



## **Remote Droid Android Joystick**

**Uma Goradia<sup>1</sup>, Roshni Dubey<sup>2</sup>, Suchita Dhuri<sup>3</sup>, Ankita Singh<sup>4</sup>**

*<sup>1,2,3,4</sup> Dept. of Computer Engineering, Shree L.R.Tiwari College of Engineering*

**Abstract**—Wireless Droid is an Android application which enables users to use their Android mobile device act like a real joystick. It provides a solution to establish a wireless connection between Android mobile device and server computer. Whenever the server receives correct message, the server will simulate a virtual joystick input signal. The objective of this thesis project is to develop a smart phone joystick which enables people to use a smart phone application to do the joystick job. Different with real joystick, it is wireless. All functions expected are carried out and performed perfectly. It can send messages from mobile devices to target server and simulate joystick input correctly without any delay. All of the objectives are achieved.

**Keywords**—Joystick, Wi-Fi, Android phone, Keyboard, Mouse, Window Operating Systems.

### **I. INTRODUCTION**

This project idea is to develop an Android application that can manipulate as a joystick. It communicates with server computer through web service technology so that there will be no distance limit. The background of this topic can be divided into 3 parts

- **Software aspect:** There are most popular smart phone operating systems nowadays. iOS and Android is open source, and compatible with many different companies products. From the user experience to see, Android can meet their needs and easy to use. This proves the Android system is mature enough already. That is the reason this thesis project is developed with the Android platform.
- **Hardware aspect:** The Android operating system is compatible with almost all smart phones and Based on this situation, this application is designed for mobile devices which have a touch screen resolution.
- **Telecommunication aspect:** When 3G network came out a few years ago, smart phone users experienced a lot of benefit from it. All of them had successfully carried out a WIFI module for every new smart phone. All mobile devices produced currently can access to wireless routers. To establish a wireless controller with a mobile device, Bluetooth is possible. But due to its range limit is too small, 9 and it will require a Bluetooth in target computer, that is not convenient. So, Bluetooth technique is abandoned in this project.

Besides, here we provide an additional feature where different players will play different games simultaneously on the same desktop. This is basically an application, thus acts as an added feature in an android phone. People will not buy a phone just to have this application. Since it just transmits Wi-Fi signals and doesn't play the actual game on the mobile phone, the resources used are significantly less and thus it consumes negligible power.

### **II. REVIEW OF LITERATURE**

#### **2.1. Present Scenario**

We have studied various IEEE and white papers so as to research regarding the various aspects of our applications and the possibilities to improve on the operational techniques to implement our application. The IEEE papers which we have referred are as follows.

### **[1] Using mobile phones to control desktop multiplayer games**

This paper demonstrates the use of mobile phones to act as game controllers. The technologies being used are J2ME, J2SE for client side and server side respectively. They have used the Bluewave framework of Bluetooth to send the signals through mobile phones. They have designed four games as using the combination of these technologies. The games performed surprisingly well and there was no lag in the transmission that could cause any delay in the control of the games. The J2ME application was being developed for Nokia Symbian OS third edition.

### **[2] Implementing mobile phone as a multi-purpose controller using 3d sensor technology**

This paper also demonstrates the ability of mobile phones to act as controller. In this paper, the mobile phones have been described as an efficient controller to control many facets other just games. This gives the mobile phones the all-round potential to perform tasks other than the conventional phones. They have recognized the potential of mobile phones to act as equipments which can access files, control the keyboard and mouse. They can also be used to start and stop applications. It is a client-server based application which makes use of powerful java technology to achieve this feat. They have developed a game based on artificial intelligence using the algorithm of Finite state machine and shortest path first. Thus, a mobile phone is being given the status of multi-purpose controller.

## **III. DEVELOPMENT AND METHODOLOGY**

### **3.1. Resources**

The client side programming is done on the Android emulator, Eclipse. We need to install this software and add few plug-ins. The server side application will consists of J2SE program. This application basically has to have the capability of accepting the Wi-Fi signals being transferred by the client application. The Android application for Remote Droid has been developed under the Android operating systems using the Java JDK [12] (Java Development Kit) and it has all the APIs and compiler required for development and deployment of the application.

### **Software Requirement**

**Operating system:** Windows XP, Windows Vista, Windows 7 , Windows 8

Front End : Eclipse SDK

Integrated language : Java

### **Technology used**

#### **Front End**

Eclipse SDK

#### **Back End**

Java Technology (JDK 6.0,Servlet)

### **Hardware Requirement**

This project requires a Desktop and mobile phones to execute the application. The application consists of 2 parts, server side executed in the desktop and client side executed in the mobile phone. In addition to this, we have to make sure that the desktop has the following minimum specifications being met.

Processor: **Pentium/AMD**

Ram : **512MB**

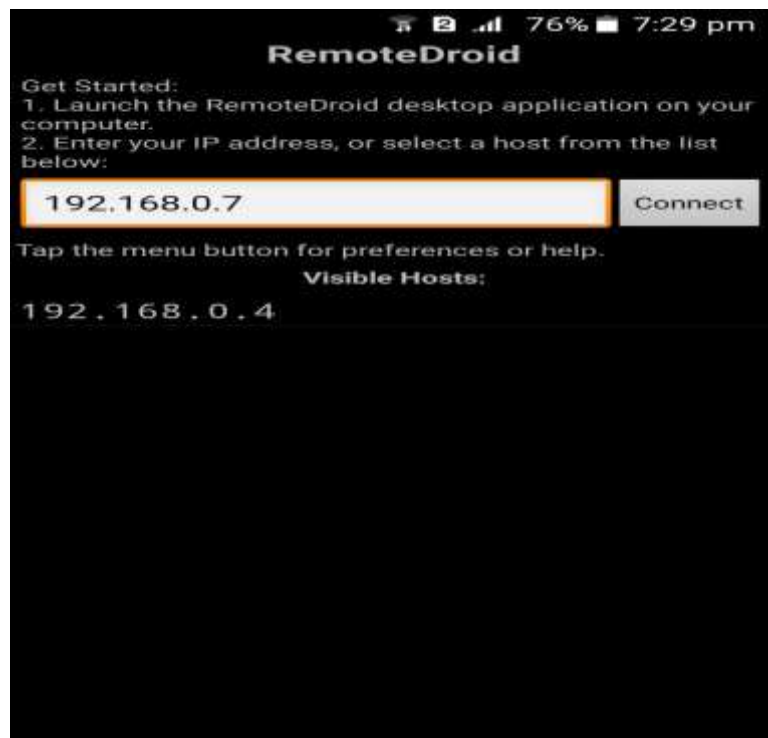
Speed: **233MHz**

Hard disk : **40GB**

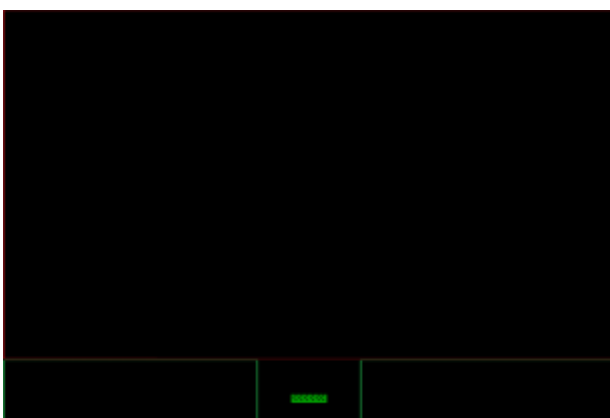
### **3.2. User interface of Remote Droid**

This controller will be able to control any desktop game as opposed to joysticks which control games of the company they are associated with. Since this controller sends the signal through Wi-Fi channel, it becomes more cheap. The user will launch the Remote Droid desktop application on your computer. The user needs to enter the computer's IP address, or it will select the host from list as shown in figure.

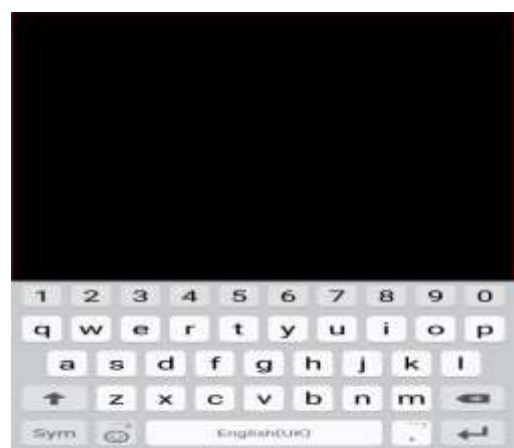
In Fig2. You can see the user interface of the application where user need to enter the IP address of his/her system. Also there will be a list of available hosts in the network that will be listed out in the UI, user can either select the host from the list or can type down the IP address.



*Fig2.UI showing available hosts in the network.*



*Fig3.UI showing touchpad, left mouse button and right mouse button*



*Fig4.UI showing the Keypad*

Fig3. Shows the user Interface where we can see the touch pad, left mouse button and right mouse button which perform various mouse event actions.

Fig4. Shows the user interface where we can see the keypad which can be used for typing, making documents and many other purpose.

## IV. PROPOSED SYSTEM ARCHITECTURE

### 4.1. Mobile Client

The client side application refers to the application which we are going to develop on Android platform. This application will form the GUI through which the user will be able to interact with the server, thereby play the game. The client side programming is done on the Android emulator, Eclipse. We need to install this software and add few plug-ins. The GUI will consist of all the basic keyboards keys and mouse control. Besides, we provide an option for playing different games on the same desktop. Once this GUI is ready, we need to assign each of the keys of the GUI, the corresponding value of the keys on the keyboard. So, once we press any key on the keyboard, the effect of pressing the equivalent key is being realized

### User interface module

#### 4.1.1 Keyboard Simulation

##### ➤ Game Control

This same feature can be used for two purposes; one is for game play and the other is for typing. Since the game accepts controls in the form of ascii values, we need to change the code in such a way that the client sends ascii values to the server and in this way, we achieve game control. For enabling the client to send the ascii values of the keys pressed, we need to set the Unicode format of the application. This allows the client to send the ascii values of the keys being pressed by the user. And since the game requires ascii values to function, we achieve game control in this manner.

##### ➤ On-Screen Typing

For typing, we have made corresponding changes so that the very application is utilized for typing a certain text or doc file. The doc file obviously requires the inputs to be in its actual state, i.e. character form. To make this possible we disable the Unicode format that we have specified for game controlling purposes. Hence, the values of the keys are being sent as it is to the server side. In this way, our application is now able to type in a txt/doc file.

#### 4.1.2 Mouse Simulation

##### ➤ Game Control

Here, we use the mouse to control games. The server side contains separate class files for various mouse events such as the mouse click, mouse drag, mouse hover, etc. We put these classes to good effect to control the games. Since the games also requires the functions such as mouse click, mouse hover, mouse drag, etc. These classes are then being inherited so as to be able to work as a single unit and the game is being controlled with the help of the above functions. The server side application leverages the mouse pointer to enter the system and still act as application control so that the game is being controlled as if actual mouse is driving the mouse pointer.

##### ➤ Power-point slide control

Now, the control of power-point slides requires simple click of the mouse button. Hence to achieve this simulation, only the mouse click event would be called in the server side. The mouse click listener would respond to the click and the power-point slides would function as if it is being

controlled by the mouse. Here, the penetration into the system is required since we are handling software (MS power-point in this case). The robot class is used here to ensure smooth simulation of the mouse pointer. The game control feature requires mapping of the client co-ordinates to server monitor. Since the mouse pointer has to be hovered around as well. But in power-point control, that is not needed.

#### 4.2. Server

The server side application will consists of J2SE program. This application basically has to have the capability of accepting the Wi-Fi signals being transferred by the client application. This application doesn't need a GUI as it would work sheepishly without letting the user realise its existence. Once the connection is being set up , the application has to make sure that proper synchronization between the server and the client has taken place. That means if the client presses any button or scroll the mouse button, the effect of pressing the equivalent key or the mouse event action should be realized. This connection is being done in the server side and server side program is responsible for the linking of the keys and the mouse control. This makes the functional keys perform their task in the particular game.

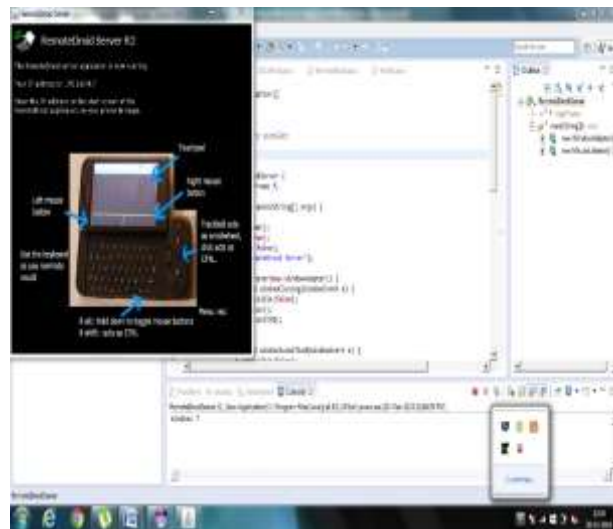


Fig 5. Server Side UI

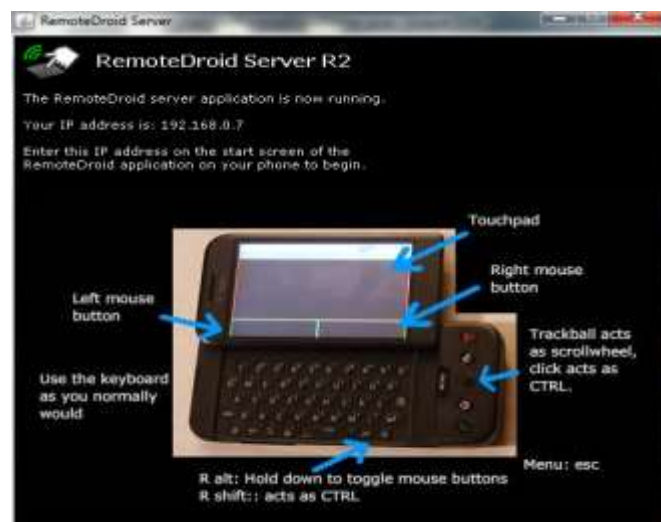


Fig 6. User Manual

## V. RESULTS

The features mentioned in the previous section can be observed in the screenshots taken from a Test runwhile testing the application and have successfully able to achieve the keyboard as well as mouse simulations.Our project aims to explore the mechanism of simulation to the fullest and hence we have been successful in capitalizing in the following areas

### Keyboard Simulation:

#### Game ControlOn-Screen typing



Fig 7.Game control by key board simulation

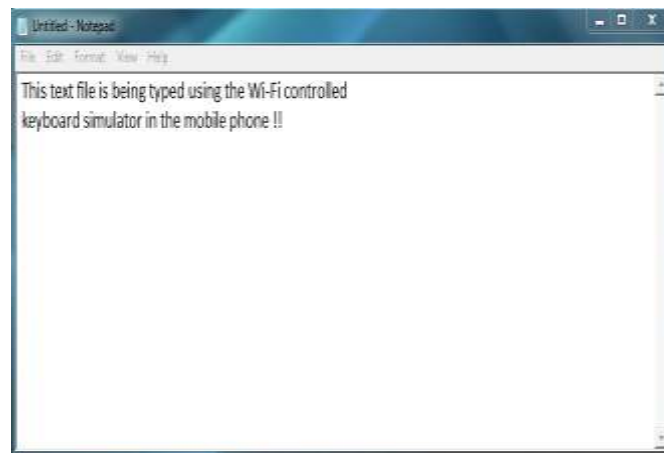


Fig 8. On-Screen typing

### Mouse Simulation

### Power-point Control Game Control





*Fig 9. On-Screen typing by key board simulation*



*Fig 10. Slide control*

## VI. CONCLUSION

When we consider any particular game industry, the notable characteristic is the efficiency they provide the user in terms of performance and affordability. But most of the companies have the joysticks priced very high. So, willing gamers cannot opt for such expensive joysticks. Even if one buys a joystick, that joystick can be used to play the games of the company that it is associated with. In case, we wish to buy the game of some other company, we need to buy a different joystick altogether. We all play desktop games, but they do not provide the multiplayer facility. If two players wish to play in front of the same desktop, then it is not feasible at all. This controller will be able to control any desktop game as opposed to joysticks which control games of the company they are associated with. Since this controller sends the signal through Bluetooth channel, it becomes all the more cheap and less power consuming. Due to continuous hours of game play, the eyes get affected by the radiations releasing from the screen. This controller endeavors to decipher this issue since we will be able to play from a safer distance. The issues encountered otherwise can be overcome by this proposed system, where it provides an alternative to the conventional joystick. Since simultaneously a number of clients communicate with the server, this application provides multiplayer facility. Thus

at a time, number of players can play the game on the same desktop. This is basically an application, thus acts as an added feature in an android phone

## VII. FUTURE WORK

This concept can be further utilized in several areas of application development. Thus, applications with diverse functionalities can be developed using this concept. If we incorporate accelerometers to the proposed application, this would facilitate a more natural way of controlling desktop games. We also intend to implement the support for the OBEX communication protocol, thereby enabling applications built with BlueWave to send and receive more complex information, such as a music or image files. The concept of keyboard simulation can be extended to serve many purposes. We can develop an application which facilitates desktop automation where all the functions of the keyboard and mouse will be controlled by this mobile application. We can use this concept to facilitate home automation as well, but it requires the Bluetooth adapter. The application of screen division can be further extended to achieve better results. System level coding will allow game developers to develop a scenario where multiple instances of the same game can be played on the same desktop screen. Besides, simultaneous viewing and processing of the doc or txt files can be achieved by this concept

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