Development of Android Mobile Screen sharing and Recording App (AndroidCast)

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Abstract—**In the recent years, Mobile devices have seen remarkable progress and gained vast recognition for developing extremely interactive applications. The mobile devices and the applications running on them are developed rapidly. It is a huge challenge to develop a high performance mobile app. Because of competitive market and short time for development, it is critical for developers to deliver high quality app on time and within budget. This paper aims to serve as a reference material and guide for developers for developing a small mobile application. This paper also provides a focused overview of technical glitches in developing an android mobile application. In this paper a screen sharing and recording mobile application (AndroidCast) is proposed for the Android phones by which an end-user can install the application in the mobiles directly. This application helps in recording a screen and shares it on the other devices over a network connection.**

Keywords- Mobile devices, mobile applications, mobile application development, Android

I. INTRODUCTION

"A mobile app, short for mobile application or just app, is an application software designed to run on perspicacious phones, tablet computers and other mobile devices"[1]. According to Gartner, by the end of 2017, market demand for mobile app development services will grow at least five times faster than internal IT organizations' capacity to deliver them. Gartner forecasts mobile phone sales will reach 2.1 billion units by 2019, which will fuel demand for apps in the enterprise that meet the high performance and usability of consumer apps [2]. As we can see that nowadays, mobiles phones are more a necessity than a luxury. The mobile application AndriodCast is screen sharing and recording app running on Android mobile platform. This application is helpful in many cases. If there is a need to illustrate about something then one can first record it and then share the screen someone. Whether you want to train other people on a particularly difficult program or show everyone how to fix a problem, recording a screen is an easy way to do it. In this we can share our device screen on to another device so that other can see what is happening on first device. It is similar to Team Viewer Software [3] for Personal Computers. In this one can cast screen of android device to connected device.

II. METHODOLOGY

The AndriodCast mobile application is modular in nature which provided abstraction, in turn made it little easy to develop the application. It has two main modules:-

1. Server Running Application

2. Client Running Application

1) Server Running Application

This module acts like a server. This server runs in remote device to which one want to access from our local device. So this module facilitates in accepting connection requests and creates links for app to work smoothly. This module transfers all data to remote device and works in close co-operation with client module running on local device.

2) Client Running Application

This module runs on local device. User can connect to android device with server application running on it. This sends connection request to remote device and consequently sends commands for tasks like command to cast screen to local device. So this module generates requests to server module and in turn receives their responses and acts accordingly. Both modules work in close co-operation and these make mobile application modular in nature.

III. IMPLEMENTATION

B In order to carry out the implementation following hardware and software and information is required to be known:

1. There should be minimum two Android devices with AndroidCast App installed.

2. Devices should be connected through LAN or Wi-Fi.

A. Minimum two Android devices with AndroidCast App installed

To install app on android phone, just click on AndroidCast app setup. Then click install button app and then app will be installed automatically. There is special permission that needs to be given to app is the storage. We need to give this permission to client running device. After successful installation of app dialog box appears, asking to open the app or done with installation and go back. Home screen snapshots

are shown in figure 1. Devices, device1 and device2 are installed with AndroidCast App.

B. *Devices should be connected through LAN or Wi-Fi.*

To Access Remote device one device need to click "Access Remote Device" option and other device is to click "Share My Phone". Sharing phone becomes Server and Accessing device henceforth is referred as client. Server shows device's IP address through which connection is created. And Client asks for IP address of the device to which user wants to connect. Figure 2 shows the entire process. When the user inputs IP address of the Remote device, application makes the connection with remote device .Figure 3 shows the screens of both devices after successful connection.

Then client swipes from left to right to fetch options menu which is shown in first snapshot as below. First Feature "Screen Projection" is touched to start casting the screen of remote device onto host device as shown in figure 4.

When Screen Projection option is selected, screen of remote device is captured and projected onto screen. Figure 5 show that whatever is being shown on the screen of remote device is also being shown on client.

IV. CONSTRAINTS

There are some constraints regarding AndroidCast mobile application. These constraints act as barriers for this application. So the user might face problems if some of the following conditions are not followed accordingly.

1. This application may require very good quality internet connectivity to work properly for example screen sharing may be very cumbersome/time consuming process on slow internet. Poor or no connectivity can lead to less efficient performance.
2. Another constraint is that the screen sharing is not the real time. First screen is recorded and then this is cast to another device and there is time lapse between these two steps.

V. CONCLUSIONS

This paper has highlighted a comprehensive overview of developing a small mobile application called AndroidCast. Some critical constraint that this mobile application faces is also discussed in this paper. For future expansion security issues and appropriate solution for it needs consideration. Running this application on other platform of mobile OS can also be incorporated.

REFERENCES

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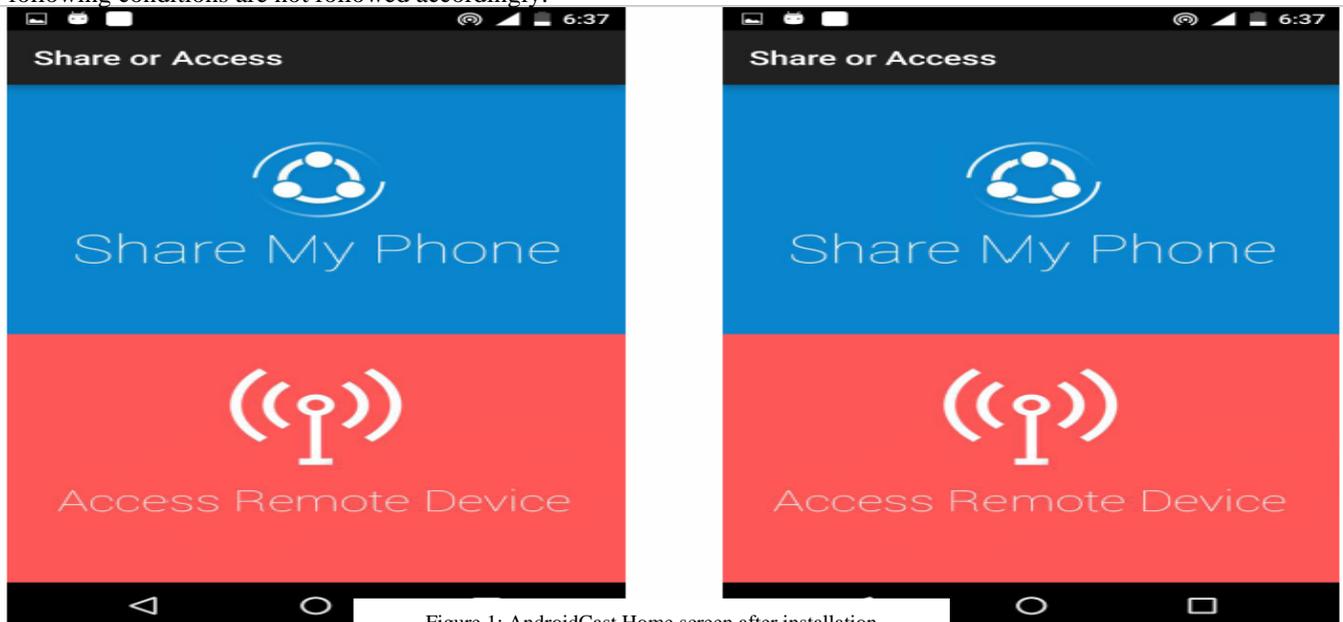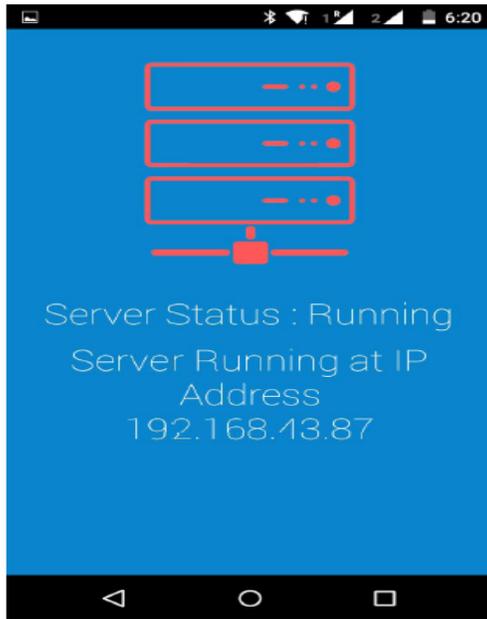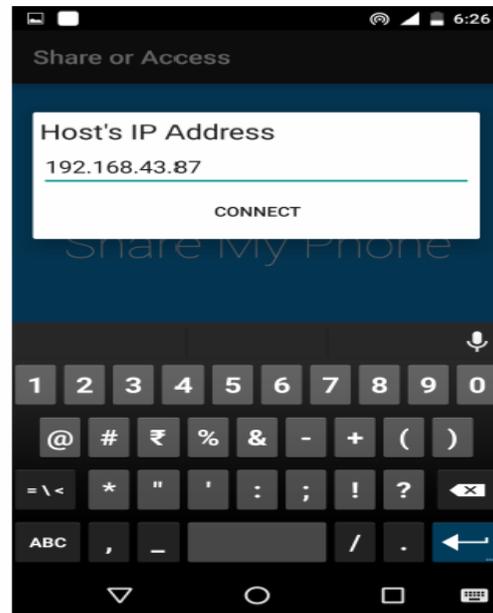
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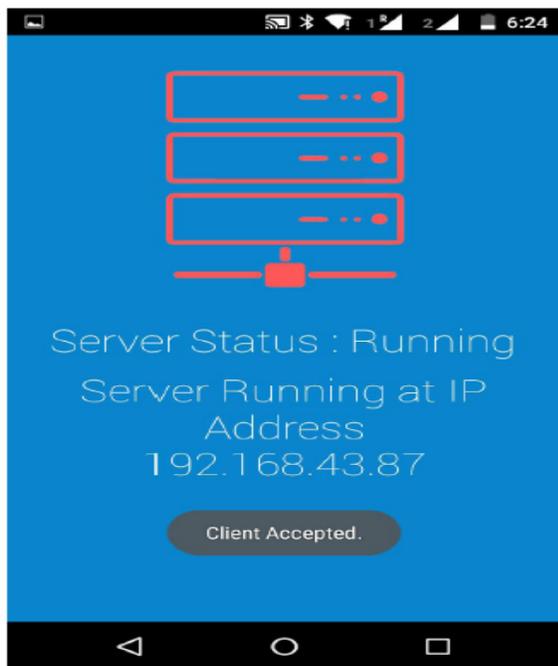

Figure 1: AndroidCast Home screen after installation

Device 1

Figure 2: AndroidCast screen requesting connection establishment
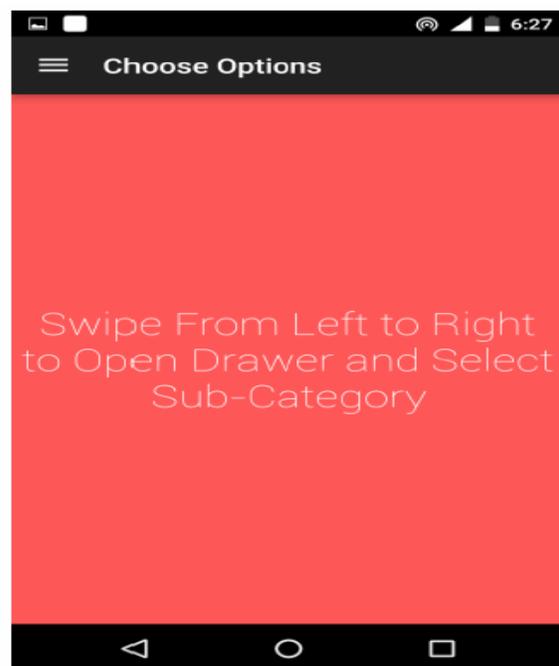
Figure 3: AndroidCast screen after connection establishment
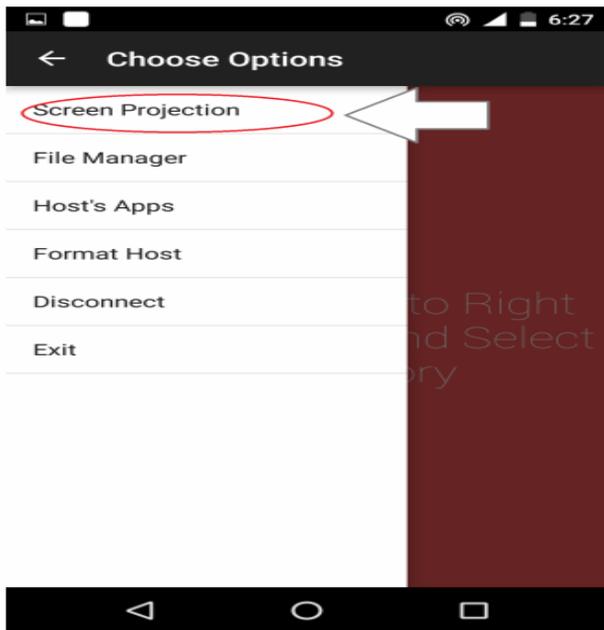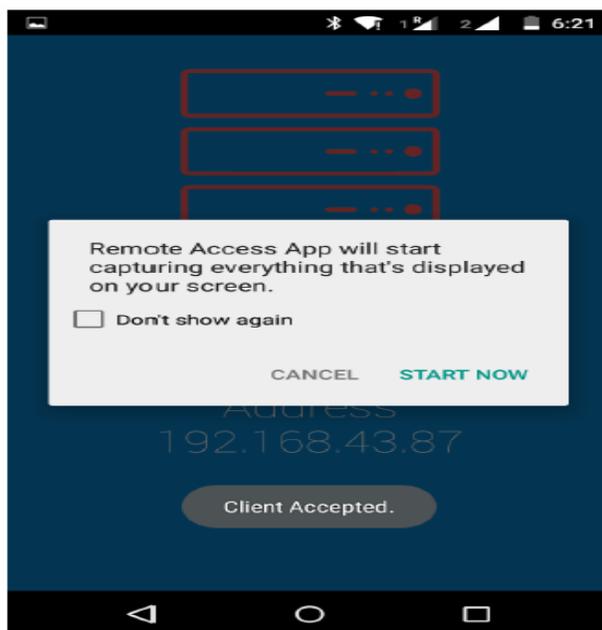
Figure 4: AndroidCast screen requesting screen casting
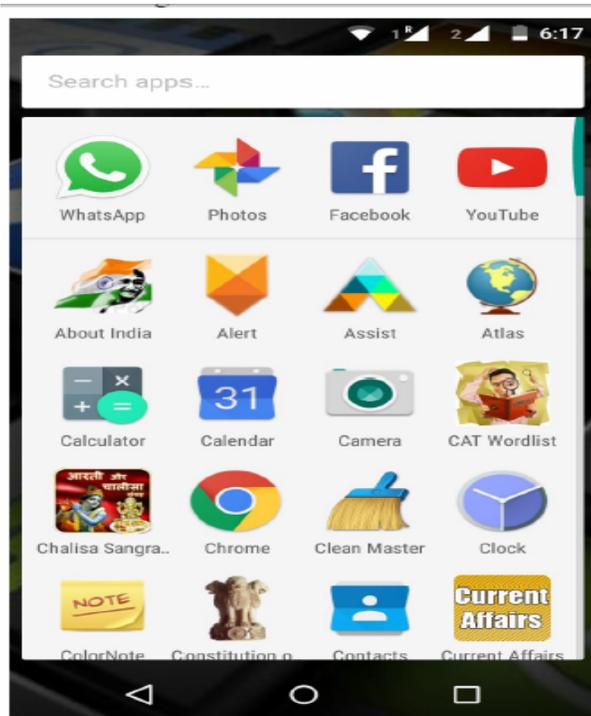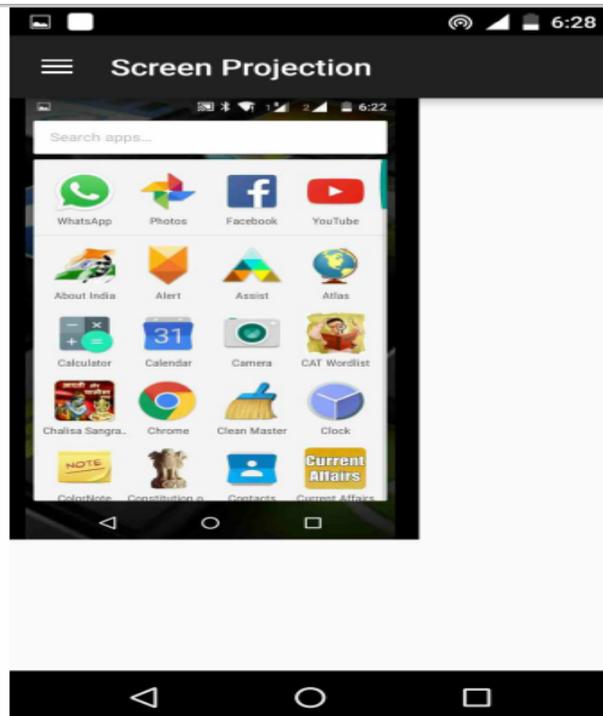
Figure 5: AndroidCast screen of remote device is captured and projected onto screen