# Design and Development of Remote PC Control

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**Abstract -** In this project we will introduce the process to access the Remote PC/laptop(server) using android mobiles(client). It use's TCP Socket(Via Wi-Fi) to establish connection between Smartphone and laptop. As we know that Java and android both are open sources hence server application is implemented in Java and client in android. In this project we can access Remote desktop using android mobile phones within the Wi-Fi range. There are several functions provided on android phones like Mouse Controls, Type text(Keyboard), Transfer files, Download files, Use laptop as a speaker to play mp3 files of phone, Use laptop as a Image viewer, Presentation Controller, Suspend, Restart or Shutdown laptop using Smartphone.

*Key Words***:** Remote PC Control, Java, Server-Client, Wi-Fi, Remote Desktop, Android, IP.

## 1. INTRODUCTION

Electronic devices and personal computers became inescapable part of day to day life. Controlling electronic devices and computers wirelessly is an important aspect of the technology.

Client side is the Android which is a mobile operating system developed by Google, based on the Linux kernel and designed primarily for touch screen mobile devices such as Smartphone's and tablets. Android's user interface is mainly based on direct manipulation, using touch gestures that loosely correspond to real-world actions, such as swiping, tapping and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input.

The server is the java based and cross platform application. It provides the interface by which the user can connect with client application. The server continuously listens to the connected port for the packets sent by the client application and parses them to recognize the events and performs the respective operation on the computer system.

Many times while giving presentations either one has to be dependent on other person to change slides or he has to change it manually. So by using this proposed system, user can easily control presentations and it also provides a function to transfer android files to the desktop and vice versa, to play media player on the laptop and to view gallery of Smartphone. The

Smartphone applications can transfer commands to PC using the device communication mechanisms such as Wi-Fi. That way, the person can interact with electronic devices using a Smartphone .With use of this android application, one can control all the PC/Desktop applications.

## 2. System Architecture

The application consists of mainly two parts one is the client (android device) and the other is server (Laptop system) which will be connected via Bluetooth or Wi-Fi. The client–server architecture of computing is a network system that distributes tasks between the providers of resource or services, called servers, and requesters, called clients. The clients and servers communicate with a network on separate hardware. A server runs many server programs which share their resources with their clients. A client does not share any resources, but requests the server's content or service function. Clients therefore initiate the communication sessions with servers which always await the incoming requests.

Networking process can be implemented only by using the concept of Socket Programming. In order to provide communication between the computer and the mobile device, Sockets are being used. This can be done using the Transmission Control Protocol (TCP) as shown in the Fig. 2.1. First, a socket is created at the client-side to establish a connection with the server. Socket is also created at the server side. Now, the client and the server communicate by means of sending messages between themselves. Server_Socket object is created by the server which detects the port number at which the occurrence of communication happens.
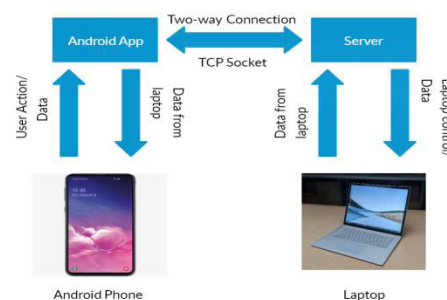


Fig. 2.1: Working Model
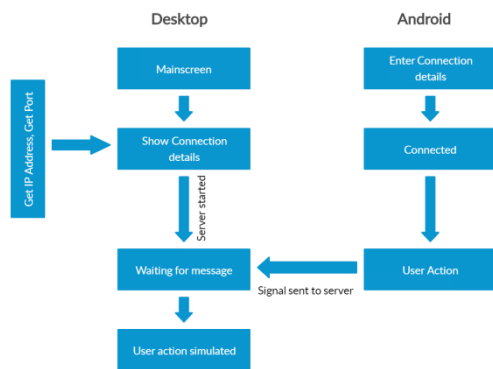
## 3. Design and Methodology



Fig. 3.1: Activity Diagram

In desktop window we get a main screen which shows the connections details like the IP address and the port number which are required to get connected to android device. When the IP address and port number are fetched the server starts and waits for the message from the client to perform the actions required. In the android side we get a window to enter the IP address and port number to get connected to the desktop. If correct IP address and port number are entered it gets connected to the desktop and can perform user actions which will be sent to the server side. When the signal sent by client is received by the server it stimulates the events/actions requested by the client.
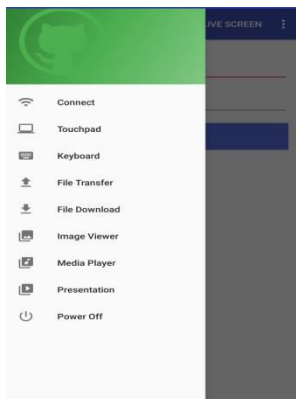


**Fig. 3.2: Modules**

As shown in Fig. 3.2, our project consists of 8 modules :

1) *Touchpad* : The touchpad module has a left click and a right click key in it. The touchpad in the mobile devices gives a perfect result to control the mouse pointer. So the functioning of mouse is mapped on the touch screen of the android device. To control the pointer on the computer system the android gestures are used. When the finger moves on the touch screen the same movements can be seen on the desktop with the pointer(mouse).

2) *Keyboard* : The keyboard of the computer system is mapped on the soft keypad of the android device. The android application records the keystrokes of the android soft keypad. As the user type any key on the android soft keypad the respective key will be typed on the computer system. Apart

from the soft keypad keys we have some shortcut keys like Enter, Ctrl, Alt etc, made available in the screen of android.

3) *File Transfer* : This is one of the most important module of android mobile. Through this module suppose we want to transfer some important documents or file of android mobile to desktop then by just selecting that documents we can send that documents to remote desktop through this module. In this we can select documents through different folders of android mobiles and transfer to desktop.

4) *File Download* : Here we can download the documents or files which are available in desktop to our android mobiles, when we click on the file download navigation as shown in fig. 3.2, it shows all the folders present in desktop on the android mobile screen. We can select the documents or files which is required and it gets downloaded to the mobile.

5) *Image Viewer :* In this module we can view the gallery of the android mobile on to the screen of the desktop. We get all the images available in the android mobile and the image to be viewed on to the screen can be selected from the list and it gets displayed on to the screen of the desktop.

6) *Media Player* : The media player controls are mapped with use of the keyboard shortcuts on the media player controller buttons. The remote will show all the buttons used for the controlling the running media player. Whenever a button is pressed or released the server will perform respective function.

7) *Presentation* : The presentation controller provides the interface to control the running presentation, it has controls to go to next slide, previous slide etc. It also has a F5 button which helps to view the presentation in full screen mode.

8) *Power off :* This module consists of four options, shutdown options shuts off the desktop when the button is clicked from android phone similarly, restart button restarts the desktop, suspend button suspends(sleep) the desktop and the lock button locks the desktop when user wants to.

## 4. CONCLUSIONS

This application makes the android Smartphone a wireless remote for our computer system. We can easily handle the computer controls with the use of this application. The media players in the computer system will be controlled with the help of this application. The software is capable of removing most of the limitations of the previously developed software. This software is capable of controlling the computer much efficiently. Most of the media players can be controlled with the use of this application. All the controls defined in this paper are successfully implemented on this software. Our main aim is to improve the quality of previously developed android remotes.

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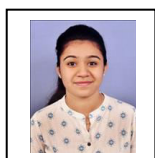
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### Project Guide :

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