Journal of Network and Information Security
6 (2), December 2018, 15-19
http://www.publishingindia.com/jnis

Remote Access to PC Using Android Phone

Himanshu Shekhar[1], Mahesh Wawre[2], Mangesh Kakade[3], Sumit Kadam[4*] and S. B. Jadhav[5]
[1]Student, Information Technology, Sinhgad Institute of Technology, Lonavala, Maharashtra, India.
Email: himanshuishu07@gmail.com
[2]Student, Information Technology, Sinhgad Institute of Technology, Lonavala, Maharashtra, India.
Email: maheshwawre40@gmail.com
[3]Student, Information Technology, Sinhgad Institute of Technology, Lonavala, Maharashtra, India.
Email: mangeshkakade1994@gmail.com
[4]Student, Information Technology, Sinhgad Institute of Technology, Lonavala, Maharashtra, India.
Email: sumitkdm8@gmail.com
[5]Professor, Information Technology, Sinhgad Institute of Technology, Lonavala, Maharashtra, India.
Email: sbj.sit@sinhgad.edu
*Corresponding Author

Abstract: In this paper, we explain Remote Desktop is actually popular technologies in most over entire world. We currently have numerous handheld control software which can provide the alleviate to manipulate together with examine some kind of gadgets easily together with effortlessly. In this particular paper proposes the most up-to-date buildings intended for handheld control concerning android operating system cell phones had been created together with completed. By using this application it's possible to Shut down, Reboot and also Firewood away from out of the way consumers applying Android sensible telephones. The particular proposed structure furthermore trades the actual data between consumers PC in order to Android Smartphone's. The principle aim with this paper is actually Screenshot catching and also reside surging in the focused PC.

Keywords: Android, Java, Nano-HTTP, Wi-Fi.

I. Introduction

Basically, a mobile phone was used for voice communication nowadays scenario has changed, voice calling or voice communication is just one aspect of a mobile phone. There are other aspects which are the major focus of interest. Such major factors are web-browser, GPS, WIFI, sensor, gesture, and mobile security. These functionalities are already implemented by manufacturers not from users because of proprietary issues, the system does not allow the user to access the mobile hardware directly. But now, after the release of the open-source Android-based mobile phone a user can access the hardware directly.

A user can design customized native applications to enable the inbuilt services or access the mobile phone functionality and can program the other hardware components like Camera, Sensors, GPS, and WIFI etc. This paper describes an Android application designed to control the Remote Desktops. Technological developments have enabled the creation of mobile phone devices with the technical features which were previously conceived only in personal computer architecture. With this application, here comes the need to integrate these devices so that interaction between the PC and mobile can be monitored and a better interaction can be accomplished. One of the most widely used mobile OS these days called "ANDROID". Android is not just a collection of software but it comprises an operating system as well as middleware and key applications.

II. Features and Specifications

Android is a powerful Operating System supporting a large number of application execute on smart phone, smart devices, smart gadgets, tablet and pc. Some of the current features and specifications of android are:

1. Application framework - it enables reuse and replacement of components.
2. For connectivity GSM/EDGE, IDEN, CDMA, EV DO, UMTS, Bluetooth, Wi-Fi, LTE, NFC and WIMAX.
3. Dalvik virtual machine which is optimized for mobile device.
4. Integrated browser which is based on the open source web kit engine.
5. Optimized graphics to support custom 2D, 3D graphics library.
6. SQLite.
7. Media support.

8. Messaging using SMS and MMS.
9. 3G, Wi-Fi, camera, GPS, compass etc. are some more applications.

Application: This application developed is divided into two parts, the first part includes handling desktop using application in Android and the second part is manipulating mobile phones through android browsers as well as any web browser.

A. PART-A

While handling of remote desktop a LAN connection has to be established, that is all participating devices like android phone and pc are supposed to be in same network. This can be done by using a Wi-Fi hotspot connection or any method available like using routers of depending on speed of connection the performance of application is decided. Once connection is established server has to be started on the pc or laptop and client application will be started on android device. By using Socket primitives like Socket, Bind, Listen, Accept, Connect, Send, Receive, Close, Communication among the client and server takes place. (*Fig. 1 Server with port number and IP Address*) Once connection is fully established the server indicates the "PORT NUMBER and IP ADDRESS" which are to be inserted into client application which helps unique connection among pc and android device. Once connect option is selected on android application the application will enter into manipulation phase for desktop. (*Fig. 2 Client with port number and IP Address*) this allows us to handle typing mouse pointer manipulation using touch screen as well. The connection can be terminated by using disconnect option provided on server side. Only problem may occur in this is conflict of Port numbers and/or IP Address used during connection.

Fig. 1: Server Connected Window

Steps for "Part A" Implementation

Step 1: Get devices into same network that is PC and Android.

Step 2: Start Server and get Port number and IP address to insert in client.

Step 3: Match both client side and server side addresses and click on connect.

Step 4: Manipulate the device as needed.

Fig. 2: Client Connection Window

(A): Keyboard and Mouse

(B): Left-Click (L) and Right-Click (R)

Fig. 3

B. PART-B

Other half of this is handling of android phone using similar LAN connection. Once devices are in same network the server is started on android device which indicates connection address in form of a web address. This address includes IP address and Port number. *E.g.: - http://192.168.2.3:7070.*

This address is entered into web browser's address bar which will make connection to server. As in this server provides functionality for live camera and handling music player and its volume controls as well as retrieve previously send text messages as well.

Fig. 4: Services on Android Mobile Device

The services provided by android app are shutdown server, reboot server, open MS Paint, MS Word file, and MS PowerPoint files on server. It supports file upload with minimum memory overhead. It has blocking mode and is a multi-threaded application.

Steps for "Part B" Implementation

Step 1: Get devices into same network that is PC and Android.

Step 2: Start Server and get Port number and IP address to insert in clients Web browser.

Step 3: Match both client side and server Addresses and click on go or press Enter key to visit address provided by server.

Step 4: Manipulate the device as needed.

III. Working of Device

This system consists of two software programs: one server program running on a desktop PC or laptop PC that is to be controlled remotely; and one client program running on a cell phone to be used as the remote controller. The server process starts listening on a well-known TCP/IP port after being started up on the desktop PC. A cell phone user has to know the IP address of the desktop PC and the well-known port number for being able to connect to the desktop from the cell phone.

Fig. 5: Connection

A username and password is required for the user to login to the system. The server process asks the client process a username and password, and then authenticates the user.

If the client gets logged in to the server successfully, other operations can be executed and controlling of the PC can start for this, the client first requests the current state of the PC screen. It sends a Send New Image command to the server to obtain the view of the desktop PC. Upon receiving such a command from the client, the server captures the image of the screen, resizes it according to the dimensions of the client's screen, Then the server sends Image command to the client including the size of the image in bytes, and the binary data corresponding to the image.

This mechanism, i.e. waiting for an image to be downloaded before sending the next request for another image, is a simple flow control mechanism between the cell phone and PC. Another alternative could be requesting images periodically; but then the period should be adjusted depending on the speed of cell phone and the bandwidth of the wireless link. The mechanism that we use and available bandwidth. After getting the View of the PC, the cell phone user can start doing some control operations. Those include mouse operations and keyboard operations a mouse operation is triggered when the cell phone user touches to the screen of the cell phone that has the PC image.

Additionally, the cell phone user has a GUI through which he/she can indicate whether she would like to emulate a left mouse button press event or a right mouse button press event. Then the mouse operation and location is transported to the server which converts the mouse position to a point on the PC screen. Then the server sends a mouse event to the PC operating system and appropriate action is executed on the PC. Similarly, a keyboard

operation can be triggered when the user presses on a key on the cell phone keyboard. The appropriate keyboard command is conveyed to the server which in turn sends keyboard events and character codes to the PC operation system.

The devices must be connected to the same Wireless network. Once the devices are connected, you can open the file browser from your Android phone and start controlling from mobile.

Fig. 6: Control Operation

IV. Control Command and Dataflow

A command is sent in a message and represented with a string followed by a new line character. The commands Login, Error, Okay and Not Okay are used at the beginning of client server handshake and authentication. The Error command indicates an error condition and is used in other phases as well. The Left Click, Left Double Click, Right Click, Right Double Click, Mouse Left Down, Mouse Left Up, Mouse Right Down, Mouse Right Up, Mouse Move commands are mouse related commands and are used to control the mouse pointer on the desktop PC screen.

The relative location of the pointer on the cell phone screen is sent to the server side and the server calculates the actual location on the desktop screen. Key Down and Key Up commands are keyboard related commands and are used when the user would like to provide keyboard input to the PC applications via the cell phone keyboard panel. For that, the character code of the key is sent inside a command to indicate which key is pressed. Since the screen size of a cell phone is much smaller than the screen size of a desktop PC, the screen view of the PC has to be scaled down, and this may cause a low quality image to be presented on the cell phone screen. Therefore, supporting zooming of the screen image is an important feature to have on the client side.

V. Proposed Architecture

Android devices by just using a web browser, which can even be of an android mobile as well. Remote Desktop Access supports handling of a computer by using a keyboard, a mouse that is just by touching mobile screen we can handle mouse desktop even the keyboard provides typing functionality as well. Both parts of an application that is while accessing a desktop, a server needs to be on to PC and while handling the Android phone, a server needs to be on Android Device. A server must to interpret all events received from a client and inject them into self-system. We access all functionality of a computer by simply connecting both devices (PC, Mobile Phone) to router this all connection is without internet.

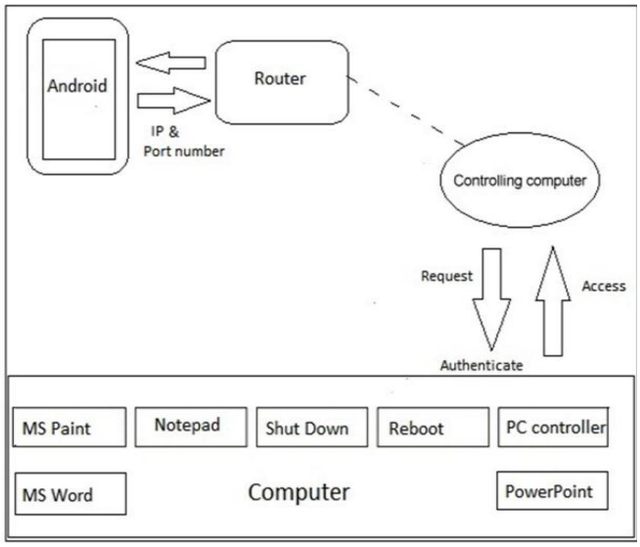

Fig. 7: Proposed System Architecture

A. Desktop Handling and Android Device Manipulation

In first part of this application we can access desktop and do handling of features like keyboard and mouse, and other part would allow the web browser on Android as well as Desktops to access Android device.

B. Pointing and Clicking

The user can move the pointer on the remote desktop display vertically and horizontally by using touch screen of Android mobile. Single click-Double click are also implemented and buttons for Right and Left click are also provided.

C. Inputting Text

Text is entered locally on the cellular phone using the built-in text input capability of the cellular phone. This allows doing any type of typing of data as well.

D. Android Device Manipulation

Android device is accessed its camera is used for live images and also its music player Text is entered locally on the cellular phone using the built-in text input capability of the cellular phone. This allows doing any type of typing of data as well.

References

[1] D. Gavalas, and D. Economou, "Development platforms for mobile applications: Status and trends," *IEEE Software*, vol. 28, no. 1, pp. 77-86, January-February 2011.

[2] M. Butler, "Android: Changing the mobile landscape," *IEEE Pervasive Computing*, vol. 10, no. 1, pp. 4-7, January-March 2011.

[3] A. G. Villan, and J. J. Esteve, "Remote control of mobile devices in android platform," *IEEE Transactions on Mobile Computing.* Available: http://openaccess.uoc.edu/webapps/o2/bitstream/10609/8131/1/Angonzalez_TFM_0611.pdf

[4] C. Navasare, D. Nagdev, and J. Shree, "PocketDroid - A PC remote control," *2012 International Conference on Information and Network Technology (ICINT 2012),* vol. 37, IACSIT Press, Singapore, 2012.

[5] K. S. V. Omprakash, "Concept of remote controlling PC with smartphone inputs from remote place with internet," *International Journal of Advanced Research in Computer Science and Software Engineering*, vol. 2, no. 1, 2012.

[6] A. Jadhav, V. Oswal, S. Madane, H. Zope, and V. Hatmode, "VNC architecture based remote desktop access through android mobile phones," *International Journal of Advanced Research in Computer and Communication Engineering*, vol. 1, no. 2, pp. 98-103, April 2012.

[7] N. M. Bornstein, ".NET & XML," O'Reilly Media, November 2003.

[8] W.-M. Lee, *Beginning Android 4 Application Development*, Wrox Publication, March 2012.

[9] B. A. Forouzan, *Tcp/Ip Protocol Suite*, McGraw-Hill, 2003.