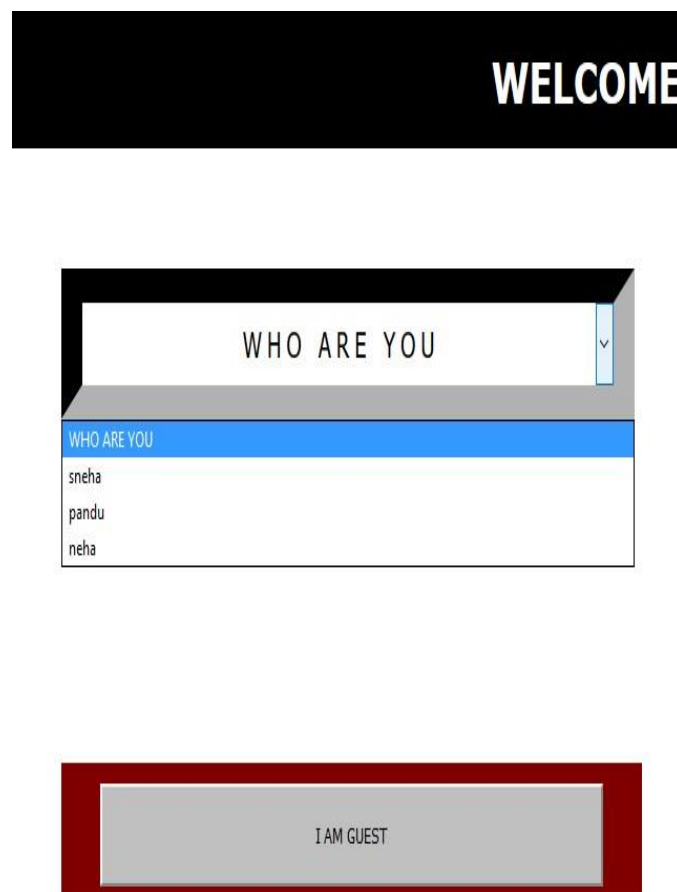
Fig.5 1st Screen Members menus

Fig.6: Home Member Authentication screen

Fig.7: OTP massage on user mobile
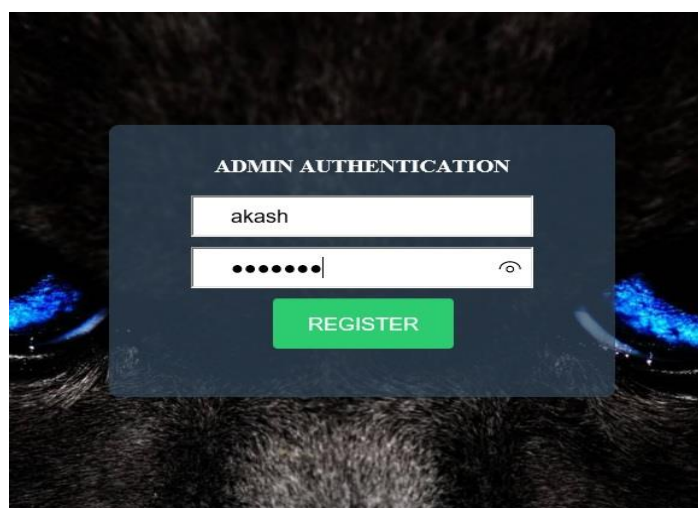
Fig.8: Admin Authentication.

Fig 9: Guest menus

Fig.10: Dashboard (EDIT MEMBER)

Fig.11: Dashboard (EDIT GUEST).

6. CONCLUSION / FUTURE SCOPE

This is ongoing project. This paper gives basic idea of how to control Door automation security system using OTP. It also provides a high level security and easy for Android phone users. This project based on Android platform which is Free Open Source Software. So the implementation rate is inexpensive and it is reasonable by a common person and buildings. The system has been successfully designed and aimed to control the door condition using an Android phone. Till now we have successfully implemented software and hardware and one small application has been invented using android. Future scope of our project is very high. In this semester we will develop the web application on php then it converted into android app. We have discussed a simple prototype in this paper but in future it can be extended to many other regions like

- In future this system may also develop with image processing.
- Also biometric recognition such as face recognition or fingerprint recognition etc.

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