





## ***PROJECT TEAM WORK***

- 1. Hassan Khairy Hassan Abdullah**
- 2. Mohamed Hemdan Hassan Mohamed**
- 3. Mahmoud Abd El-nabi Mohamed Kotb**
- 4. Mohamed Sarwat Ahmed El-Mesalamy**
- 5. Ahmed Ashraf Ali Hassanien**

## ***SUPERVISER***

**Dr. Ibrahim El-Henawy**

## ACKNOWLEDGMENT

---

We would like to express our gratitude for everyone who helped us during the graduation project starting with endless thanks for our supervisor Dr. Ibrahim El-Henawy who didn't keep any effort in encouraging us to do a great job, providing our group with valuable information and advices to be better each time. Thanks for the continuous support and kind communication which had a great effect regarding to feel interesting about what we are working on.

Also, we would like to say many thanks for Eng. Mahmoud Mahdi for his endless support and his huge effort in contacting and providing us with all what we need regarding information and recent updates for the graduation project needs and the beneficial lectures.

Thanks are extended to all instructors and engineers who helped us during the first stages of our graduation project.

# TABLE OF CONTENTS

---

<b><u>CHAPTER 1 INTRODUCTION</u></b> .....	ERROR! BOOKMARK NOT DEFINED.
<b>1.1 MY VEIWER CTRL FEATURES:</b> .....	<b>2</b>
<b>1.2 ADVANTAGES OF REMOTE DESKTOP CONTROLLING .....</b>	<b>3</b>
<b>1.3 SIMILAR SYSTEM OF REMOTE CONTROLLING .....</b>	<b>5</b>
1.3.1 1. TEAM VIEWER .....	5
1.3.2 2. MOCHA REMOTE DESKTOP .....	6
1.3.3 3. ANDROID PHONE MY PC .....	7
<b><u>CHAPTER 2 BACKGROUND</u></b> .....	<b>8</b>
<b>2.1 MOBILE OPERATING SYSTEM.....</b>	<b>9</b>
<b>2.2 ANDROID .....</b>	<b>9</b>
2.2.1 ANDROID HISTORY.....	10
2.2.2 VERSION HISTORY.....	11
2.2.3 ANDROID USAGE.....	12
2.2.4 BASIC ANDROID PROJECT STRUCTURE .....	13
2.2.5 ANDROID MANIFEST.XML.....	15
2.2.6 STRUCTURE OF THE MANIFEST FILE.....	16
2.2.7 ACTIVITIES AND LAYOUTS .....	16
<b>2.3 OPERATING SYSTEM COMPARISON.....</b>	<b>19</b>
2.3.1 IOS .....	19
2.3.2 BLACKBERRY.....	22

2.3.3 WINDOWS PHONE .....	24
<b>REMOTE CONNECTION METHOD .....</b>	<b>26</b>
2.3.4 BLUETOOTH.....	26
2.3.5 WI-FI.....	31
2.3.6 3G.....	37
<b><u>CHAPTER 3 SYSTEM DESIGN.....</u></b>	<b><u>41</u></b>
<b>3.1 SYSTEM COMPONENTS.....</b>	<b>42</b>
<b>3.2 MOBILE PROCESS COMPONENTS.....</b>	<b>43</b>
3.2.1 CONNECT SCREEN ACTIVITY.....	43
3.2.2 DEVICE LIST ACTIVITY .....	44
3.2.3 DATA COMMAND SERVICE CLASS .....	45
3.2.4 CONNECTED THREAD.....	46
3.2.5 MAIN CLASS ACTIVITY.....	47
3.2.6 ACTIVITY DIAGRAM.....	48
<b>3.3 PC PROCESS COMPONENTS .....</b>	<b>49</b>
3.3.1 SYSTEM TRAY CONTROL CLASS: .....	50
3.3.2 WAIT THREAD CLASS.....	51
3.3.3 PROCESS THREAD CLASS.....	52
3.3.4 IMAGE AND COMPRESS CLASS .....	54
<b>3.4 SEQUENCE DIAGRAM .....</b>	<b>55</b>
3.4.1 SCREEN AND TOUCH SEQUENCE .....	55
3.4.2 OPTION AND SETTING SEQUENCE.....	56
<b><u>CHAPTER 4 SYSTEM IMPLEMENTATION.....</u></b>	<b><u>57</u></b>

<b>4.1 APPLICATION EXECUTION:</b> .....	<b>58</b>
<b>4.2 USER INTERFACE .....</b>	<b>59</b>
4.2.1 SERVER INTERFACE.....	59
4.2.2 CLIENT INTERFACE.....	61
4.2.3 REMOTE CONNECTION INTERFACE .....	71
<b><u>CHAPTER 5 CONCLUSION &amp; FUTURE WORK</u></b> .....	<b>72</b>
<b>5.1 FUTURE WORK .....</b>	<b>73</b>
<b>5.2 DISADVANTAGES OF REMOTE DESKTOP CONNECTION .....</b>	<b>75</b>
5.2.1 POWERFUL RDS REQUIRED: .....	75
5.2.2 RDS MONITORING REQUIRED: .....	75
5.2.3 RELIABLE NETWORK REQUIRED: .....	75
5.2.4 ADJUSTMENT IN NETWORK REQUIRED: .....	75
5.2.5 KNOWLEDGEABLE ADMINISTRATOR:.....	75

# CHAPTER 1

## INTRODUCTION

---

Controlling your pc or laptop remotely is the major problem that why MY VEIWER Ctrl come. In normal if you want to control your pc or laptop you have to be in front of it and using your mouse and keyboard to perform your different tasks. So what about if you want to control stuff while doing some sport or taking a break? In normal case you can't do that because you are far away from your pc or laptop.

So what if you are in a conference or seminar, saying a speech, your material is on laptop, and you want to switch between them, so you have to go to your laptop and using mouse and keyboard to switch between them, but it takes a lot of times and effort to do that.

So, do you have Android powered? Do you want to control your stuff remotely? Whatever your answer is, we assume that at least you want to discover new features with MY VEIWER Ctrl. MY VEIWER ctrl enables users to control their pc or laptop from their Android powered device remotely.

## 1.1 MY VEIWER CTRL Features:

- Client server application.
- Full control of the most common application in both Microsoft Windows and Linux by providing most used shortcuts for each application.
- File explorer is supported which enable you to perform some tasks on your files and folders.
- Controlling your pc mouse using touch screen.
- Accelerometer based mouse.
- Controlling your pc keyboard.
- Automatic switch between applications on pc.
- Work over Bluetooth connection.
- Work on windows and Linux.

MY VEIWER CTRL enables users to control his pc; also it is very suitable for large home screen and in conference and business presentation halls with data show devices.

## 1.2 Advantages of Remote Desktop Controlling

### 1. Work With the Remote PC as With Your Own Local Machine



EMCO Remote Desktop gives you a freedom to work remotely with any remote PC. When you connect to the remote desktop you can see its screen at the real time and all your mouse movements and key presses are transmitted to the remote PC in order to manage it by exactly the same way like you do it with your personal PC.

### 2. Share Access to Remote PCs with Other Users



Standard Windows remote desktop connection tools allow having only one active session per PC. Using such connection you can't establish connection to a remote PC if it's used by logged-on user. EMCO Remote Desktop was designed to remove such limitation and can establish multiple active connections with remote PC.

### 3. Save Costs to Adopt Remote Access Software



Wide set of features and reasonable price makes EMCO Remote Desktop one of the bestsellers on the market. Depending on the selected edition and number of managed nodes (remote PCs).

### 4. Use Fast, Flexible and Secure Solution



EMCO Remote Desktop has plenty of settings to make your work comfortable, including full-screen mode support. In this mode a remote screen in original resolution occupies all space on your screen to fully emulate a usage of the local desktop.

## 5. Communicate With Remote Users



Very often you need to communicate with the user sitting in front of the remote PC. For example, you provide a remote support and need to ask some questions or do something with remote PC and need to pay remote users' attention to some aspects.

## 6. Capture Remote Screens and Record Remote Screencasts



Using EMCO Remote Desktop you can connect to one or multiple remote PCs to see remote user's activity. Connection is silent, it means that remote users don't have any notifications about the remote connection and can't easily detect the fact that their desktops are monitored.

## 7. Get Detailed Inventory Reports



Only EMCO Remote Desktop provides an ability to scan all computers in your local network and gets detailed hardware and software inventory reports.

## 1.3 Similar System of Remote Controlling

### 1.3.1 1. Team Viewer



Team viewer is a free remote desktop client that supports access for both Windows and Macs.

It works on both iPhone and I Pad and allows you to use multi-touch gestures for left click, right click, drag and drop, scroll wheel, zoom and change monitor functions.

Team Viewer also allows you to view all users who are online, accessing the same computer as you – whether that's family or colleagues.

Although Team Viewer is free for personal use with all its features available, you'll have to pay £59.99 for the Pro version that covers commercial use.

### 1.3.2 2. Mocha Remote Desktop



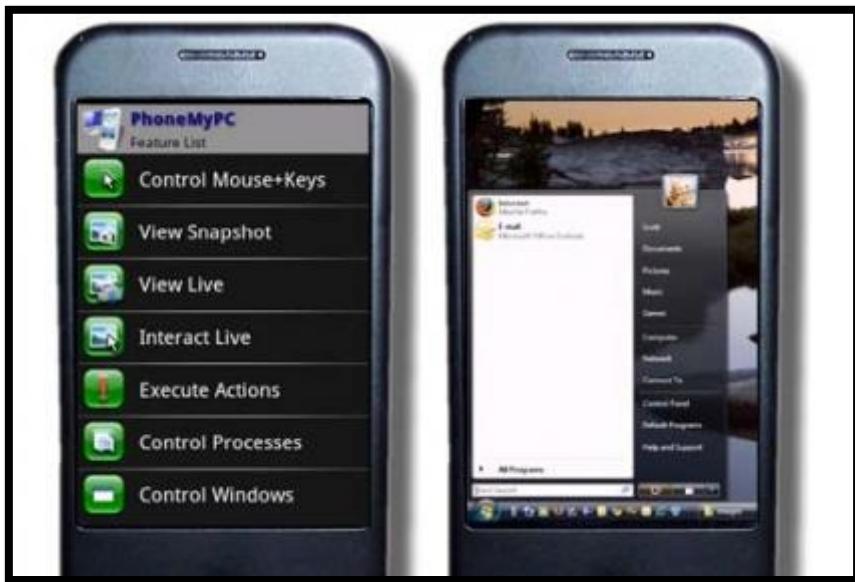
Mocha Remote Desktop allows you to access any XP, Vista or Windows 7 PC from your iPhone.

The app allows you to scroll and zoom as the Safari browser, with a selection of three keyboards for text input.

The latest version of Mocha Remote Desktop includes VGA video output and multitasking for compatible devices running iOS4. You can also view your computer in high resolution on the iPhone 4 if you've installed the latest update too.

If you're not prepared to shell out £3.49 (which we think is very reasonable), you can download the free lite version as a trial first.

### 1.3.3 3. Android Phone My PC



Phone My PC allows you to remotely connect to up to three “Windows” PC from anywhere, even on a PC secured behind a Firewall. Set up is simple – all you need to do is install a server app onto your computer, as is the case with all remote desktop apps. Your phone and PC will either connect through your Wi-Fi network or through a hosted server.

A number of control processes are supported, meaning you can easily view a list of running programs, change execution priority and close or terminate any running programs.

You can also take screenshots of your PC’s screen and save them to your phone’s SD card.

## Chapter 2

### BACKGROUND

---

## 2.1 Mobile operating system

A mobile operating system, also referred to as mobile OS, is the operating system that operates a smartphone, tablet, PDA, or other digital mobile devices. Modern mobile operating systems combine the features of a personal computer operating system with a touchscreen, cellular, Bluetooth, Wi-Fi, GPS mobile navigation, camera, video camera, speech recognition, recorder, music, Near field communication, Infrared Blaster, and other features.

Worldwide smart phone market					
Market shares Q4 2010, Q4 2009					
OS vendor	Q4 2010 shipments (millions)	Q4 2010 % share	Q4 2009 shipments (millions)	Q4 2009 % share	Growth Q4'10/Q4'09
Total	101.2	100.0%	53.7	100.0%	88.6%
Google*	33.3	32.9%	4.7	8.7%	615.1%
Nokia	31.0	30.6%	23.9	44.4%	30.0%
Apple	16.2	16.0%	8.7	16.3%	85.9%
RIM	14.6	14.4%	10.7	20.0%	36.0%
Microsoft	3.1	3.1%	3.9	7.2%	-20.3%
Others	3.0	2.9%	1.8	3.4%	64.8%

\*Note: The Google numbers in this table relate to Android, as well as the OMS and Tapas platform variants  
Source: Canalys estimates, © Canalys 2011

## 2.2 Android

Android is a Linux-based operating system designed primarily for touchscreen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open: a consortium of hardware, software, and telecommunication companies devoted to

advancing open standards for mobile devices. The first Android-powered phone was sold in October 2008.

Android is open source and Google releases the code under the Apache License. This open source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. Additionally, Android has a large community of developers writing applications ("apps") that extend the functionality of devices, written primarily in a customized version of the Java programming language. In October 2012, there were approximately 700,000 apps available for Android, and the estimated number of applications downloaded from Google Play, Android's primary app store, was 25 billion.

### **2.2.1 Android history**

Android, Inc. was founded in Palo Alto, California in October 2003 by Andy Rubin (co-founder of Danger), Rich Miner (co-founder of Wildfire Communications, Inc.), Nick Sears (once VP at T-Mobile), and Chris White (headed design and interface development at WebTV) to develop, in Rubin's words "smarter mobile devices that are more aware of its owner's location and preferences". The early intentions of the company were to develop an advanced operating system for digital cameras, when it was realized that the market for the devices was not large enough, and diverted their efforts to producing a smartphone operating system to rival those of Symbian and Windows Mobile (Apple's iPhone had not been released at the time). Despite the past accomplishments of the founders and early employees, Android Inc. operated secretly, revealing only that it was working on software for mobile phones. That same year, Rubin ran out of money. Steve Perlman, a close friend of Rubin, brought him \$10,000 in cash in an envelope and refused a stake in the company.

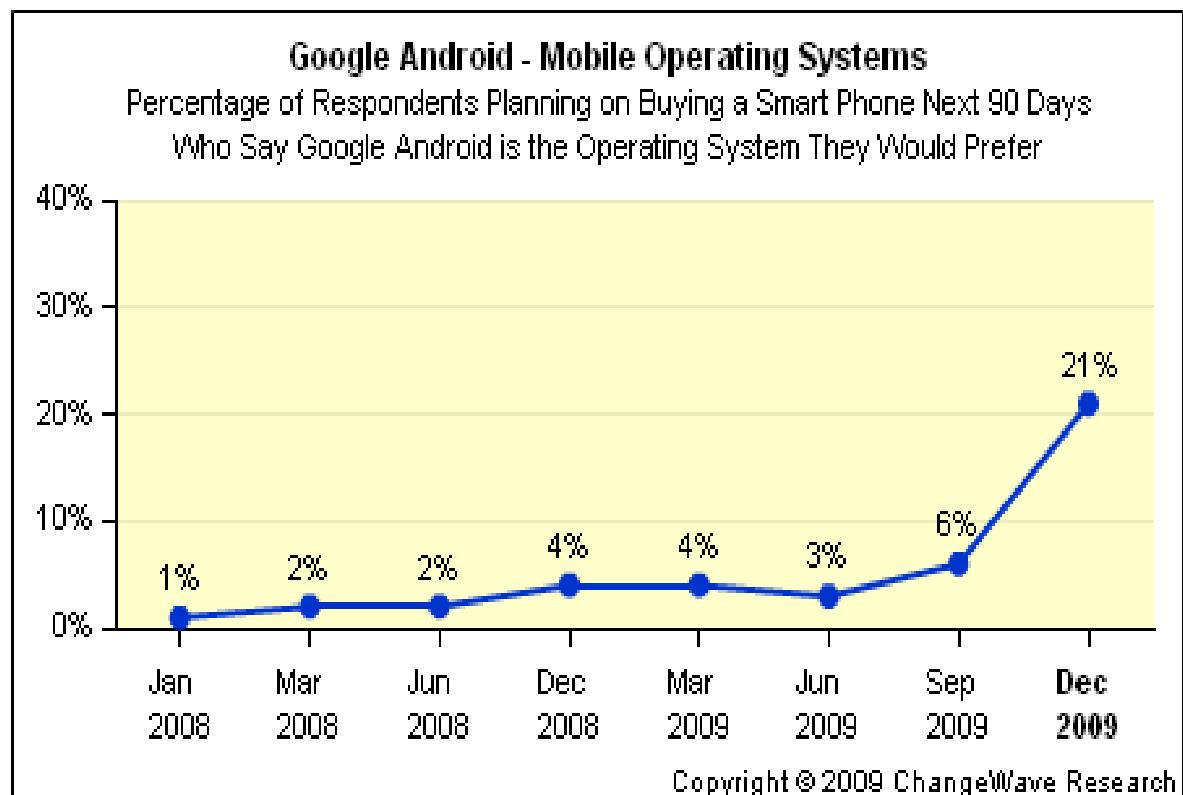
Google acquired Android Inc. on August 17, 2005, making it a wholly owned subsidiary of Google. Key employees of Android Inc., including Rubin, Miner and White, stayed at the company after the acquisition. Not much was known about Android Inc. at the time, but many assumed that Google was planning to enter the mobile phone market with this move. At Google, the team led by Rubin developed a mobile device platform powered by the Linux kernel. Google marketed the platform to handset makers and carriers on the promise of providing a flexible, upgradable system. Google had lined up a series of hardware component and software partners and signaled to carriers that it was open to various degrees of cooperation on their part.

### 2.2.2 Version history

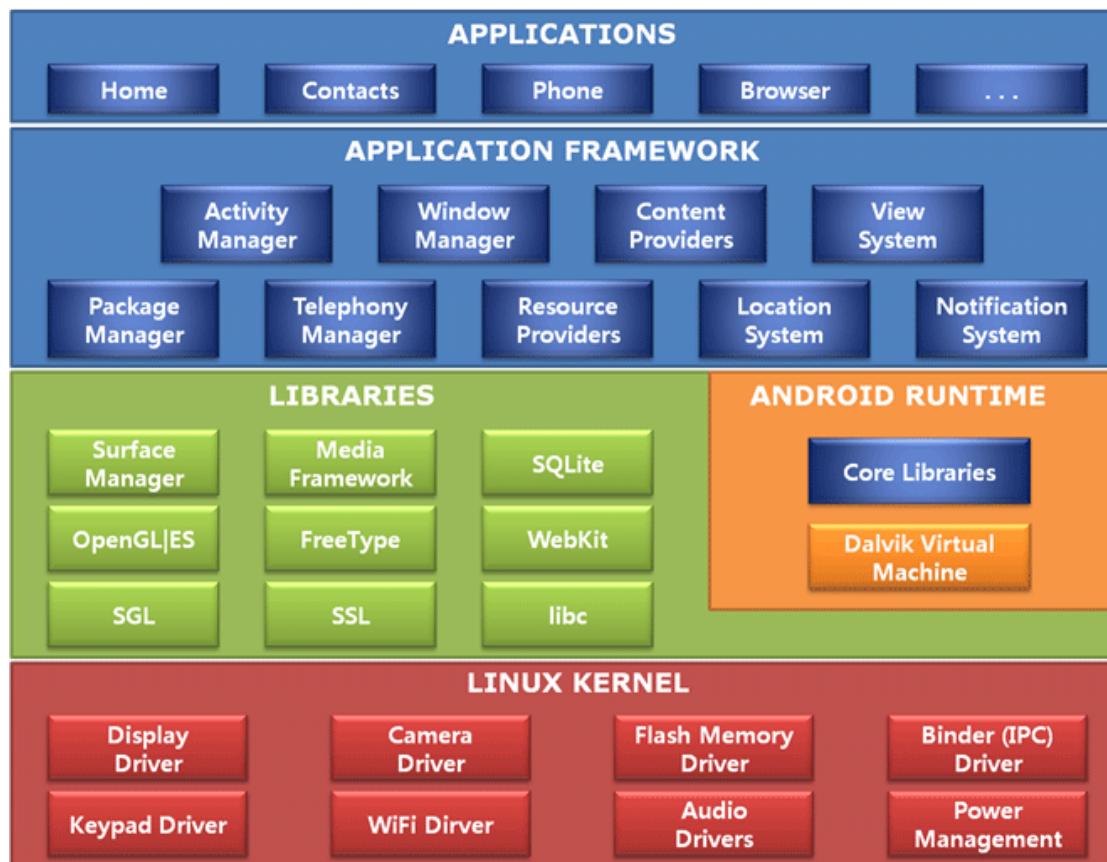
The version history of the Android mobile operating system began with the release of the Android beta in November 2007. The first commercial version, Android 1.0, was released in September 2008. Android is under ongoing development by Google and the Open (OHA), and has seen a number of updates to its base operating system since its original release. These updates typically fix bugs and add new features.

Since April 2009, Android versions have been developed under a codename and released in alphabetical order: Cupcake, Donut, Éclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich, and Jelly Bean. As of 2013, over 900 million active devices use the Android OS worldwide. The most recent major Android update was Jelly Bean 4.2, which was released on commercial devices in November 2012.

### 2.2.3 Android Usage



## 2.2.4 Basic Android project structure



After you have installed all the plug-ins necessary for the development of an Android file, you can now begin to develop an Android application. From the top menu, choose File -> Project, and from the "New Project window", choose "Android Project". Follow the project setup wizard and after finishing the wizard, you will have a basic Android application.

### Every Android project contains several folders:

- Src: This folder contains the Java source files.
- Gen: Generated Java library, this library is for Android internal use only.
- Res: Here we can store resource files such as pictures, XML files for defining layouts, and so forth. Within this folder there are additional folders such as Drawable, Layout, and Values.
- Drawable: Here we store the various graphic files. We can see three types of drawable folders. This is because there are many Android devices with different screen resolutions. By default, there are several versions of this folder such as: Drawabe - mdpi, drawable-hdpi, and so forth. This is required in order to adapt to different screen resolutions.
- Layout: This is the place for XML layout files. Layout files are XML files which define how various Android objects (such as textboxes, buttons, etc.) are organized on the screen.
- Values: XML files which store various string values (titles, labels, etc.).

### Major files in the Android project:

- AndroidManifest.xml: This is the Android definition file. It contains information about the Android application such as minimum Android version, permission to access Android device capabilities such as internet access permission, ability to use phone permission, etc.
- MainLayout.xml: This file describes the layout of the page. This means the placement of every component (such as textboxes, labels, radio buttons, user defined components, etc.) on the app screen.
- Activity class: Every application that occupies the entire device screen needs at least one class which inherits from the Activity class. One major method is called OnCreate. This method initiates the app and loads the layout page.

## 2.2.5 Android Manifest.xml

Every application must have an `AndroidManifest.xml` file (with precisely that name) in its root directory. The manifest presents essential information about the application to the Android system, information the system must have before it can run any of the application's code. Among other things, the manifest does the following:

- It names the Java package for the application. The package name serves as a unique identifier for the application.
- It describes the components of the application — the activities, services, broadcast receivers, and content providers that the application is composed of. It names the classes that implement each of the components and publishes their capabilities (for example, which Intent messages they can handle). These declarations let the Android system know what the components are and under what conditions they can be launched.
- It determines which processes will host application components.
- It declares which permissions the application must have in order to access protected parts of the API and interact with other applications.
- It also declares the permissions that others are required to have in order to interact with the application's components.
- It lists the Instrumentation classes that provide profiling and other information as the application is running. These declarations are present in the manifest only while the application is being developed and tested; they're removed before the application is published.
- It declares the minimum level of the Android API that the application requires.
- It lists the libraries that the application must be linked against.

## 2.2.6 Structure of the Manifest File

The diagram below shows the general structure of the manifest file and every element that it can contain. Each element, along with all of its attributes, is documented in full in a separate file. To view detailed information about any element, click on the element name in the diagram, in the alphabetical list of elements that follows the diagram, or on any other mention of the element name.

## 2.2.7 Activities and layouts

### *Activity Lifecycle*

Activities in the system are managed as an activity stack. When a new activity is started, it is placed on the top of the stack and becomes the running activity -- the previous activity always remains below it in the stack, and will not come to the foreground again until the new activity exits.

An activity has essentially four states:

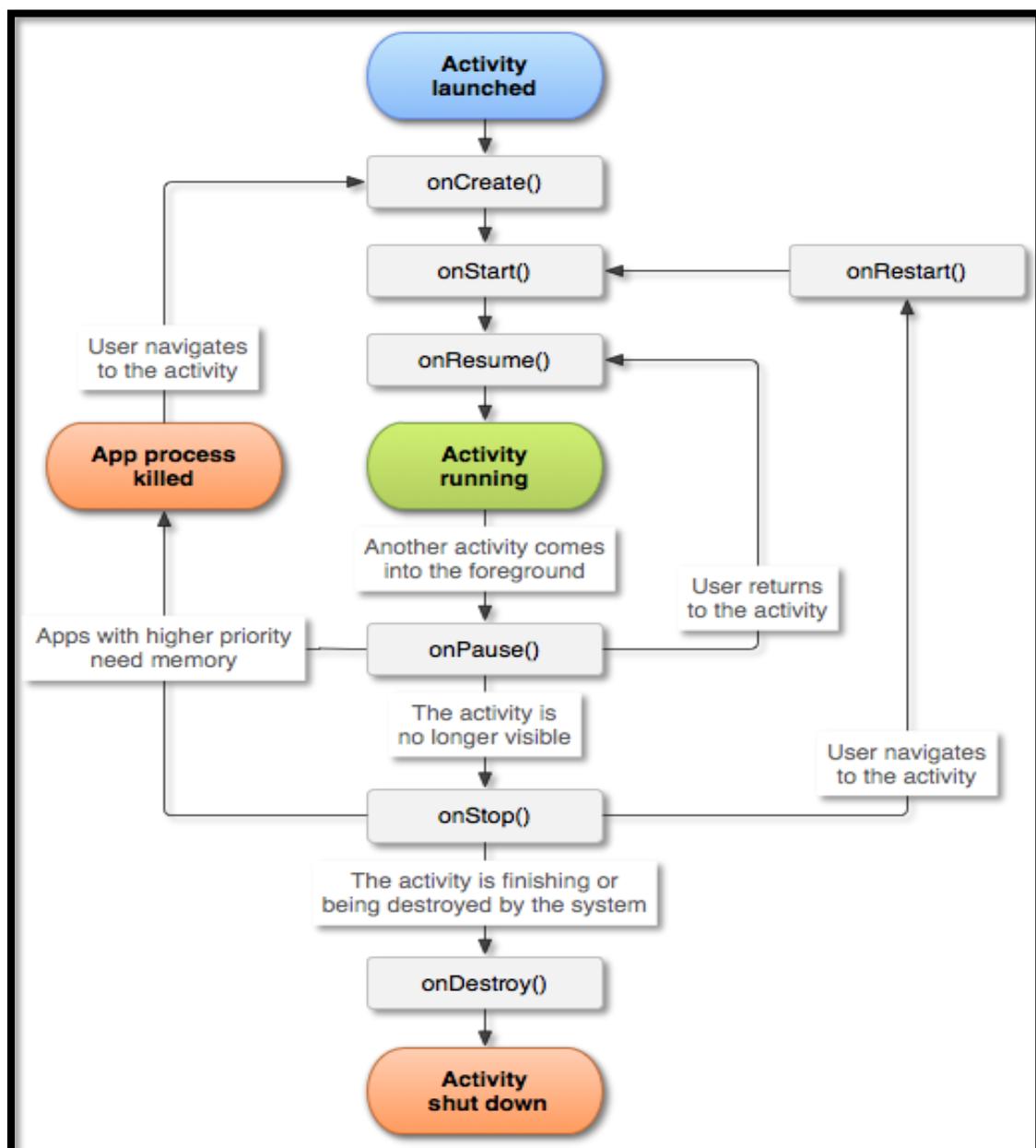
If an activity in the foreground of the screen (at the top of the stack), it is active or running.

If an activity has lost focus but is still visible (that is, a new non-full-sized or transparent activity has focus on top of your activity), it is paused. A paused activity is completely alive (it maintains all state and member information and remains attached to the window manager), but can be killed by the system in extreme low memory situations.

If an activity is completely obscured by another activity, it is stopped. It still retains all state and member information, however, it is no longer visible to the user so its window is hidden and it will often be killed by the system when memory is needed elsewhere.

If an activity is paused or stopped, the system can drop the activity from memory by either asking it to finish, or simply killing its process. When it is displayed again to the user, it must be completely restarted and restored to its previous state.

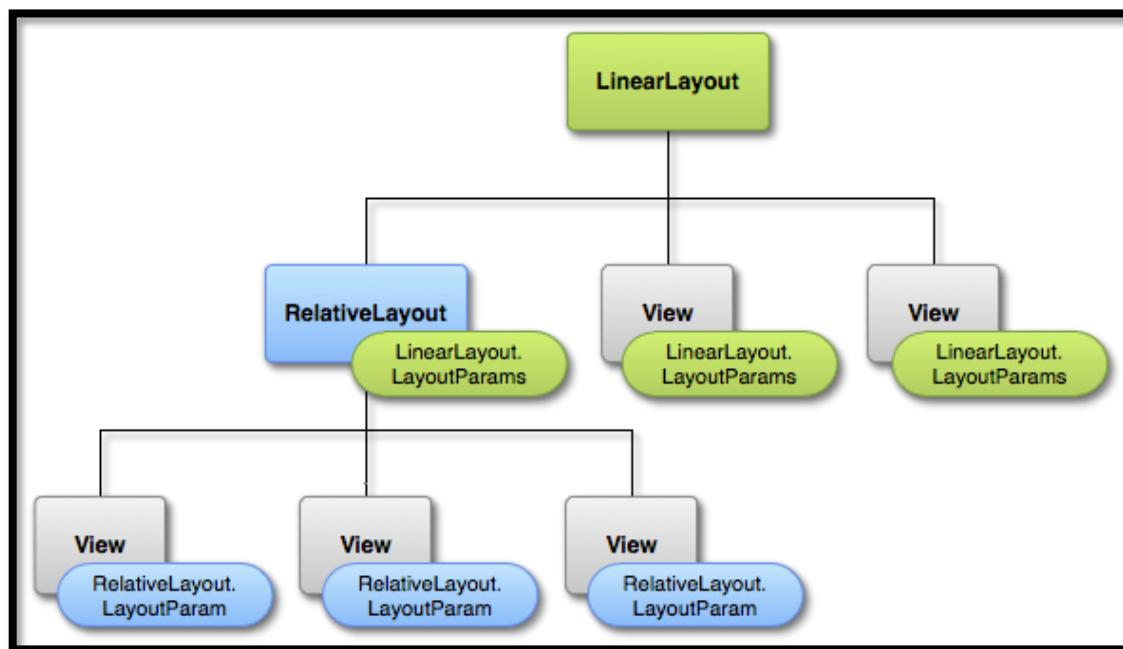
The following diagram shows the important state paths of an Activity. The square rectangles represent callback methods you can implement to perform operations when the Activity moves between states. The colored ovals are major states the Activity can be in.



### Layout parameters

XML layout attributes named layout something define layout parameters for the View that is appropriate for the ViewGroup in which it resides.

Every ViewGroup class implements a nested class that extends ViewGroup.LayoutParams. This subclass contains property types that define the size and position for each child view, as appropriate for the view group. As you can see in figure 1, the parent view group defines layout parameters for each child view (including the child view group)



## 2.3 Operating System Comparison

### 2.3.1 iOS



In 2007, Apple Inc. introduced the original iPhone, one of the first mobile phones to use a touch interface. The iPhone was notable for its use of a large touchscreen for direct finger input as its main means of interaction, instead of a stylus, keyboard, and/or keypad as typical for smartphones at the time. It initially lacked the capability to install native applications, meaning some did not regard it as a smartphone. However in June 2007 Apple announced that the iPhone would support third-party "web 2.0 applications" running in its web browser that share the look and feel of the iPhone interface. A process called jail breaking emerged quickly to provide unofficial third-party native applications to replace the built-in functions (such as a GPS unit, kitchen timer, radio, map book, calendar, notepad, and many others).

In July 2008, Apple introduced its second generation iPhone with a much lower list price and 3G support. Simultaneously, they introduced the App Store, which allowed any iPhone to install third party native applications (both free and paid) over a Wi-Fi or cellular network, without requiring a PC for installation. Applications could additionally be browsed through and downloaded directly via the iTunes software client. Featuring over 500 applications at launch, the App

Store was very popular, and achieved over one billion downloads in the first year, and 15 billion by 2011.

In June 2010, Apple introduced IOS 4, which included APIs to allow third-party applications to multitask, and the iPhone 4, with an improved display and back-facing camera, a front-facing camera for videoconferencing, and other improvements. In early 2011 the iPhone 4 allowed customers to use the handset's 3G connection as a wireless Wi-Fi hotspot.

The iPhone 4S was announced on October 4, 2011, improving upon the iPhone 4 with a dual core A5 processor, an 8 megapixel camera capable of recording 1080p video at 30 frames per second, World phone capability allowing it to work on both GSM & CDMA networks, and the Siri automated voice assistant. On October 10, Apple announced that over one million iPhone 4Ss had been pre-ordered within the first 24 hours of it being on sale, beating the 600,000 device record set by the iPhone 4. Along with the iPhone 4S Apple also released IOS 5 and I Cloud, untethered device activation, backup, and synchronization, along with additional features.

In September 2012 Apple released iPhone 5 running IOS 6. In the last generation IOS number of new features was introduced, including panoramic photography, Passbook, Apple Maps and others.

*Android vs. iOS*

	iOS (iPhone)	Android
<b>Developer</b>	Apple	Google
<b>Copy/Paste</b>	✓	✓
<b>Multitasking</b>	✓	✓
<b>Flash Support</b>	✗	✓
<b>Silverlight Support</b>	✗	✗
<b>HTML5 Support</b>	✓	✓
<b>Unified Inbox</b>	✓	✓
<b>Exchange Support</b>	✓	✓
<b>Threaded Email</b>	✓	✓
<b>Visual Voicemail</b>	✓	✓
<b>Video Calling</b>	✓	✓ Third Party App
<b>Universal Search</b>	✓	✓
<b>Internet Tethering</b>	✓	✓
<b>Removable Storage</b>	✗	✓
<b>Facebook Integration</b>	✗ (Third Party App)	✓ (Third Party Integration)
<b>Twitter Integration</b>	✗ (Third Party App)	✓ (Third Party Integration)
<b>Folders</b>	✓	✓
<b>Apps Organization</b>	Customizable	Customizable
<b>App Store</b>	300,000+ Apps	90,000+ Apps
<b>Microsoft Office Support</b>	Third Party App	Third Party App
<b>Widgets</b>	✗	✓
<b>Media Sync</b>	iTunes Mac & PC	Direct File Transfer + Third Party Software
<b>X-Box Live Integration</b>	Via Third Party App	Via Third Party App

### 2.3.2 BlackBerry



In 1999, RIM released its first BlackBerry devices, making secure real-time push-email communications possible on wireless devices. Services such as BlackBerry Messenger and the integration of all communications into a single inbox allowed users to access, create, share and act upon information instantly. There are 80 million active BlackBerry service subscribers (BIS/BES) and the 200 millionth BlackBerry smartphone was shipped in September 2012 (twice the number since June 2010). Popular models include the BlackBerry Bold, BlackBerry Torch (slider and all-touch) and BlackBerry Curve. Most recently, RIM has undergone a platform transition. The company has changed its name to BlackBerry and is pushing out new devices on a new platform named "Blackberry 10." So far, the only 2 devices released on this platform are the full-touch "Blackberry Z10" and a similar QWERTY device "Q10".

### *Android vs. BlackBerry*

		
<b>Version</b>	<b>Android 4.1</b>	<b>BlackBerry 10</b>
<b>Codename</b>	Jelly Bean	n/a
<b>New APIs</b>	n/a	n/a
<b>New Features</b>	n/a	n/a
<b>Tentpoles</b>	12	3 (to date)
	Project Butter	Flow interface
	Home screen widget enhancements	Predictive keyboard
	Enhanced text input	Time-warp camera
	Offline Voice	
	Enhanced language support	
	Accessibility enhancements	
	Camera enhancements	
	Android Beam enhancements	
	Actionable Notification	
	Search enhancements/Google Now	
	Platform Developer Kit (PDK)	
	Google Play enhancements	
<b>Additional Features</b>	Varies by device	(Unknown)

### 2.3.3 Windows Phone



A Windows Phone device produced by Nokia, the Lumia 800

On February 15, 2010, Microsoft unveiled its next-generation mobile OS, Windows Phone 7. Microsoft's mobile OS includes a completely over-hauled UI inspired by Microsoft's "Metro Design Language". It includes full integration of Microsoft services such as Microsoft SkyDrive and Office, Xbox Music, Xbox Video, Xbox Live games and Bing, but also integrates with many other non-Microsoft services such as Facebook, Twitter and Google accounts. The new software platform has received some positive reception from the technology press and has been praised for its uniqueness.

On October 29, 2012, Microsoft released Windows Phone 8, a new generation of the operating system. Windows Phone 8 replaces its previously Windows CE-based architecture with one based on the Windows NT kernel with many components shared with Windows 8, allowing developers to easily port applications between the two platforms.

### *Android vs. Windows Phone*



		Windows Phone 7	Android
Developer	Microsoft	Google	
Copy/Paste	✗	✓	
Multitasking	✗	✓	
Flash Support	✗	✓	
Silverlight Support	✗	✗	
HTML5 Support	✗	✓	
Unified Inbox	✗	✓	
Exchange Support	✓	✓	
Threaded Email	✗	✓	
Visual Voicemail	✗	✓	
Video Calling	✗	✓ Third Party App	
Universal Search	✗	✓	
Internet Tethering	✗	✓	
Removable Storage	✗	✓	
Facebook Integration	✓	✓ (Third Party Integration)	
Twitter Integration	✗	✓ (Third Party Integration)	
Folders	Hubs	✓	
Apps Organization	Alphabetical	Customizable	
App Store	1,000+ Apps	90,000+ Apps	
Microsoft Office Support	Built-In	Third Party App	
Widgets	Tiles on Home Screen	✓	
Media Sync	Zune Software Mac & PC	Direct File Transfer + Third Party Software	
X-Box Live Integration	Built-In	Via Third Party App	

## Remote Connection Method

### 2.3.4 Bluetooth



Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength radio transmissions in the ISM band from 2400–2480 MHz) from fixed and mobile devices, creating personal area networks (PANs) with high levels of security. Created by telecom vendor Ericsson in 1994, it was originally conceived as a wireless alternative to RS-232 data cables. It can connect several devices, overcoming problems of synchronization.

Bluetooth is managed by the Bluetooth Special Interest Group, which has more than 18,000 member companies in the areas of telecommunication, computing, networking, and consumer electronics. Bluetooth was standardized as IEEE 802.15.1, but the standard is no longer maintained. The SIG oversees the development of the specification, manages the qualification program, and protects the trademarks. To be marketed as a Bluetooth device, it must be qualified to standards defined by the SIG. [citation needed] A network of patents is required to implement the technology and are licensed only for those qualifying devices.

The word "Bluetooth" is an Anglicized version of the Scandinavian Blåtand/Blätann, the epithet of the tenth-century king Harald I of Denmark and parts of Norway who united dissonant Danish tribes into a single kingdom. The idea of this name was proposed by Jim Kardach who developed a system that would allow mobile phones to communicate with computers (at the time he was

reading Frans Gunnar Bengtsson's historical novel The Long Ships about Vikings and king Harald Bluetooth).

The implication is that Bluetooth does the same with communications protocols, uniting them into one universal standard.

The Bluetooth logo is a bind rune merging the Younger Futhark runes  $\text{†}$  (Hagall) (\*) and  $\text{ᛒ}$  (Bjarkan) ( $\text{ᛒ}$ ), Harald's initials.

### ***Implementation***

Bluetooth operates in the range of 2400–2483.5 MHz (including guard bands). This is in the globally unlicensed Industrial, Scientific and Medical (ISM) 2.4 GHz short-range radio frequency band. Bluetooth uses a radio technology called frequency-hopping spread spectrum. The transmitted data is divided into packets and each packet is transmitted on one of the 79 designated Bluetooth channels. Each channel has a bandwidth of 1 MHz. The first channel starts at 2402 MHz and continues up to 2480 MHz in 1 MHz steps. It usually performs 1600 hops per second, with Adaptive Frequency-Hopping (AFH) enabled.

Originally Gaussian frequency-shift keying (GFSK) modulation was the only modulation scheme available; subsequently, since the introduction of Bluetooth 2.0+EDR,  $\pi/4$ -DQPSK and 8DPSK modulation may also be used between compatible devices. Devices functioning with GFSK are said to be operating in basic rate (BR) mode where an instantaneous data rate of 1 Mbit/s is possible. The term Enhanced Data Rate (EDR) is used to describe  $\pi/4$ -DPSK and 8DPSK schemes, each giving 2 and 3 Mbit/s respectively. The combination of these (BR and EDR) modes in Bluetooth radio technology is classified as a "BR/EDR radio".

Bluetooth is a packet-based protocol with a master-slave structure. One master may communicate with up to 7 slaves in a piconet; all devices share the

master's clock. Packet exchange is based on the basic clock, defined by the master, which ticks at 312.5 µs intervals. Two clock ticks make up a slot of 625 µs; two slots make up a slot pair of 1250 µs. In the simple case of single-slot packets the master transmits in even slots and receives in odd slots; the slave, conversely, receives in even slots and transmits in odd slots. Packets may be 1, 3 or 5 slots long but in all cases the master transmits will begin in even slots and the slave transmits in odd slots.

Bluetooth provides a secure way to connect and exchange information between devices such as faxes, mobile phones, telephones, laptops, personal computers, printers, Global Positioning System (GPS) receivers, digital cameras, and video game consoles. It was principally designed as a low-bandwidth technology.

### ***Communication and connection***

A master Bluetooth device can communicate with a maximum of seven devices in a piconet (an ad-hoc computer network using Bluetooth technology), though not all devices reach this maximum. The devices can switch roles, by agreement, and the slave can become the master (for example, a headset initiating a connection to a phone will necessarily begin as master, as initiator of the connection; but may subsequently prefer to be slave).

The Bluetooth Core Specification provides for the connection of two or more piconets to form a scatternet, in which certain devices simultaneously play the master role in one piconet and the slave role in another.

At any given time, data can be transferred between the master and one other device (except for the little-used broadcast mode [citation needed]). The master chooses which slave device to address; typically, it switches rapidly from one device to another in a round fashion. Since it is the master that chooses which slave to address, whereas a slave is (in theory) supposed to listen in each receive

slot, being a master is a lighter burden than being a slave. Being a master of seven slaves is possible; being a slave of more than one master is difficult. [Citation needed] The specification is vague as to required behavior in scatternets.

Many USB Bluetooth adapters or "dongles" are available, some of which also include an IrDA adapter. Older (pre-2003) Bluetooth dongles, however, have limited capabilities, offering only the Bluetooth Enumerator and a less-powerful Bluetooth Radio incarnation.[citation needed] Such devices can link computers with Bluetooth with a distance of 100 meters, but they do not offer as many services as modern adapters do.

### ***Uses***

Bluetooth is a standard wire-replacement communications protocol primarily designed for low power consumption, with a short range (power-class-dependent, but effective ranges vary in practice; see table below) based on low-cost transceiver microchips in each device. Because the devices use a radio (broadcast) communications system, they do not have to be in visual line of sight of each other, however a quasi-optical wireless path must be viable.

The effective range varies due to propagation conditions, material coverage, production sample variations, antenna configurations and battery conditions. In most cases the effective range of Class 2 devices is extended if they connect to a Class 1 transceiver, compared to a pure Class 2 network. This is accomplished by the higher sensitivity and transmission power of Class 1 devices.

<b>Version</b>	<b>Data rate</b>	<b>Maximum application throughput</b>
<b>Version 1.2</b>	1	0.7 Mbit/s

		Mbit/s
<b>Version 2.0 +</b>	3	2.1 Mbit/s
<b>EDR</b>		Mbit/s
<b>Version 3.0 +</b>	24	See Version 3.0+HS.
<b>HS</b>		Mbit/s
<b>Version 4.0</b>		See Version 4.0LE.

While the Bluetooth Core Specification does mandate minima for range, the range of the technology is application specific and is not limited. Manufacturers may tune their implementations to the range needed for individual use cases.

### 2.3.5 Wi-Fi



Wi-Fi Direct, initially called Wi-Fi P2P, is a Wi-Fi standard that enables devices to connect easily with each other without requiring a wireless access point and to communicate at typical Wi-Fi speeds for everything from file transfer to internet connectivity. Only one of the Wi-Fi devices needs to be compliant with Wi-Fi Direct to establish a peer-to-peer connection that transfers data directly between each other with greatly reduced setup. Wi-Fi Direct negotiates the link with a Wi-Fi Protected Setup system that assigns each device a limited wireless access point. The "pairing" of Wi-Fi Direct devices can be set up to require the proximity of a Near Field Communication, a Bluetooth signal, or a button press on one or all the devices. And, some have suggested that Wi-Fi Direct may not only replace the need for routers, but may also replace the need of Bluetooth for applications that don't rely on low energy.

#### ***Basic Wi-Fi***

Conventional Wi-Fi networks are typically based on the presence of controller devices known as wireless access points. These devices normally combine three primary functions; physical support for wireless and wired networking, bridging and routing between devices on the network, and service provisioning to add and remove devices from the network.[citation needed]

A typical Wi-Fi home network includes laptops, tablets and phones, devices like modern printers, music devices and televisions. The majority of Wi-Fi networks are set up in "infrastructure mode", where the access point acts as a central hub

to which Wi-Fi capable devices are connected. The devices do not communicate directly with each other (that is, in "ad-hoc mode"), but they go through the access point. Wi-Fi Direct devices are able to communicate with each other without requiring a wireless access point. The Wi-Fi Direct devices negotiate when they first connect to determine which device shall act as an access point.

### ***Automated setup***

As the number and type of devices attaching to Wi-Fi systems increased, the basic model of a simple router with smart computers became increasingly strained. At the same time, the increasing sophistication of the hot spots presented setup problems for the users. To address these problems, there have been numerous attempts to simplify certain aspects of the setup task.

A common example is the Wi-Fi Protected Setup system included in most access points built since 2007 when the standard was introduced. Wi-Fi Protected Setup allows access points to be set up simply by entering a PIN or other identification into a connection screen, or in some cases, simply by pressing a button. The Protected Setup system uses this information to send data to a computer, handing it the information needed to complete the network setup and connect to the internet. From the user's point of view, a single click replaces the multi-step, jargon-filled setup experience formerly required.

While the Protected Setup model works as intended, it was intended only to simplify the connection between the access point and the devices that would make use of its services, primarily accessing the internet. It provides little help within a network - finding and setting up printer access from a computer for instance. To address those roles, a number of different protocols have developed, including Universal Plug and Play (UPnP), Devices Profile for Web Services (DPWS), and Zero Configuration Networking (Zero Con). These protocols allow

devices to seek out other devices within the network, query their capabilities, and provide some level of automatic setup.

### New uses

It has become increasingly common for smart phones and portable media players to include Wi-Fi as a standard feature, and over time it has become common in feature phones as well. The process of adding Wi-Fi to smaller devices has accelerated, and it is now possible to find printers, cameras, scanners and many other common devices with Wi-Fi in addition to other connections, like USB.

The widespread adoption of Wi-Fi in new classes of smaller devices has made the need for ad hoc networking much more important. Even without a central Wi-Fi hub or router, it would be useful for a laptop computer to be able to wirelessly connect to a local printer. Although the ad hoc mode was created to address this sort of need, the lack of additional information for discovery makes it difficult to use in practice.

Although systems like UPnP and Bonjour provide many of the needed capabilities and are included in some devices, a single widely supported standard was lacking, and support within existing devices was far from universal. A guest using their smart phone would likely be able to find a hot spot and connect to the Internet with ease, perhaps using Protected Setup to do so. But the same device would find streaming music to a computer or printing a file might be difficult, or simply not supported between differing brands of hardware.

Another use for Wi-Fi Direct is to provide a wireless connection to peripherals. Wireless mice, keyboards, remote controls, headsets, speakers, displays and many other functions can be implemented with Wi-Fi Direct. This has begun with Wi-Fi mouse products, wireless display products such as Wi-Fi

and Mira cast as well as Wi-Fi Direct remote controls that are shipping circa November 2012.

Wi-Fi Direct is becoming increasingly common in file sharing applications on Android devices, with most Android Version 4.1 (Jellybean) supported. Android version 4.2 (Jellybean) includes further refinements to Wi-Fi Direct including persistent permissions enabling two-way transfer of data between multiple devices.

### ***Technical description***

Wi-Fi Direct essentially embeds a software access point ("Soft AP"), into any device that must support Direct. The soft AP provides a version of Wi-Fi Protected Setup with its push-button or PIN-based setup.

When a device enters the range of the Wi-Fi Direct host, it can connect to it, and then gather setup information using a Protected Setup-style transfer.[9] Connection and setup is so simplified that some suggest it may replace Bluetooth in some situations.

Soft APs can be as simple or as complex as the role requires. A digital picture frame might provide only the most basic services needed to allow digital cameras to connect and upload images. A smart phone that allows data tethering might run a more complex soft AP that adds the ability to bridge to the Internet. The standard also includes WPA2 security and features to control access within corporate networks. Wi-Fi Direct-certified devices can connect one-to-one or one-to-many and not all connected products need to be Wi-Fi Direct-certified. One Wi-Fi Direct enabled device can connect to legacy Wi-Fi certified devices.

The Wi-Fi Direct certification program is developed and administered by the Wi-Fi Alliance, the industry group that develops the standards suite underlying the Wi-Fi CERTIFIED certification program and owns the "Wi-Fi"

trademark. The specification is available for purchase from the Wi-Fi Alliance. A large and growing number of devices have been certified for Wi-Fi Direct. Over 1400 different devices have been certified for Wi-Fi Direct as of 31 October 2012.

### Bluetooth vs. Wi-Fi (IEEE 802.11)



Bluetooth and Wi-Fi (the brand name for products using IEEE 802.11 standards) have some similar applications: setting up networks, printing, or transferring files. Wi-Fi is intended as a replacement for cabling for general local area network access in work areas. This category of applications is sometimes called wireless local area networks (WLAN). Bluetooth was intended for portable equipment and its applications. The category of applications is outlined as the wireless personal area network (WPAN). Bluetooth is a replacement for cabling in a variety of personally carried applications in any setting and also works for fixed location applications such as smart energy functionality in the home (thermostats, etc.).

Wi-Fi is a wireless version of a common wired Ethernet network, and requires configuration to set up shared resources, transmit files, and to set up audio links (for example, headsets and hands-free devices). Wi-Fi uses the same radio frequencies as Bluetooth, but with higher power, resulting in higher bit rates and better range from the base station. The nearest equivalents in Bluetooth are the DUN profile, which allows devices to act as modem interfaces, and the PAN profile, which allows for ad-hoc networking.

## 2.3.6 3G



3G, short for third Generation, is the third generation of mobile telecommunications technology.

3G telecommunication networks support services that provide an information transfer rate of at least 200 Kbit/s. However, many services advertised as 3G provide higher speed than the minimum technical requirements for a 3G service. Recent 3G releases often denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to smartphones and mobile modems in laptop computers.

3G finds application in wireless voice telephony, mobile Internet access, fixed wireless Internet access, video calls and mobile TV.

### *Overview*

The following common standards comply with the IMT2000/3G standard:

EDGE, a revision by the 3GPP organization to the older 2G GSM based transmission methods, utilizing the same switching nodes, base station sites and frequencies as GPRS, but new base station and cellphone RF circuits. It is based on the three times as efficient 8PSK modulation scheme as supplement to the original GMSK modulation scheme. EDGE is still used extensively due to its ease of upgrade from existing 2G GSM infrastructure and cell-phones.

EDGE combined with the GPRS 2.5G technology is called EGPRS, and allows peak data rates in the order of 200 Kbit/s, just as the original UMTS WCDMA versions, and thus formally fulfills the IMT2000 requirements on 3G systems. However, in practice EDGE is seldom marketed as a 3G system, but a 2.9G system. EDGE shows slightly better system spectral efficiency than the original UMTS and CDMA2000 systems, but it is difficult to reach much higher peak data rates due to the limited GSM spectral bandwidth of 200 kHz, and it is thus a dead end.

EDGE was also a mode in the IS-135 TDMA system, today ceased.

Evolved EDGE, the latest revision, has peaks of 1 Mbit/s downstream and 400 Kbit/s upstream, but is not commercially used.

The Universal Mobile Telecommunications System, created and revised by the 3GPP. The family is a full revision from GSM in terms of encoding methods and hardware, although some GSM sites can be retrofitted to broadcast in the UMTS/W-CDMA format.

W-CDMA is the most common deployment, commonly operated on the 2,100 MHz band. A few others use the 850, 900 and 1,900 MHz bands.

HSPA is an amalgamation of several upgrades to the original W-CDMA standard and offers speeds of 14.4 Mbit/s down and 5.76 M Bit/s up. HSPA is backwards compatible with and uses the same frequencies as W-CDMA.

HSPA+, a further revision and upgrade of HSPA, can provide theoretical peak data rates up to 168 Mbit/s in the downlink and 22 Mbit/s in the uplink, using a combination of air interface improvements as well as multi-carrier HSPA and MIMO. Technically though, MIMO and DC-HSPA can be used without the "+" enhancements of HSPA+

The CDMA2000 system, or IS-2000, including CDMA2000 1x and CDMA2000 High Rate Packet Data (or EVDO), standardized by 3GPP2 (differing from the 3GPP), evolving from the original IS-95 CDMA system, is used especially in North America, China, India, Pakistan, Japan, South Korea, Southeast Asia, Europe and Africa.[3]

CDMA2000 1x Rev. He has an increased voice capacity (in excess of three times) compared to Rev. 0 EVDO Rev. B offers downstream peak rates of 14.7 Mbit/s while Rev. C enhanced existing and new terminal user experience.

While DECT cordless phones and Mobile WI MAX standards formally also fulfill the IMT-2000 requirements, they are not usually considered due to their rarity and unsuitability for usage with mobile phones.

#### ***Data rates***

ITU has not provided a clear definition of the data rate users can expect from 3G equipment or providers. Thus users sold 3G service may not be able to point to a standard and say that the rates it specifies are not being met. While stating in commentary that "it is expected that IMT-2000 will provide higher transmission rates: a minimum data rate of 2 Mbit/s for stationary or walking users, and 384 Kbit/s in a moving vehicle, the ITU does not actually clearly specify minimum or average rates or what modes of the interfaces qualify as 3G, so various rates are sold as 3G intended to meet customers' expectations of broadband data.

### ***Security***

3G networks offer greater security than their 2G predecessors. By allowing the UE (User Equipment) to authenticate the network it is attaching to, the user can be sure the network is the intended one and not an impersonator. 3G networks use the KASUMI cipher instead of the older A5/1 stream cipher. However, a number of serious weaknesses in the KASUMI cipher have been identified.

In addition to the 3G network infrastructure security, end-to-end security is offered when application frameworks such as IMS are accessed, although this is not strictly a 3G property.

### ***Applications of 3G***

The bandwidth and location information available to 3G devices gives rise to applications not previously available to mobile phone users. Some of the applications are:

- Mobile TV
- Video on demand
- Video Conferencing
- Telemedicine
- Location-based services
- Global Positioning System (GPS)

## Chapter 3

# SYSTEM DESIGN

---

### 3.1 System Components

The System application contains two process parts: (1) the mobile process application and (2) the PC application. The mobile application installed on android mobile and concern for screen control activity, while the PC application installed on PC and concern for allow remote control from mobile. PC Send capture screen to mobile and perform the mobile action on PC too. The following part discusses each part in details with flowchart diagram.

## 3.2 Mobile Process Components

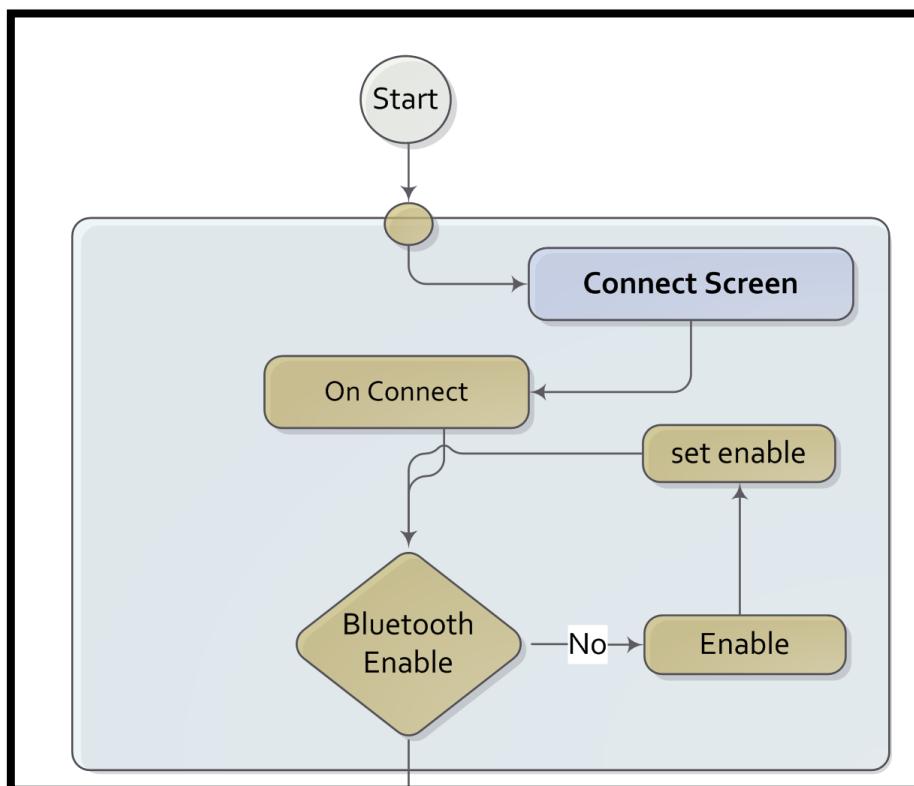
The client mobile process component contains the flowing activity:

1. Connect Screen activity
2. Device list activity
3. Data command service class
4. Connect thread class
5. Main class activity

### 3.2.1 Connect screen Activity

In the first the activity concern with connect to the PC Bluetooth through set Bluetooth on and search for device to connect with it, after select device successfully it will go to Data command service device.

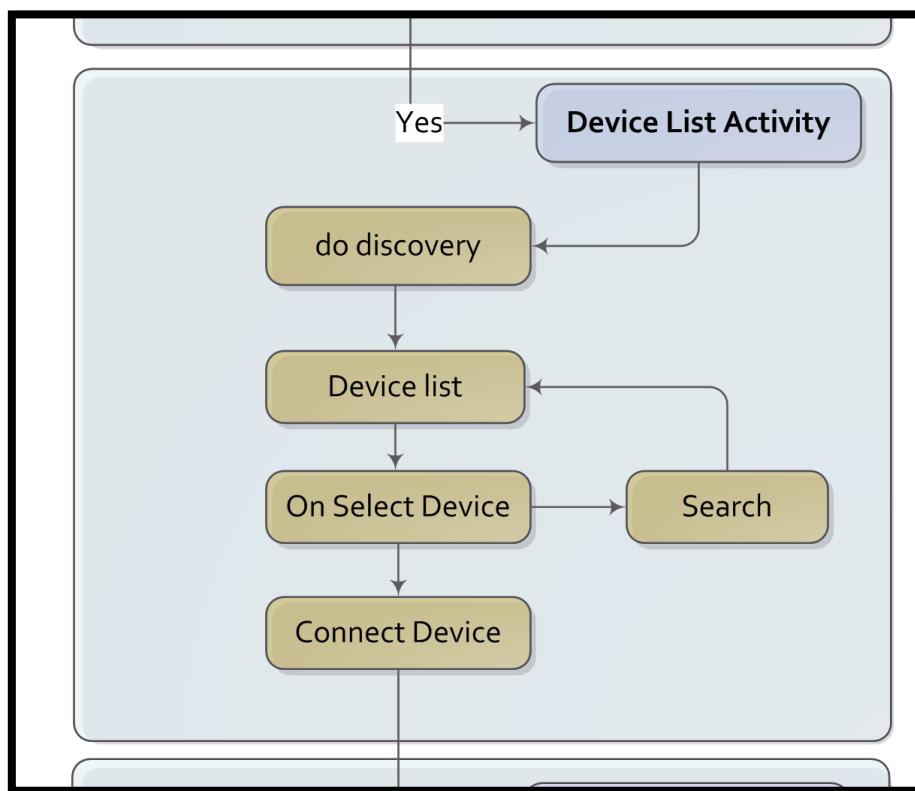
1. Bluetooth Enable: this Activity make a Bluetooth enabled.



### 3.2.2 Device list Activity

This activity is for search and select Bluetooth device with PC.

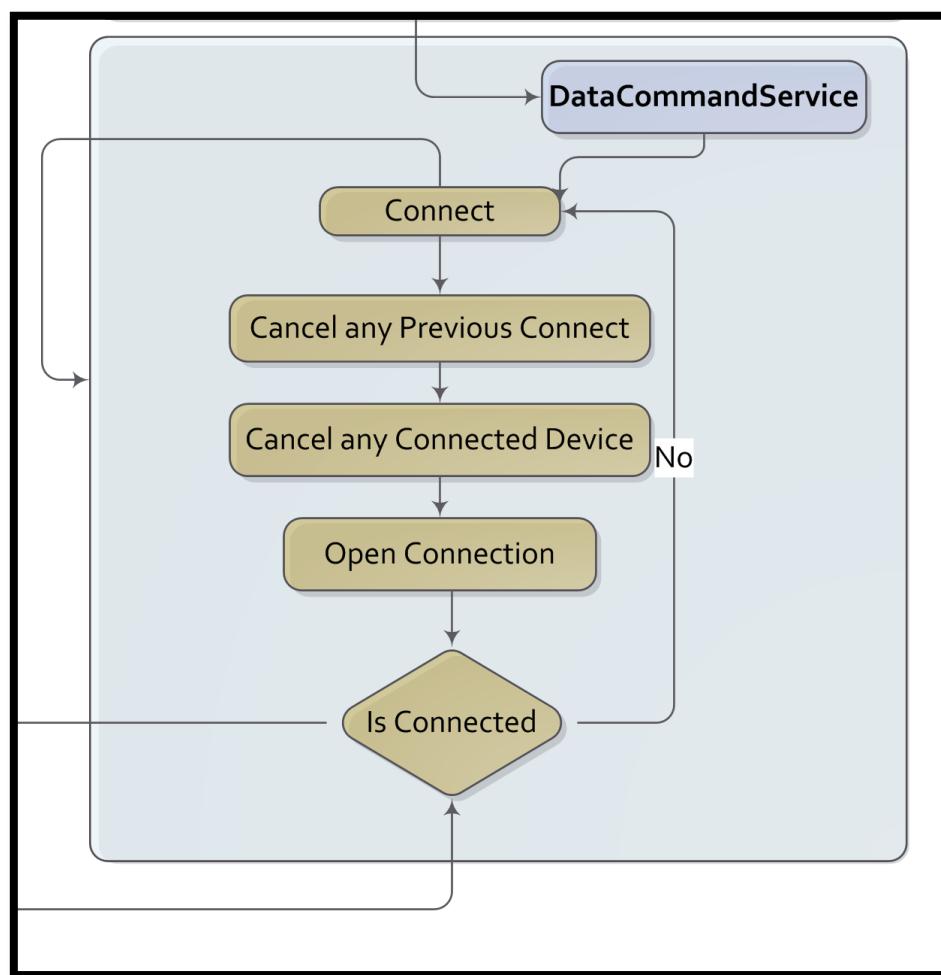
1. Device list: this shows the Bluetooth devices.
2. Do Discovery: this function to search for Bluetooth.
3. Device List: will load all available devices.
4. On Select Device: Select a device name
5. Connect Device: complete connection.



### 3.2.3 Data Command Service Class

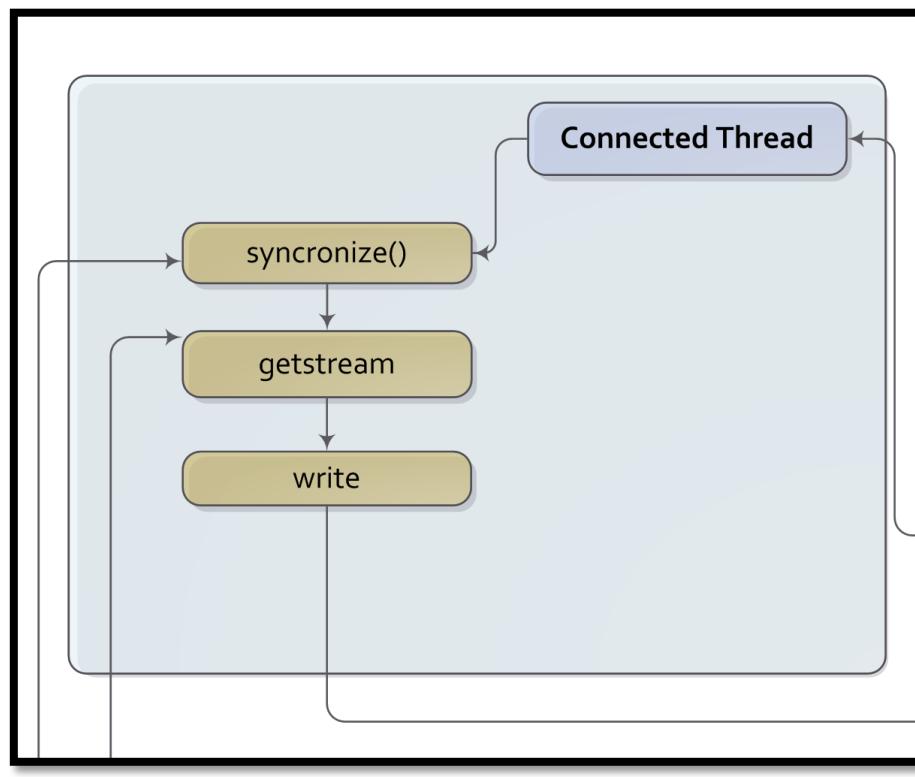
This Class is concern for start Bluetooth connection between mobile with PC.

1. Connect: this function for check the connection status
2. Cancel and Previous Connect: This function to be cancels any previous the Bluetooth connection with PC.
3. Cancel any connect device; this function cancels any connection.
4. Open Connection: this function open connection between the device and mobile to send and receive data.



### 3.2.4 Connected Thread

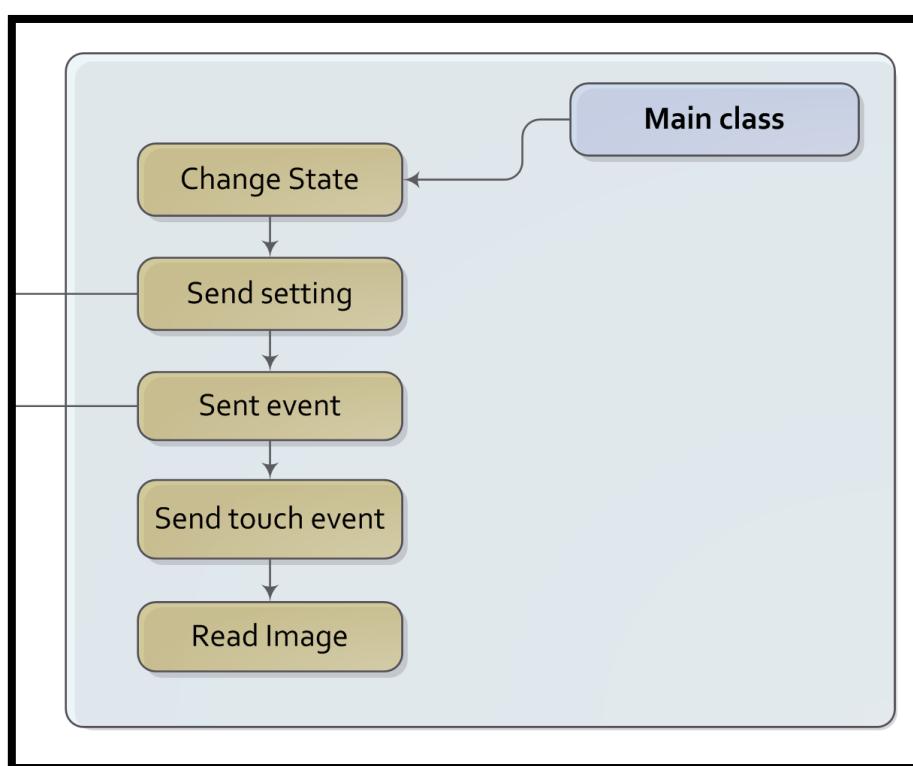
1. Synchronize: this function to synchronize action between server and client
2. Get Stream: to get input stream from pc.
3. Write: write output stream to pc.



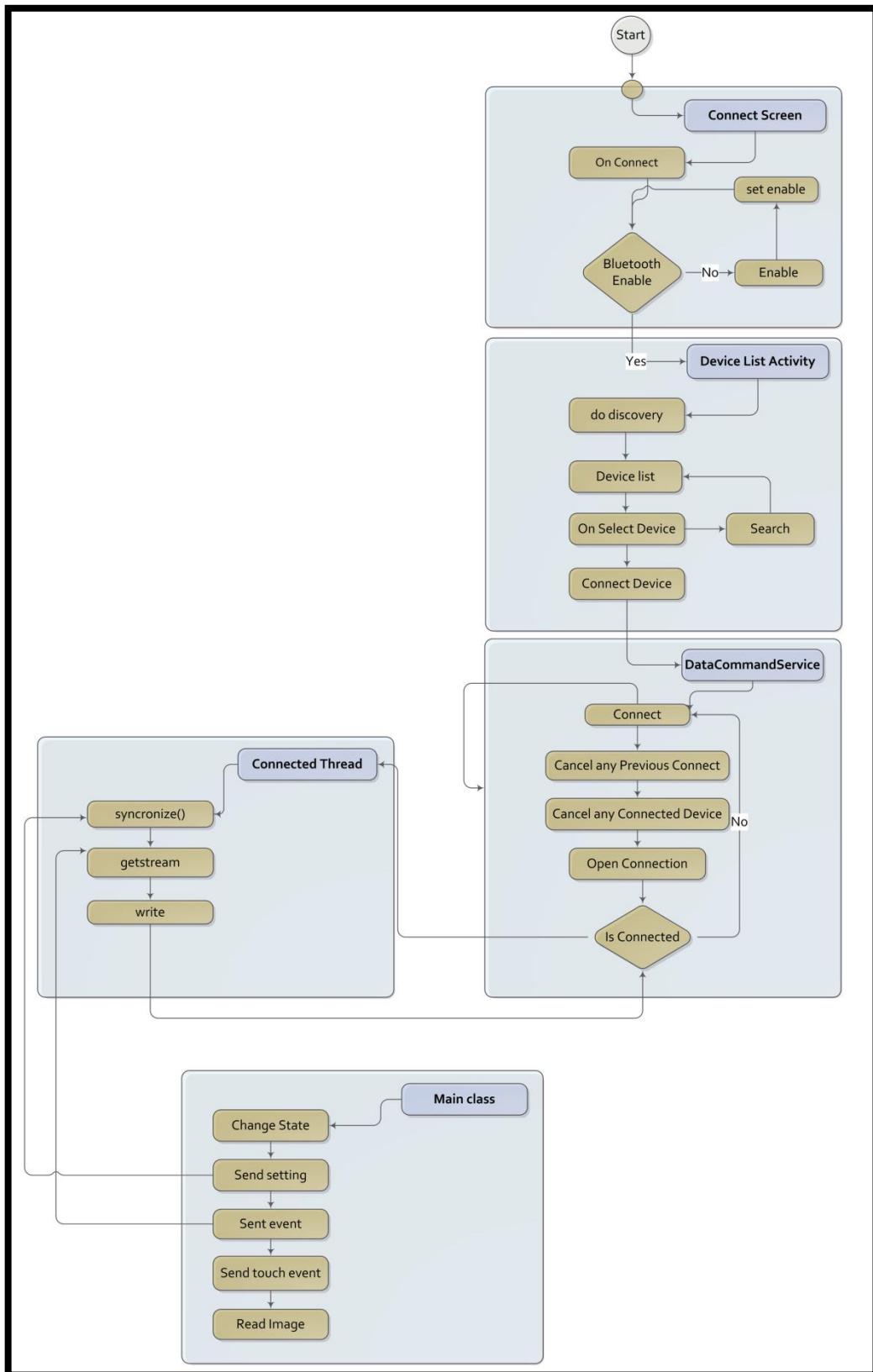
### 3.2.5 Main Class Activity

The main class contains the following actions

1. Change State
2. Send Setting
3. Send Event
4. Send touch event
5. Read Image



### 3.2.6 Activity Diagram



### 3.3 PC Process Components

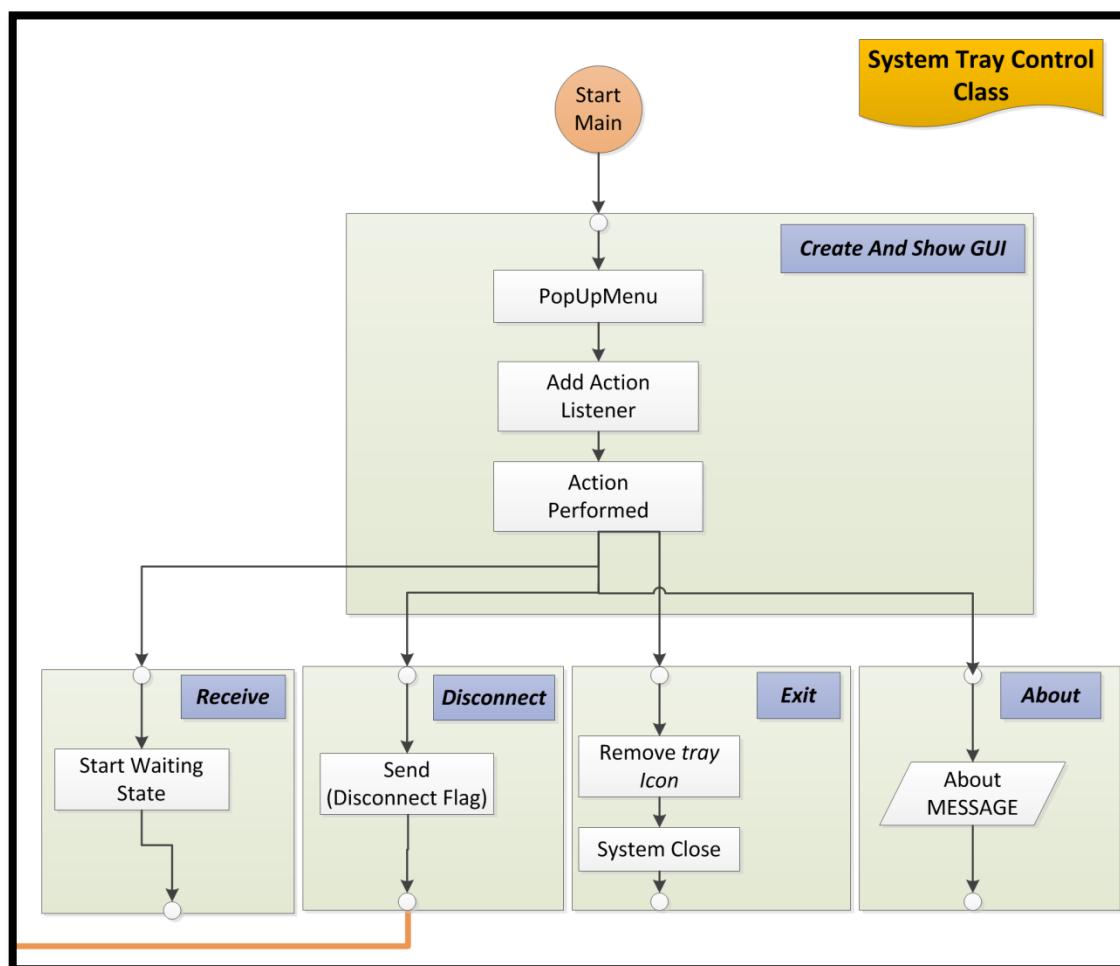
The Server PC application contains the following main class:

1. System Tray Control Class.
2. Wait Thread Class.
3. Process Thread Class.
4. Image Class.
5. Compress Class.

### 3.3.1 System Tray Control Class:

The System Tray Control class contains the main run function to create tray icon and menu on the PC. This Class contains also the following function

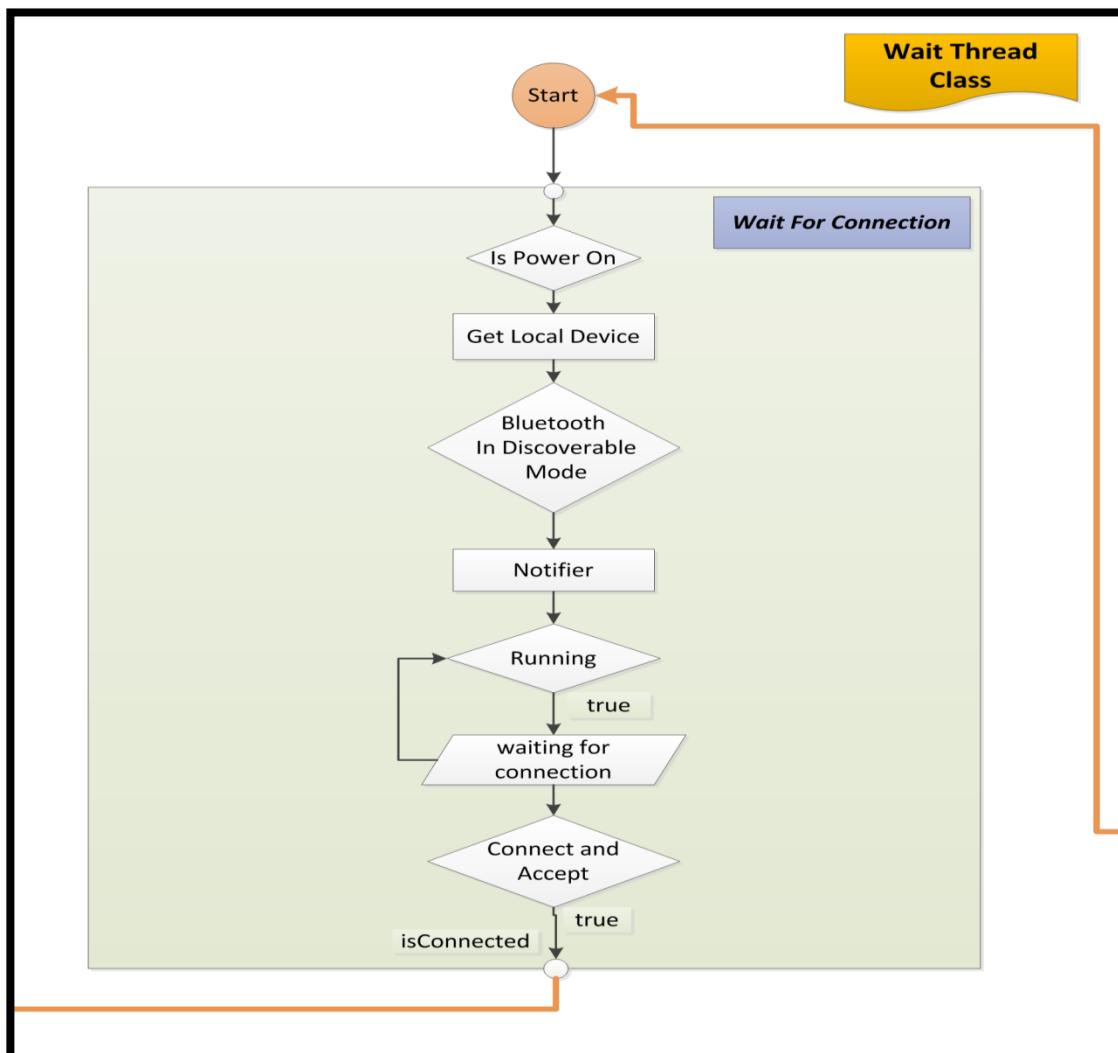
1. **CreateAndShowDUI** function: this function make PopUpMenu ,Add action listener and Action performed for each button.
2. **About** function: this function display about message.
3. **Exit** function: this function remove tray icon and close system
4. **Disconnect**: this function make a disconnect flag.
5. **Receive**: this function star wait state.



### 3.3.2 Wait Thread Class.

The wait thread class contains the functions to initialize the listener on Bluetooth module. This Class contains the following function

1. **Is power on**: this function search for a device.
2. **Discoverable mode**: this function Search for a device is discoverable.
3. **Running**: Loop to get a true connection and go to next step.
4. **Waiting a Connection**: at this time test a connection if returns true go to the next step if returns false go to the Run loop.
5. **Connect and Accept**: After connected go to Run process Thread Class.



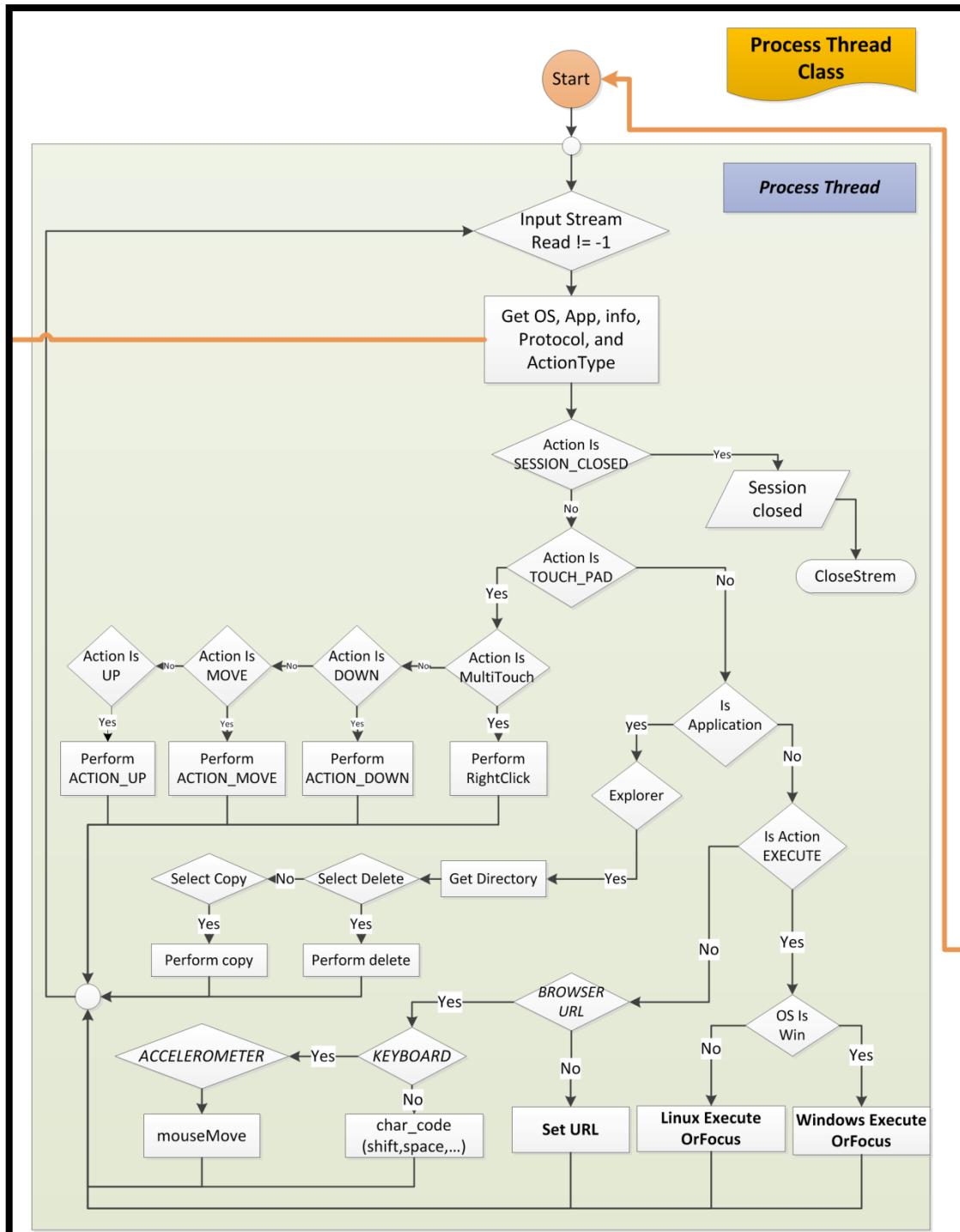
### 3.3.3 Process Thread Class

The Process thread class: contain the functions of send and receive data between PC. And mobile, and perform the action select from mobile on the PC.

The following are the flow process described in the flowchart below:

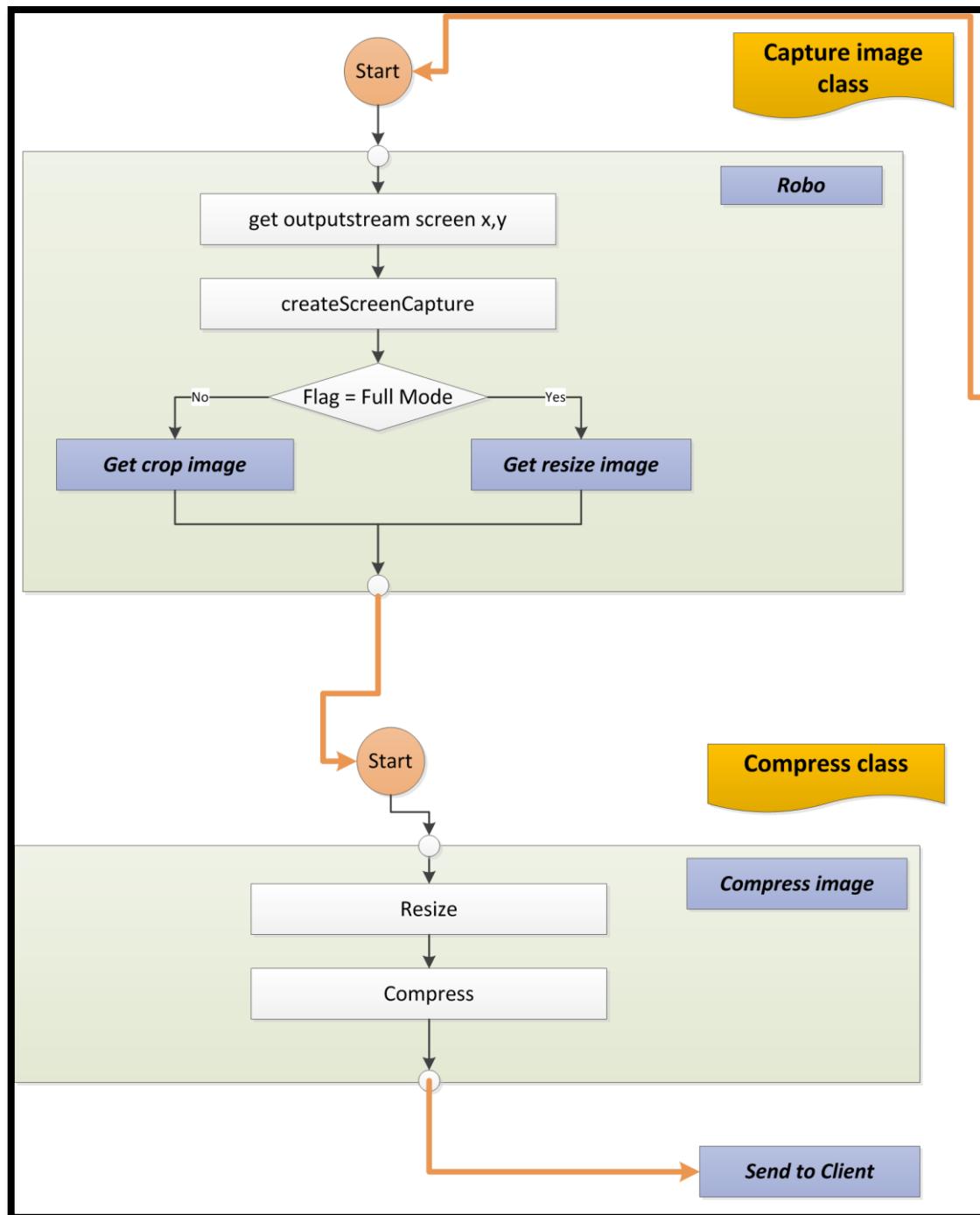
1. **Input stream:** this function checks for any stream if return -1, has a OS, APP, info, protocol or action type.
2. **Action is session closed:** if return yes go to session closed function to close stream, if no, Go to action is touch pad function.
3. **Action is touch pad:** check on this click is touch or not.
4. **Is Application:** if this touch from application
  - o If returns No go to Is Action EXECUTE.
5. **Is Action EXECUTE:** if this action return yes go to OS IS Win Action
  - o OS Is Win: if return yes Windows Execute or Focus, if No, Linux Execute focus.
6. **Browser URL:** this function if fire when ACTION EXECUTE return no. if this action return no set URL, if return yes go to KEYBOARD function.
7. **KEYBOARD:** if return no this meaning return a char, if return yes go to ACCELEROMETER Function.
8. If APPLICATION function return yes.
  - o Explorer: this function gets a directory.
  - o Select Delete: if yes perform delete, if No go to SELECT COPY function.
  - o Select Copy: this function performed copied.
9. **If ACTION IS TOUCH PAD** action return yes
  - o **Action is multi touch:** this function if returns Yes Perform right click. If return No go to ACTION IS DOWN function.
  - o **Action is down:** this function if return yes performed right clicks, if return no goes to ACTION IS MOVE.

- Action is move: this function if return yes performed Action move. If return No go to ACTION IS UP function.
- Action is UP: this function performed action up



### 3.3.4 Image and Compress Class

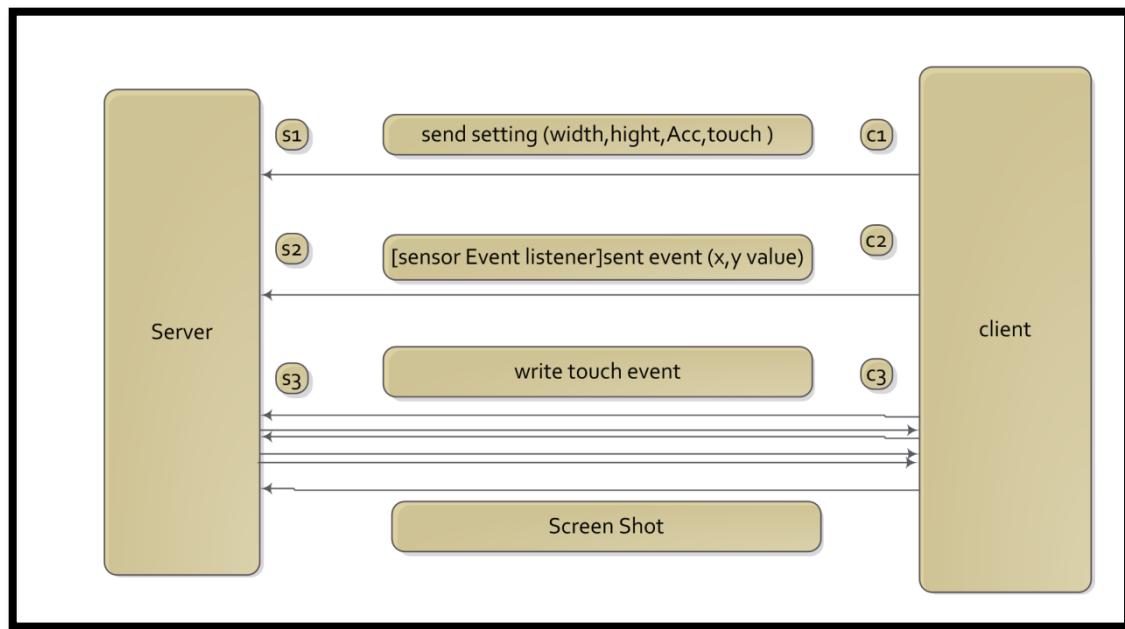
This class contain the functions of capture and compressed image screen between PC and mobile, the following diagram illustrated flow process.



### 3.4 Sequence diagram

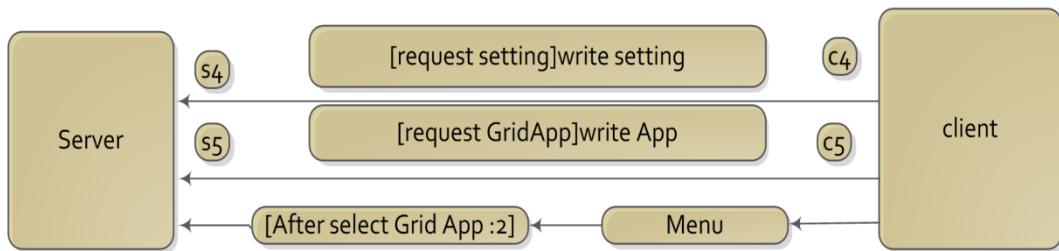
In the following section we will discuss the sequence time line between client and server.

#### 3.4.1 Screen and touch sequence



1. In the first, the client initializes the connection, and then the client (C1) Send setting (Width, Height, ACC and Touch) to server (S1).
2. The Client (C2) also sent pad event(x, y value) location to the server (S2) from client to server.
3. Write touch event at client (C3) the server (S3) accept the apply action on Pc and sent screen image to the client back.

### 3.4.2 Option and setting sequence



1. On Request setting right setting send (c4) from client to server (s4)
2. On Request Grid App right App send(c5) from client to server (s5)
3. after menu application request are send from client to server

## Chapter 4

# SYSTEM IMPLEMENTATION

---

## 4.1 Application Execution:

In this chapter we will make a real test and show you some image of this test.

The project consist of two parts

Client: which the user runs it on the android phone

We make it as APK file for ease use and easy install

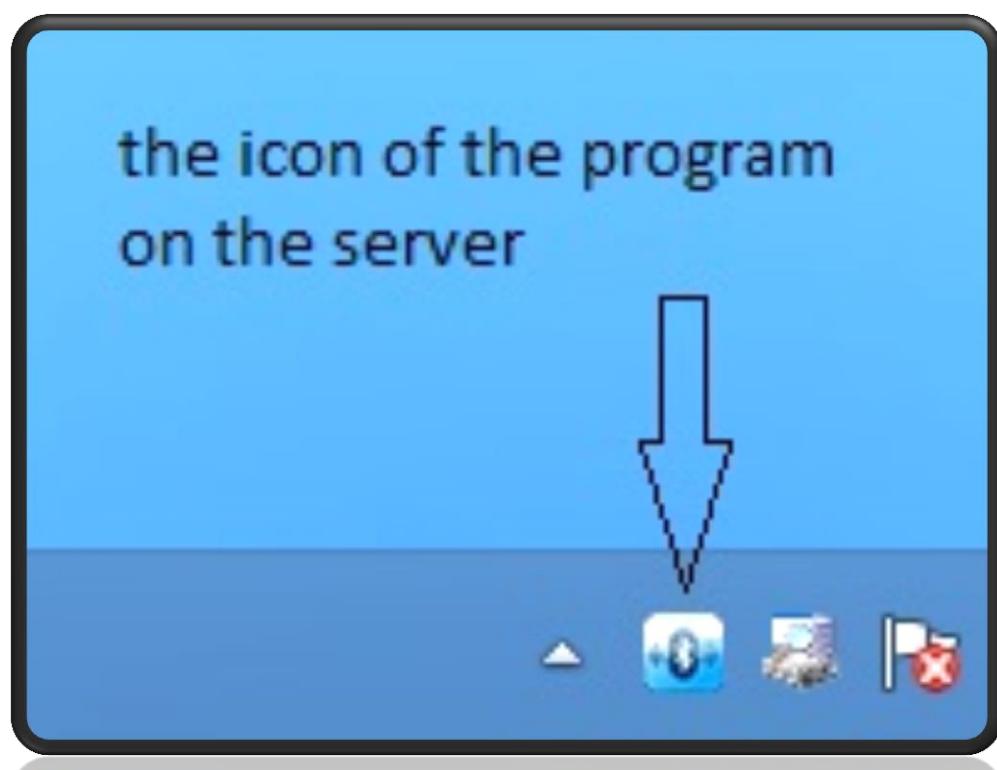
Server: it runs on the computer as a java application then the pc start to receive a connection with the android phone

After the connection is started the mobile can fully control the pc as the screen of the pc will appear in the mobile screen and you can control it as you can

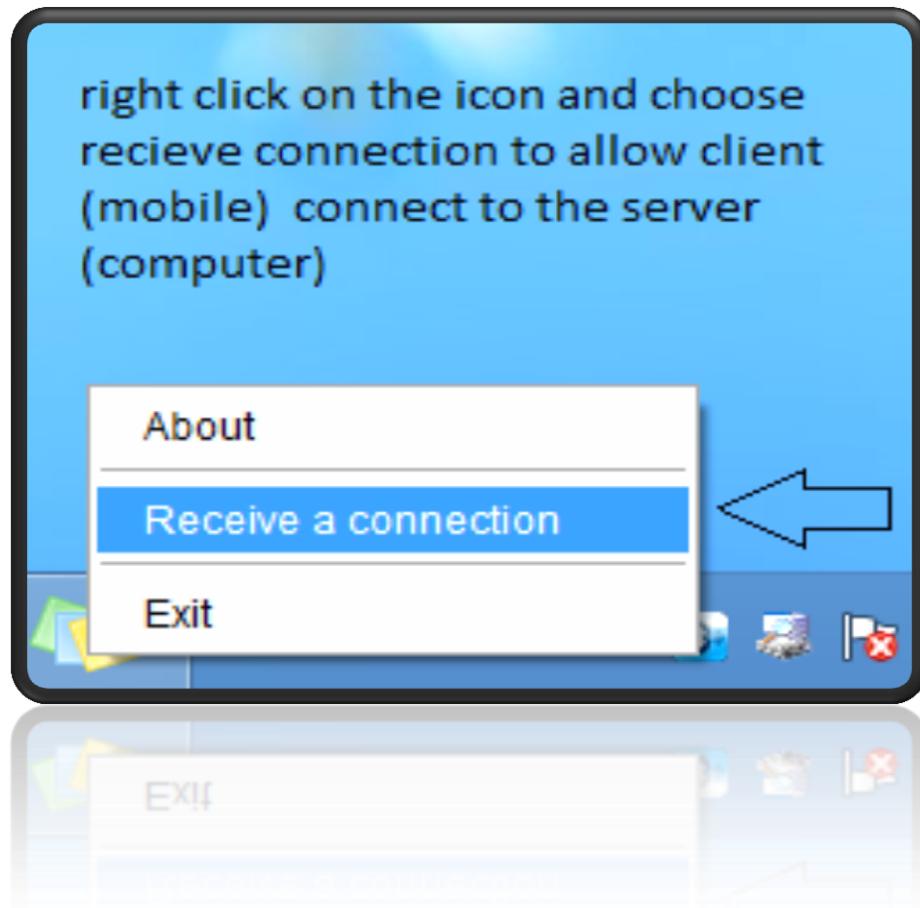
## 4.2 User interface

### 4.2.1 Server Interface

1. After we run the server , the icon of program will appear in the taskbar as follow :



2. You must give permission to allow client start connection

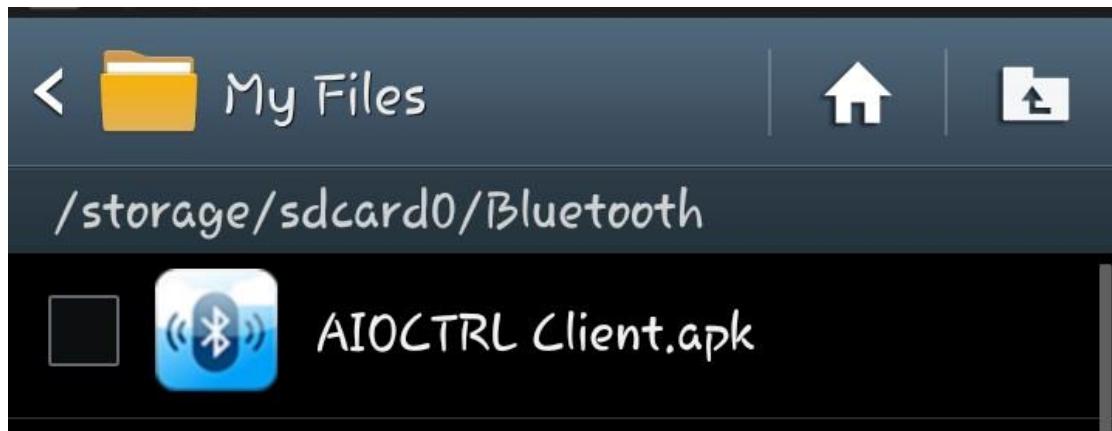


3. After pressing on receive connection

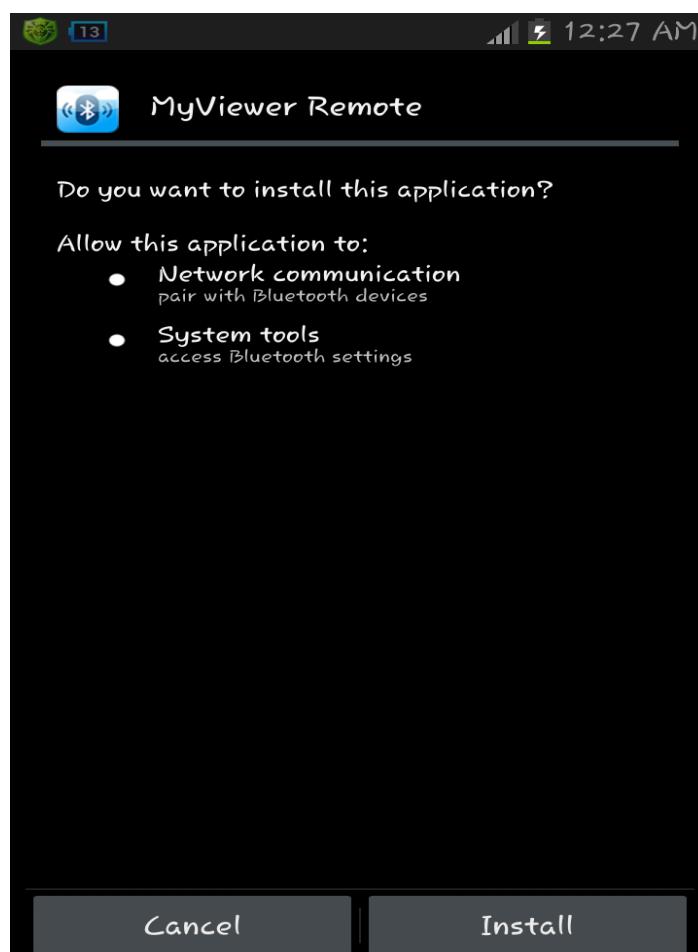
```
Problems @ Javadoc Declaration Console X
SystemTrayControl [Java Application] F:\prog\study\java course\java\bin\javaw.exe (ρ ΙΙ:ΣΣ:ΓΥ Γ•ΠΞ/•Υ/•Γ)
in waitForConnection method
BlueCove version 2.1.0 on winsock
The bluetooth is shown.. program will continue
waiting for connection...
```

#### 4.2.2 Client Interface

1. First take the APK file on your android phone



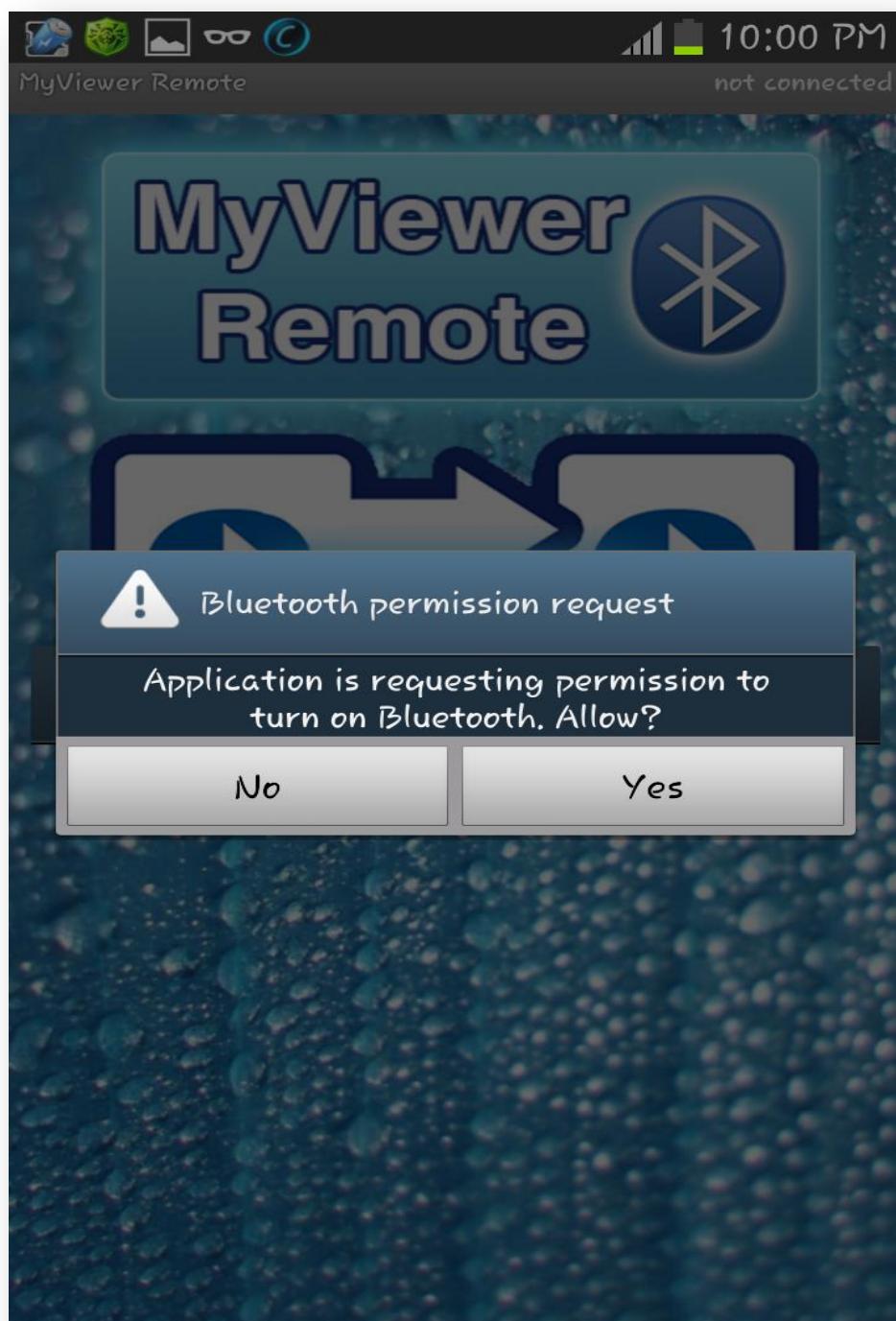
2. Install the program



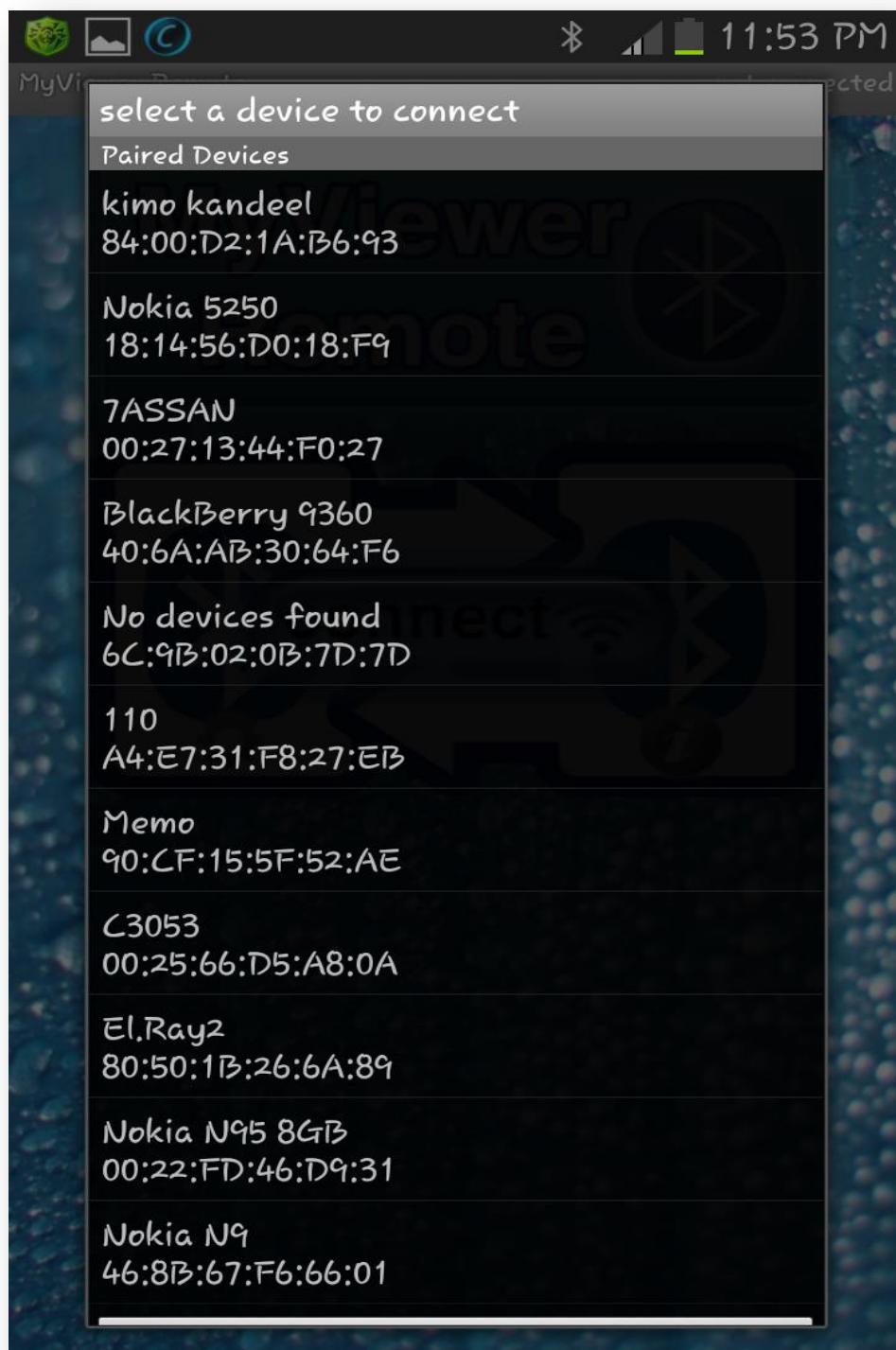
3. Home screen appear to the user when launching application



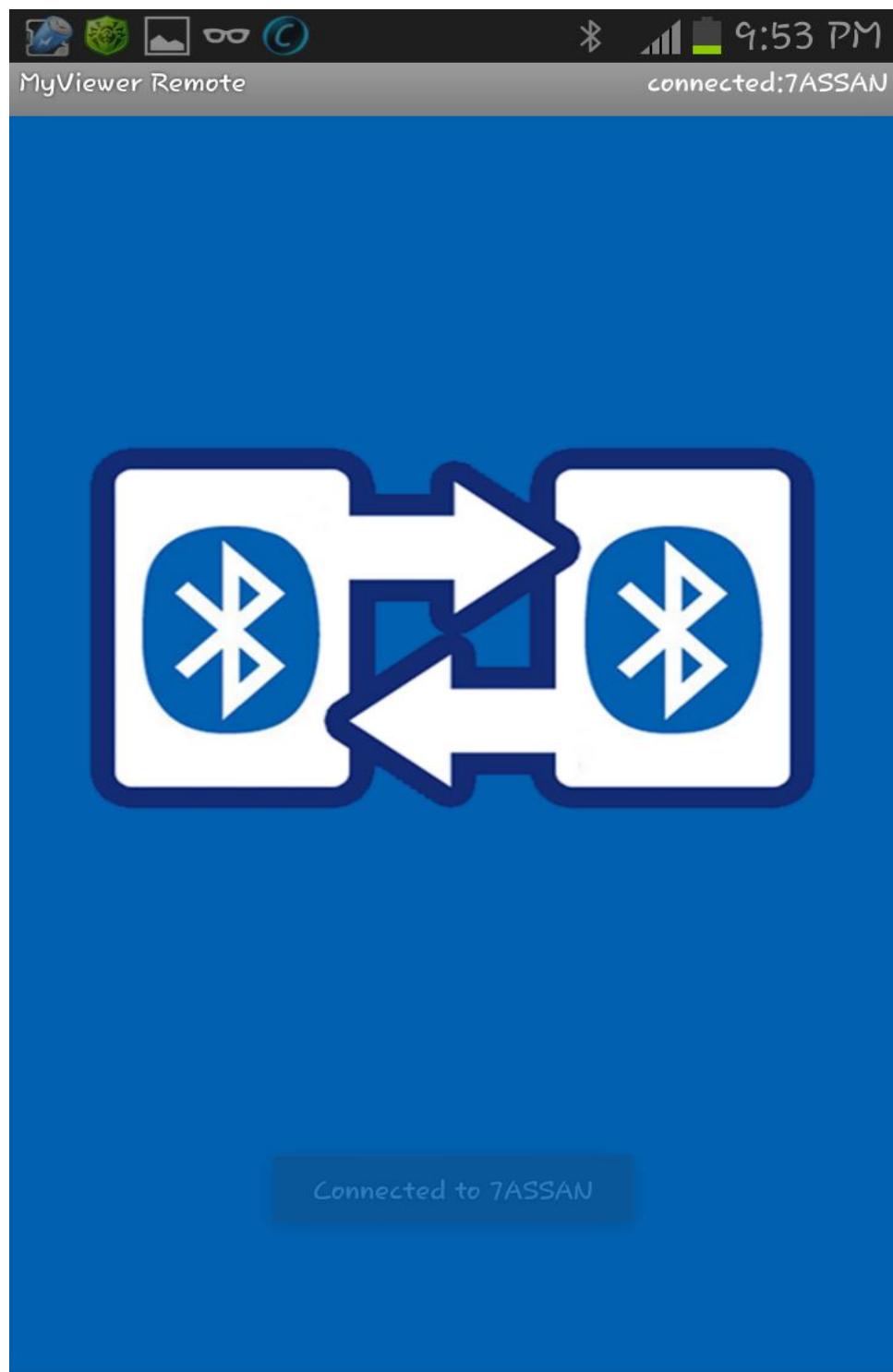
4. When pressing connect button, the user is asked to enable the Bluetooth if it is not enabled



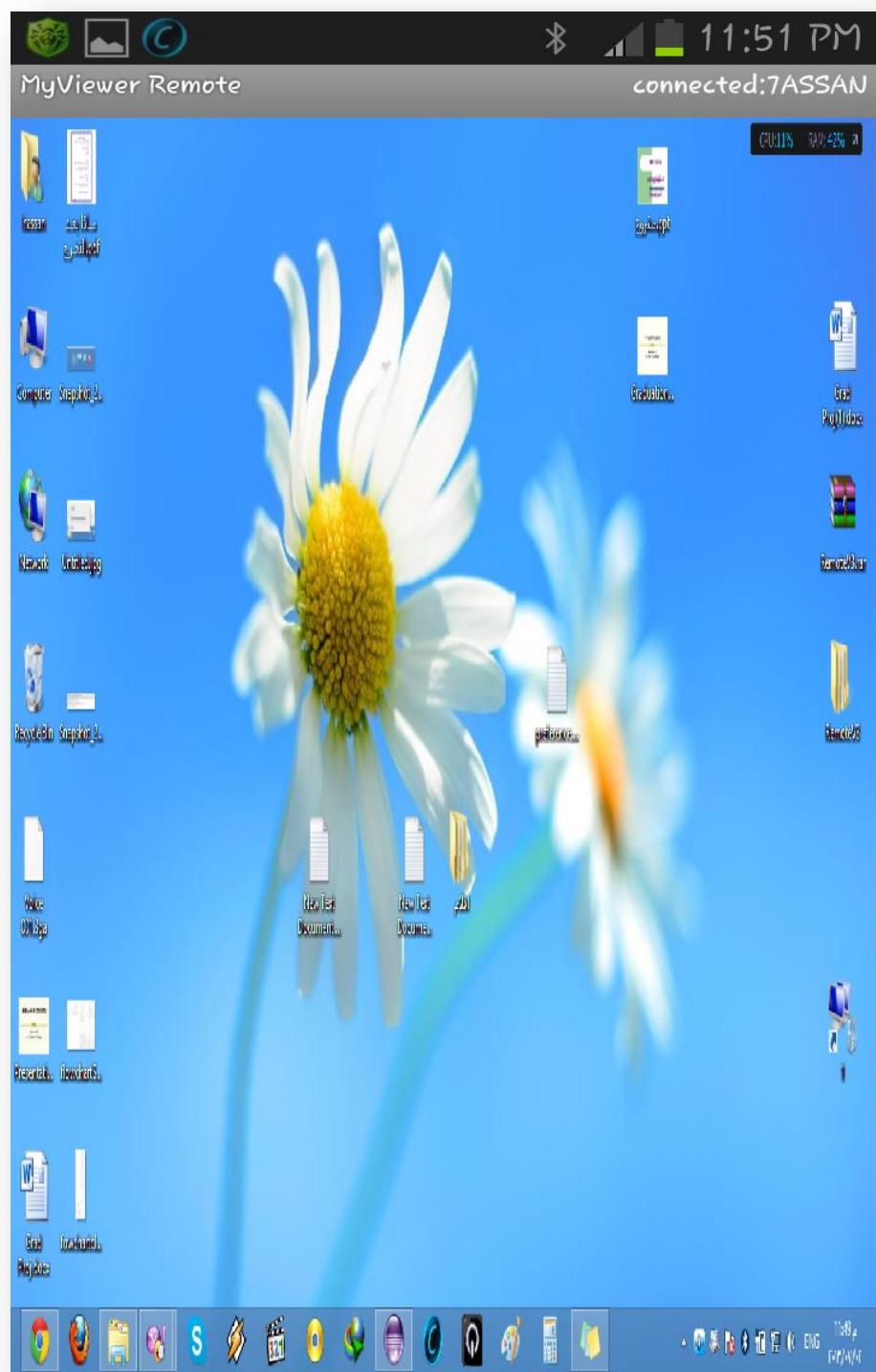
5. After enabling Bluetooth successfully, the user is asked to choose the Bluetooth device to connect it



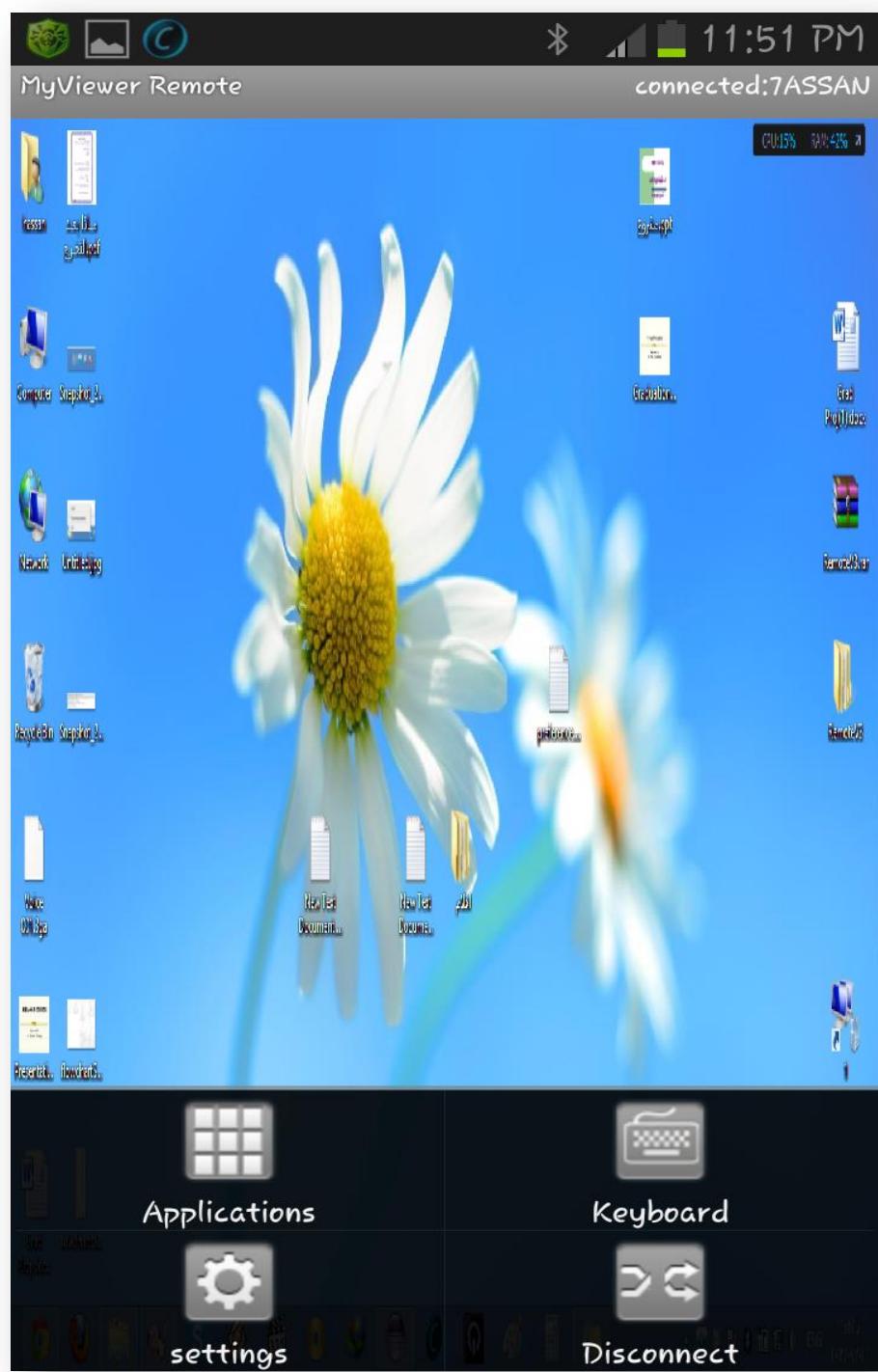
- After connecting successfully, this screen mean that you are connected



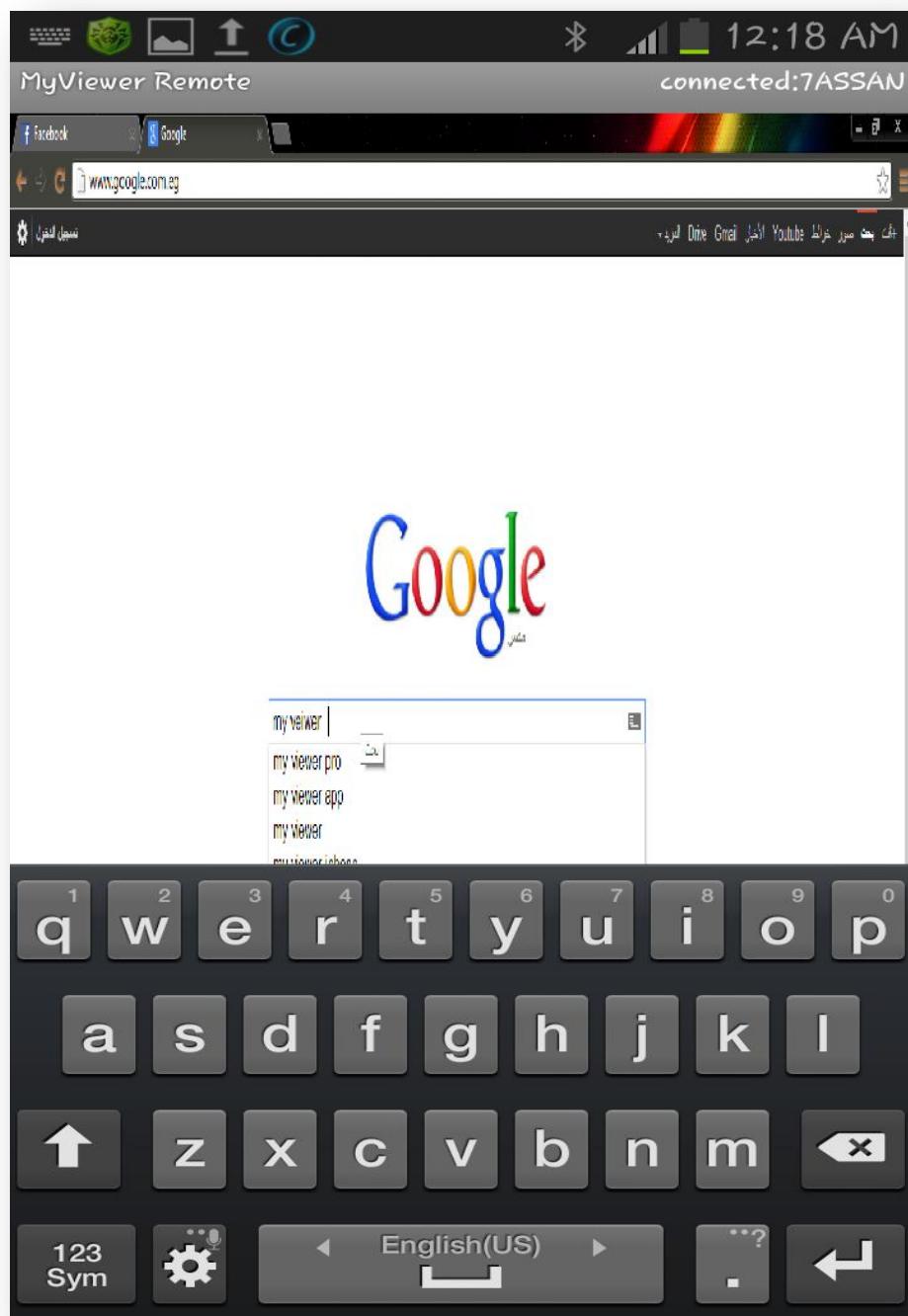
7. As you touch screen, the screen of the computer will appear in your mobile



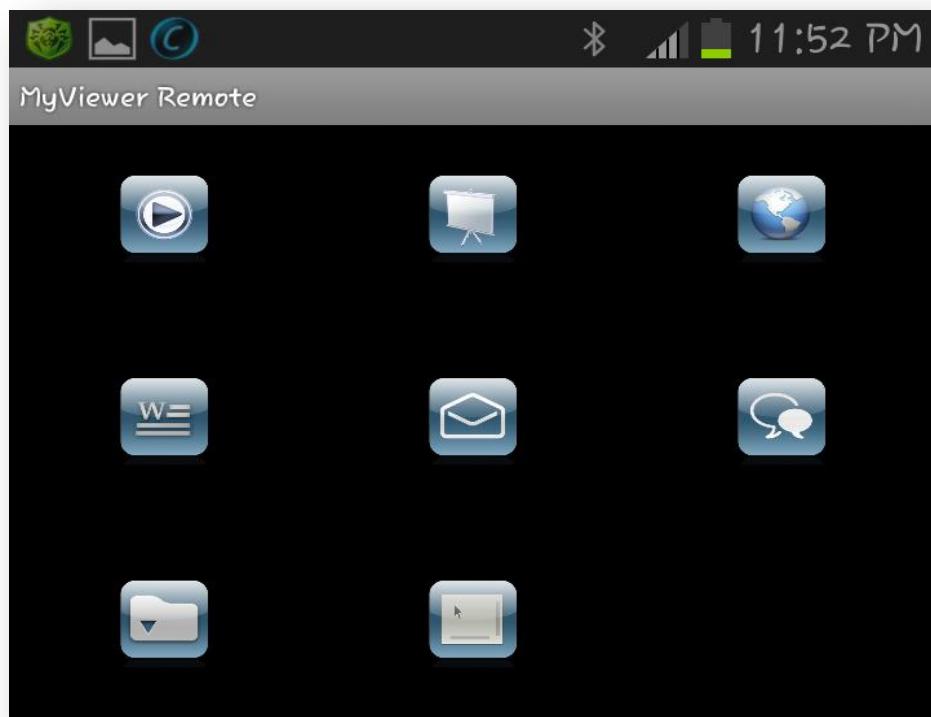
8. When pressing menu button the user is asked to choose from options.



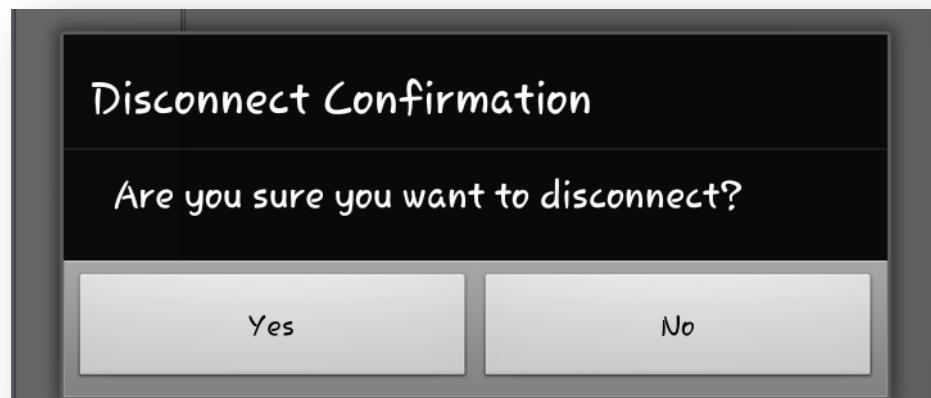
9. When choosing keyboard, the mobile keyboard will appear to the user to write from it which he want



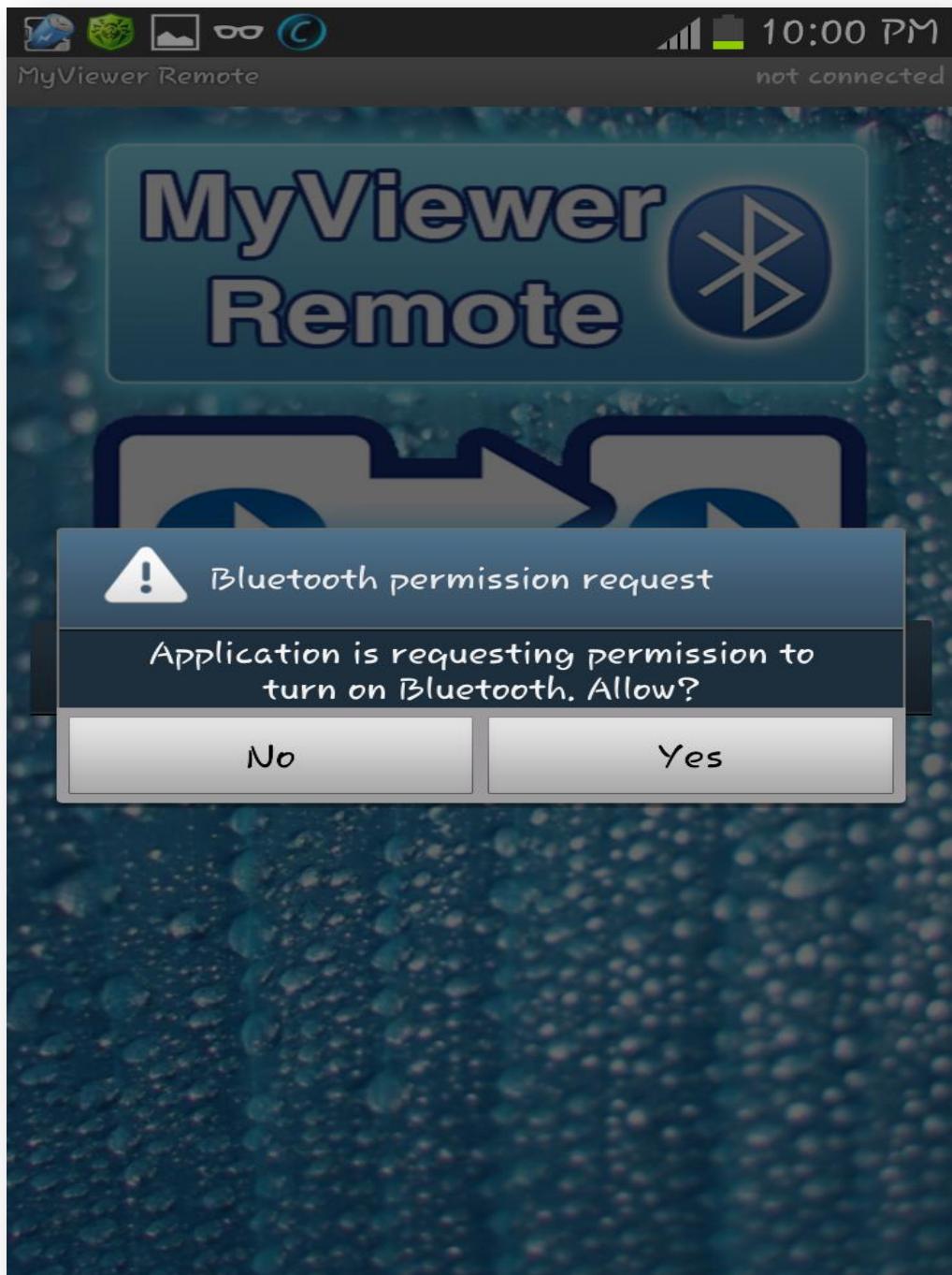
10. When choosing application, a new screen appears to the user to choose one (this option for faster opening application without search on the screen)



11. When user presses the back button in touch screen or choose disconnect on the menu option, disconnect confirmation.



12. When user presses back button on the home screen after disconnect,  
Exit confirmation appears



#### 4.2.3 Remote Connection Interface



## Chapter 5

### CONCLUSION & FUTURE WORK

---

## 5.1 Future work

Remote desktop to your home computer is a great way to stay connected and on top of things. This is already a great tech product, but there is every indication that the technology will continue to improve and make our lives easier. Developers are working on new concepts and it is only a matter of time before these new concepts are introduced to the public.

If you have ever used a remote desktop, you know of the advantages that they already are presenting us with. With a few downloads, you can access your home computer's desktop from almost any computer in the world, as long as there is similar software on it and an internet connection. Remote access to your computer is designed to make your life a lot easier and it is already succeeding with flying colors in this department. You can work from home, check your email from your phone, even access an important file from halfway around the world. The possibilities of what you can do with remote desktop software are almost limitless, so what could make this software even better?

For one, reducing lag time could improve service. When you are using remote access software, you might notice that there is a brief lag time between when you move your mouse and when the cursor on the remote location actually begins to move. This isn't a big deal in most cases, but if you need to access video files, you might become aware of this problem. Obviously as internet connections grow stronger and our computers become faster, this gap in time will decrease until we don't even notice it.

Ease of access could become better, too. Currently, the most popular method of utilizing a remote desktop program involves downloading software onto both computers that you will be using. These computers are accessed through a username and a password. Once this data is entered, you gain access to the other computer. This isn't a problem as it does increase your privacy and

internet safety, but the process could be simplified and perhaps a web interface would promote this. By not needing to download software and using just a web base to access another computer, the customer's experience could be made better. This ability already exists in a few cases, but it is not yet widespread and thus not realistic for many people.

Finally, gaining access to a shutdown computer would make people's lives a lot easier. If you are like most conservation minded individuals, you shut down your desktop computer when you leave the house. This presents a big problem if you need to gain remote access to it. By using remote desktop software to access a powered down computer, you would be able to access the files you need exactly when you need them without worrying about if your home computer is on or off. This would allow you to be environmentally conscious while improving your experience with remote software.

Remote software is extremely useful and it will more than likely continue to improve as technology advances. Full access from handheld smart phones would be helpful here, too. There are many things that experts are working on to improve the user experience even more in the future. As time goes by, you will more than likely find that this new concept will continue to improve and make our lives even easier.

## 5.2 Disadvantages of remote desktop connection

### 5.2.1 Powerful RDS Required:

The remote desktop service should be powerful enough to be able to monitor all connections. As several computers are monitored through a centralized RDS hence the capacity of RDS needs to be powerful enough to take the functional load of multiple computer systems or else the entire setup may go haywire.

### 5.2.2 RDS Monitoring Required:

The remote desktop service is the prominent source of risk of downtime. The entire system will collapse if the remote desktop service will fail unless a remote desktop service monitoring system is in place.

### 5.2.3 Reliable Network Required:

The performance of the system entirely is also impacted by the network credibility. The entire system will be down if the network of remote desktop service is disruptive.

### 5.2.4 Adjustment in Network Required:

The network should be adjusted and sized suitably just to ensure that it should not become the bottleneck when remote desktop services are established.

### 5.2.5 Knowledgeable Administrator:

The administrator needs to be skilled and should have necessary knowledge and be available in the business hours.