



Proposed System on Remote PC Locking System via Android Phone

Nikhil Raj, Vikas Kumar, E. Ashwini Kumar, Swapnil Dharu, Shrikala M. Deshmukh

Department of Information Technology, Bharati Vidyapeeth Deemed University, College of Engineering, Pune,
Maharashtra, India

Abstract— Remote desktop application are getting popular due to their ease of use .People use remote desktop access capabilities to perform various tasks to access their office computer from home or when travelling or to access their personal computer from other locations either to fix a problem or to perform administrative tasks. In today's world security is very important aspect and desktop security is given much more focus these days. A personal computer is anything but personal. All data that are kept in a personal computer is private and needs to be protected from being accessed by any unauthorized person(s).We currently have many application which can secure your files .But the basic way of protecting your personal data or files remotely can be achieved by securing them with strong passwords. This particular paper proposes security application that can be operated remotely from your android mobile phone. By using this application user can lock and unlock the screen of his/her desktop from their mobile phone. The application provides a variety of locks like pin ,pattern, one time password etc.The principle aim of this paper is actually providing a remote application to lock and unlock desktop by considering desktop or pc as server side and users android phone as client side.

Keywords— remote desktop application, wi-fi , locking, sockets, desktop access

I. INTRODUCTION

The security of desktop computers is more of an issue than ever before, given the power and network-based services available on current desktop machines, the importance of protecting data stored on those systems and on the servers to which they connect is a major concern. The aim is to keep systems as secure as possible easing the users effort towards security of their system. There can be a possibility of a scenario when a user of a personal computer forgets to shut down his/her system then one who is interested in the user's private data that is stored in the system can get access to it and can steal, corrupt or exploit it. The goal of securing a system is to protect information and data from theft, corruption and other types of damages and threats. Security countermeasures can be implemented through system security. Use of a firewall, data encryption, passwords and biometrics are various methods of securing a computer system. The basic method of securing data or information is protecting your system(s) through password(s).

Protection through password:-

The most widely and basic method of protection from unauthorized access is by protecting your system with the help of password. A password is a string of characters used to authenticate a user to access a system. The password needs to be kept secret and is only intended for the specific user. Good passwords are essential in keeping computer systems secure. Unfortunately, many computer users don't use very secure passwords, such as the name of a family member or important dates - things that would be relatively easy to guess by a hacker. So, in order to avoid guessing of password the user must use strong password. While setting a password user should follow some guidelines like "The password should be longer in length"- so that it cannot be guessed easily. Second guideline is that do not set very obvious passwords like your family name, pet name, date of birth etc. Third rule user should keep in mind is setting a strong password by mixing the alphabets with numbers and special characters to make it strong and very hard to get predicted.

Remote locking through android mobile phone:-

Mostly mobile phones were created for communication purpose but the advent of android operating system gave the opportunity for various other applications. Now a mobile phone has basically become a small laptop and can do stuff in few clicks. A mobile phone now a days have hardware like GPS, gyrometer ,wi-fi drivers, file sharing network drivers etc which makes it way more useful device. These features makes it suitable for mobile phones to remotely access desktop. The security technology of mobile are advancing day by day, from pin to biometrics. The desktop security is still based on the old password system. The application proposed by this paper helps to increase security and also tells the current status of the desktop. The user can share one time password with other users when not physically available. The technologies we are going to use for remote locking a personal computer through android mobile phones are "Socket programming" at clients end for establishing connection with the personal computer and "JFrame" for server side software. We are going to use SHA-2 algorithm for encrypting passwords. Encryption is the process of encoding

passwords which helps in password security making unable to be guessed by an unauthorized person or user. An encryption key is used to encode the password and a secret decryption key is used to decrypt the password.

II. LITERATURE SURVEY

K.Arun Kumar*,S.PratheepaDevapriya,[1] In this paper,the author proposes remote android controlling device which can control various operations of the computer likeshut down ,log off, unicast and broadcast, live streaming. User authenticates by entering the ip address and name of system. The user can control mouse and keyboard remotely via android application.

Amruta A Dongale, Sachin S.Takmare,Prajakta S Devkar[2] In this paper, the author proposes to control both the devices via each other. The android device can be controlled by computer and vice versa. The communication medium can be anything like USB interface or Wifi network. Java sockets are used to communicate with each device.The device takes in port number and ip address. ShubhamBidya , Nikhil Sonawane,

Nandkishor Shegokar , Prashank Bhosale, Prof. Anisaara Nadaph[3] In this paper, android mobile user can access computer over Wi-Fi or Bluetooth. Both the application on the client and server side are written in java. Different operations are provided to the user, like file transfer, mailing the file, screen access of whole computer. There is also provision for accessing database of the computer.The prototype works by entering IP address of the Computer and the user will receive an OTP from his computer. To increase security one time password generated will be different from the previous password. It work on Point to Point network for providing better security.

Angel Gonzalez Villan, and JosepJorbaUniversitatOberta de Catalunya[4] In this prototype works with android mobile to interface computer via Wi-Fi . The project uses socket programming for pairing ,handshaking and port assigning. Communication between two process is done through Inter Process Communication technique .In this System, the PC will act as a server and android phone as a client. The server application is made in Java and client application in android. The application works by pairing the device and sending commands using socket programming. The client and server must be on the same Wi-Fi network.

Jaya Bharathi chintalapati1, SrinivasaRaoT.Y.S[5] In this paper provides a way to access the computer with the help of android mobile phones.The prototype uses VNC(virtual network technique) technique. In this prototype, a VNC server must be installed on the computer with Wi-Fi network. The User can perform a large range of operations on Wi-Fi platforms like Linux , Mac, Windows. The cellular phone gets compressed image of the desktop. Various functions are provided to ease the viewing on mobile phone.In this prototype, a remote control for television is designed that can be operated not only from inside but also from outside. VNC is a graphical desktop sharing system providing remote control over the network.

Mahesh Deshmukh ,DaminiJawale , Shruti Joshi , Prof. P.S. Kulkarni[6] In this paper proposes a secure way to remotely control computers using android devices. The android device acts as client and the computer acts as a server. The android device requests for connection and gets an acknowledgement in response after which the android device can perform different operations on the computer. The proposed system uses socket programming to communicate commands.

Onkar Mule, NihalShaikh, Pratik Shinde, AmitWagaskar, Prof. SnehaRamteke[7] In this paper proposes a prototype that provides a way to remotely control computers via android device .The commands are transferred via socket programming. The user can not only control keyboard and mouse but various other application.

1Karan Sandeep Bhandari, 2Vishnu Baliram Mandole, 3Akash Dattatray Munde, 4Sachin B. Takmare[8] In this paper proposes the technique to access remote desktop through android mobile phones as well as technique to access android mobile phone through web-browser. Socket is used for the process of accessing remote computer on the other hand "NANOHTTPD" is used to access the android mobile phones. To achieve the objective server should be installed on remote computer and also the android phone should also be able to run the server. Also these devices must be connected to the wi-fi/Hotspot network. Event handling function is also included for clicking events and for using keyboard. And to access android mobile to be accessed by web-browser the establishment of LAN connection is proposed.

Dr. Khanna SamratVivekanand Omprakash[9] In this aim of this paper is to control remote pc with the help of mobile phone through internet. Smartphones which uses the android operating system to control the remote computer. This can be achieved through internet connection. The connection is established through IP address. The other way used is by using the domain name server from internet service provider. DNS from ISP is obtained from the phone sim card service provider. By using this method both computer and android smartphone is connected with each other and computer system is remotely controlled using the android mobile phone.

Sareddy Deepthi1, A. Vasanthi2[10] In this paper the idea of this paper is to ease and enhance the previous method of accessing the laptop/pc's through client-server based methods and proposed the new method of accessing the laptop/pc's through mobile phones. For doing this interfacing of computer's hardwares and softwares with the mobile phones is necessary. By doing so not only the files can be shared easily between the computer and the mobile phone but also it is used to switch on/off the computer and also helps in controlling some operations of the computer through mobile phones.

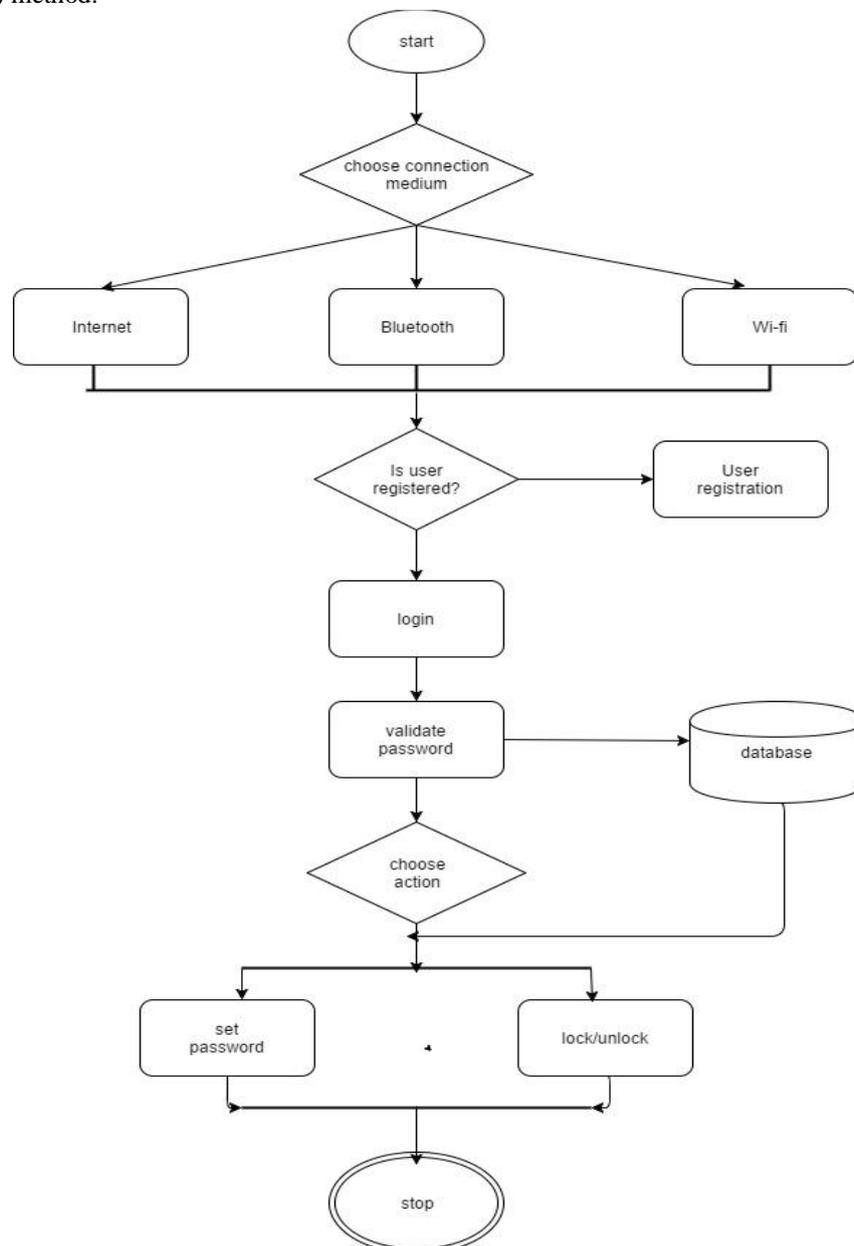
III. PROPOSED SYSTEM

The proposed system allows user to remotely lock and track the system from a mobile phone. The proposed system will provide an android based remote locking system which will increase the security of user's access to the computer. The user can unlock/lock the screen of the computer from an android phone using different types of passwords like text based password, pin, pattern, or just click. The user can lock the screen of the laptop when far away from the computer through internet.

The system deals with the interfacing of android mobile having version 2.2 and above with the PC using Wi-Fi. For this some steps like pairing, handshaking, port assigning and socket programming should be performed. Inter-Process Communication technique will be implemented for communication between two processes. The system will be such that the PC will act as a server and the android phone will act as a client. In which, the server application has been implemented in Java and client application in Android. Once pairing of the devices is done then by using socket programming one can send commands to the server. After receiving the commands the server would take necessary actions to lock or unlock and also helps to control various applications running on the system.

Socket programming:-Socket programming is used in networking. Sockets provide the communication mechanism between android phone and computer system using TCP. At first socket is created at the client side and with the help of this socket attempt of establishing connection with the server is initiated. After the connection is established socket is created at server side also. Now after this the client and the server can communicate by sending messages to each other. The server instantiates a ServerSocket object, which denotes the port number on which the communication is to occur.

- The accept() method of the ServerSocket class is invoked by the server. This method waits until connection is made between client and server on the given port.
- After the server is waiting Socket object, is instantiated by the client specifying the server name and the port number to which the connection is to be established.
- Connection of the client to the specified server and the port number is attempted by the constructor of the Socket class. After the establishment of the connection, the client now has a Socket object which helps in communication with the server.
- On the server side, a reference to a new socket on the server that is connected to the client's socket is returned by the accept() method.



After connection establishment communication can be achieved through I/O Stream. Each socket has both an OutputStream and an InputStream. OutputStream of the client is connected to the InputStream of the server and the InputStream of the client is connected to the OutputStream of the server.

Java Swing:- Java Foundation Classes (JFC) contains java swing with the help of which window-based applications can be created. It is completely written in java and is built on top of AWT API. Java swing produces platform-independent and lightweight components.

Encryption Algorithm:- National Security Agency (NSA) created SHA-2 (Secure Hash Algorithm 2) which is a set of cryptographic hash functions. It works similarly as SHA-1 but it is stronger and also produces longer hash than SHA-1. A hash function is a reproducible method of turning some kind of data into a (relatively) small number that may serve as a digital "fingerprint" of the data. The algorithm "chops and mixes" (for instance, substitutes or transposes) the data to create such fingerprints. The SHA hash functions are five cryptographic hash functions - SHA-1, SHA-224, SHA-256, SHA-384, SHA-512. Hash algorithms compute a fixed-length digital representation (known as a message digest) of an input data sequence (the message) of any length. Any change to a message will, with a very high probability, result in a different message digest.

Advantages

- User can remotely lock/Unlock the desktop
- User can track activities of guest users
- User can choose from a variety of passwords.

IV. SYSTEM IMPLEMENTATION

Modules

- Authentication
- Desktop Lock/Unlock
- Desktop tracking
- Password selection

1. **Authentication:-** The user begins by registering via a code generated in the server application. The User then enters IP Address to connect to the server application. The user is validated by checking code entered by him. The server application is connected to only one device only and only he can unlock/lock the pc.
2. **Desktop Lock/Unlock:-** In this operation the user can lock or unlock the desktop screen. No one can access the screen until the correct password is provided. The password provided by the user is validated in the server application.
3. **Desktop tracking:-** In case the user wants to provide access to other user he can generate one time password. This OTP will be entered by the other user and he browse the desktop. For security purpose the video will be tracking his activities. this video can later be view by the owner.
4. **Password selection:-** In this operation the user can select from a number of password choices ranging from pin, text, pattern or fingerprint.

V. CONCLUSIONS

Emphasizing security as a crucial part in today's hacking world, up gradations are done for locking devices. Making use of recent and advanced technologies has given a new dimension to the stated purpose. The most trending Smartphone technology is been brought in use for one more purpose apart from the one always being used. Besides entertainment and information utility aspect of Smartphone devices, they can also serve the purpose of unlocking the Computer. Wi-Fi technology will be adding an additional feature to the proposed module. The price of chipsets for Wi-Fi continues to drop, making it an economical option included in even more devices. Computers and many other devices, including smart phones and PDAs, can be connected to the wireless Wi-Fi device. Having least limitations and more superior level of safety attribute makes it more reliable. It provides an overall satisfaction to the user.

This project aims to develop an android based computer locking system which will operate over wifi, bluetooth and internet. The proposed system will provide an android based remote locking system which will increase the security of user's access to the computer. The user can unlock/lock the screen of the computer from an android phone using different types of password like text based password, pin, pattern, or just click. The user can lock the screen of the laptop when far away from the computer through internet.

The system will be such that the PC will act as a server and the android phone will act as a client. In which, the server application has been implemented in Java and client application in Android. Once pairing of the devices is done then by using socket programming one can send commands to the server. After receiving the commands the server would take necessary actions to control various applications running on the system.

ACKNOWLEDGMENT

I would like to thank my mentors and my project mates who have helped in completing this project. While working on this project we have learnt about new concepts and technologies which would help in our future endeavours.

REFERENCES

- [1] K.ArunKumar,S.PratheepaDevapriya "Remote Desktop Monitoring Using Mobile Phones", International Journal of Innovative Research in Engineering & Science (September 2014, issue 3 volume 9).

- [2] Amruta A DongaleSachinS.TakmarePrajakta S Devkar “Remote Desktop Access Through Android Mobile Phones and Reverse”,IJIFR/ V2/ E8/ 021.
- [3] ShubhamBidya , Nikhil Sonawane , NandkishorShegokar , PrashankBhosale , Prof. AnisaaraNadaph “Remote access to PC using Android phone”,International Journal of Innovative Research in Computerand Communication Engineering,Vol. 2, Issue 4, April 2014.
- [4] Angel Gonzalez Villan, and JosepJorba “Remote Control of Mobile Devices in Android Platform”,arXiv:1310.5850v1 [cs.HC] 22 Oct 2013.
- [5] Jaya Bharathi chintalapati1, SrinivasaRao T.Y.S2 “Remote computer access through Android mobiles”,IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 5, No 3, September 2012.
- [6] Mahesh Deshmukh , DaminiJawale , Shruti Joshi , Prof. P.S. Kulkarni “Android Based Wireless PC Controller”,International Journal of Computer Science and Information Technologies, Vol. 6 (1) , 2015.
- [7] Onkar Mule, NihalShaikh, Pratik Shinde, AmitWagaskar, Prof. SnehaRamteke “Remote Access of Android Smart Phone”,International Journal of Computer Science and Information Technologies, Vol. 7 (2) , 2016.
- [8] Karan SandeepBhandari, Vishnu BaliramMandole, AkashDattatrayMunde, Sachin B. Takmare“Remote Desktop Access through Android Mobiles and Android Mobiles Access through Web Browser”,International Journal of Computer Science and Information Technology Research ISSN 2348-120X (online)Vol. 3, Issue 1, pp: (369-373), Month: January - March 2015.
- [9] Dr. KhannaSamratVivekanandOmprakash“Concept of Remote controlling PC with Smartphone Inputs from remote place with internet”,International Journal of Advanced Research in Computer Science and Software Engineering Volume 2, Issue 1, January 2012
- [10] SareddyDeepthi, A. Vasanthi“Mobile Phone Controlling PC-A Review”,IJCSMC, Vol. 1, Issue. 1, December 2012.