COMPDROID -Remote Desktop Access through Android Mobile Phone

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Abstract: In this paper we will enlist the process to access the remote desktop through android mobile phone. This will be done through networking. User can access the desktop and manipulate the desktop, capture the screen, zooming and panning, transfer the files through any part of world due to network connection irrespective of various platforms like windows, linux, mac. For this purpose the COMPDROID developed by us will be installed on user's Android mobile phone and servlets are invoked on server side i.e. remote desktop. We are also providing application shortcuts for those applications which are frequently used.

Keywords: Android, Mobile, Desktop, Internet, Networking, Servlets

I. INTRODUCTION

Nowadays phones are used worldwide and provide many applications which were earlier provided only by desktops or laptops. These smart phones has brought a big change in the technical field. The most popular design earlier used is VNC (Virtual Networking Computing) but here we are using more generalized architecture which is applicable for many operating systems. And here we are making a app for Android mobile phone named **Compdroid** which must be installed on our phone. Here we are using TCP protocol to provide security and OTP.

In Today's era the Smartphone based on android platform plays great role in the technical field, which also provides various applications. The main aim of the application is to remotely access and control different applications connected through internet. The user installs compdroid app on android mobile phone and servlets are invoked on remote desktop. Both the applications are to be developed in Java, Netbeans on server and eclipse on client. To test our application at different level of construction we will use

AVD (Android Virtual Device) that can run on desktop.

In this paper we describe the system which can access the screen from remote desktop from anywhere. The functions provided are screen capture, application shortcuts, keyboard shortcuts, mouse movements, zooming and panning, file transfer. This system will be implemented on Android software stack. The security will be provided by OTP (one time password).

Architecture:

Client server Architecture in which client send the request and wait for server to respond.

After receiving response client can resume its processing. In this type of architecture many clients (remote processors) request and receive service from a centralized server (host computer).

Client computers provide an interface to allow a computer user to request services to the server and to display the results, the server returns. Servers wait for requests to arrive from clients and then respond to them. Today clients are often situated at workstations or on personal computers, while servers are located elsewhere on the network, usually on more powerful machines. This computing model is especially effective when clients and the server each have distinct tasks that they routinely perform.

Whenever user wants to access the system, he runs the application on his android phone and broadcast the request to establish the connection on the network using IP address and the server whose IP address matches the broadcasted IP address will accept the request. Then server sends an OTP message for authentication to the client and when it is validated then the connection is established.
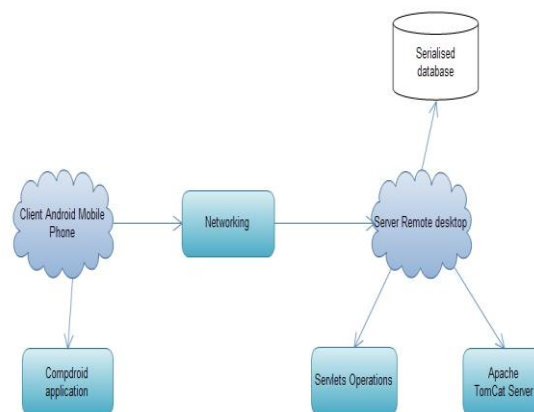

Fig. System Architecture

II. HARDWARE ARCHITECTURE:

We are using this hardware for 2 purposes

If remote desktop is turned off, we want to explicitly turn on the remote desktop and access it. Then GSM modem is used which is used to trigger the event and power on the machine.
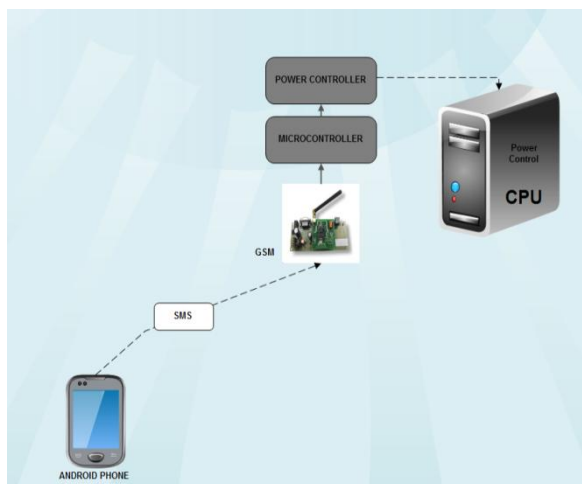
Fig. Hardware Architecture

III. EXISTING SYSTEM

There have been a number of research projects related to the use of the cell phone for accessing remote desktop. Almost all the system uses the VNC architecture for communication between cell phone and remote desktop.

Virtual Network Computing is a graphical desktop sharing system providing remote control via network. It supports a controlling functionality by usage of a graphical screen update from a controlled device and capturing a mouse and/or a keyboard. VNC system is based on RFB (Remote Frame Buffer) protocol to transmit all information between connected devices.VNC system required two type of application for a proper work - server application for a machine under control and client - for a supervisor (controlling) device. Client side is called viewer because of its functionality. Controlling machine is responsible for viewing a shared desktop (or screen in general) and capturing and converting all user activity into the RFB protocol messages. On the other side, server must to interpret all events received from client and inject them into self system. Server should also respond to graphic screen update request by sending back a desktop view to connected client. The cellular user can see and manipulate the desktop on the android phone. The same cellular phone to talk someone, the user must terminate the network connection.

IV. PROPOSED SYSTEM

In earlier projects VNC architecture is used which is basically implemented on Linux Operating system, but we are building a more generalized system which is based on Client server architecture.

Previous projects can't turn on the remote desktop explicitly but we are providing the same using GSM modem.

The modules used in our project are as follows:

Module 1:Login

It is the first module which the user will face. The login module contains the User ID and Password which on verification by server will provide the authentication to user.

If you need to secure an application you have developed, you can do this using your own login module. This login module allows you to perform authentication. We are using Java for creating our modules with the J2EE Engine.

The login modules must compare a client-supplied password to a password stored in a user management system. These modules generally work with plain text passwords, but can be configured to support hashed passwords to prevent plain text passwords from being stored on the server side.

Module 2: Capturing Image

A screen dump, screen capture, screenshot, screen grab, or print screen is an image taken by the computer user to record the visible items displayed on the monitor, television, or another visual output device. Usually, this is a digital image using the operating system or software running on the computer, but it can also be a capture made by a camera or a device intercepting the video output of the display. That latent image converted and saved to an image file such as to JPEG or PNG format is also called a screenshot.

This module will take a screenshot of the remote desktop and then using the scaling algorithm it is resized according to the mobile resolution and sent to the client mobile. This information is updated as the screen changes or according to the timer. If the timer is set to 2sec then the server will send a new screenshot after every 2sec to the client android mobile.

Module 3: Forward Keyboard Shortcuts

This module uses the reference of the keyboard shortcuts.

Typing "Ctrl+c" is very difficult or we can simply say it's impossible, hence we are providing the same to the user for its better convenience. This module will store the ascii code of the "ctrl" and "c" in the proposed shortcut and whenever the user will press the shortcut then the server will forward the code to the user desktop machine.

The basic keyboard shortcuts we are providing to the user in this module are:

Name of Shortcut	Shortcut
New window	"Ctrl+n"
Copy the selected text	"Ctrl+c"
Paste the copied text	"Ctrl+v"
Cut the selected text	"Ctrl+x"

Module 4: Mouse Operations

The mouse operations are very basic operations for the user and provide a great comfort to the non-professional user while interacting with computer, hence this module is included in our project.

As the right-click and double-click is very difficult on mobile phone, so we are providing the shortcuts of the same. We are just storing the key value on the server machine and whenever user will press the shortcut then the key value is passed to the application.

The basic mouse operations shortcuts we are providing to the user in this module are:

Name of Shortcut	Shortcut
Left click	Mouse Left click
Right click	Mouse Right click
Double click	Mouse Double click

Module 5: Text on Fly

The meaning of text on fly is literally the text is flying. Here the text is flying from the client machine to the server machine.

The basic idea is user will type the text on the client mobile in a textbox and whenever the user is conformed with its text then that text is sent to the remote desktop.

Module 6: Application Shortcut

Application shortcut are created for accessing various application like for accessing notepad, MS-Word, Games, etc...

These help by saving time and reducing the complexity as the applications which are most often used are stored as shortcuts so that to operate the application only shortcut will do (no need to follow same lengthy path all the time).

Application :

- Help in file transfer between remote machine and your cell phone.
- Secure access by way of authentication.
- Allows encrypted transactions.
- Can power ON and OFF the remote desktop.
- Application shortcuts are created for various applications like games, MS word, Notepad etc. which are frequently used.
- OTP is used which gives higher security.

Future scope :

- In future Home appliances can be controlled using Compdroid.
- We can use this system in colleges for sharing the remote desktop by student during practical's.

V. CONCLUSION

This application will provide easy access to remote desktop and with security using OTP. This will be implemented on internet so that can be accessed from any part of world. Due to wide use of android devices this will be developed for tablets and handheld devices. Also this application will provide platform independence as server can have any operating system Mac, linux, windows etc. Thus the extended scope of this system will prove to be helpful in providing mobiblity and accessing the remote desktop over the internet.

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