

Extending the functionality of Android Clipboard Manager

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Abstract - Clipboard is a software facility used for short-term data storage and/or data transfer between documents or applications, via Copy and Paste operations. The standard built in clipboard of android operating system store only one item at a time so that it provide speedy access to such content normally android clipboard has disadvantages firstly it store only one item at a time and secondly when you turn off system it clears memory. My goal is to eradicate the problems of standard clipboard of Android OS to developed such App that it contains buffer which is located on System Memory and it is permanent storage need not worry about lost of data. Whatever user copy data that copied is maintained or stored in their respective buffer. When I am going to perform paste operation it will populate all respective copied buffer data you have to just select the desired data that you want to paste it save user time and increase the efficiency.

Index Terms:— Copy-Cut-Paste, Clipboard Manager, Logs, Clips, Clipboard, Android

I. INTRODUCTION

Android was developed by Google in 2008 and officially took over as the mobile market leader in the fourth quarter of 2010 [23]. One reason for its rapid growth is the availability of a wide range of feature-rich applications (known as apps). Different from Apple, Google does not impose a thorough scrutinizing process on applications submitting to the official Android market (known as Google Play). Moreover, Google allows the existence of numerous alternative 3rd-party app Stores. While this strategy has been proven to be successful and resulted in Today's dominance of Android platform, it also puts some system components, I.e. focused on Extending Clipboard functionality of Android OS in this paper.

Android provides a powerful clipboard-based framework for copying and pasting. It supports both simple and complex data types, including text strings, complex data structures, text and binary stream data, and even application assets. Simple text data is stored directly in the clipboard, while complex data is stored as a reference that the pasting application resolves with a content provider. Copying and pasting works both within an application and between applications that implement the framework.

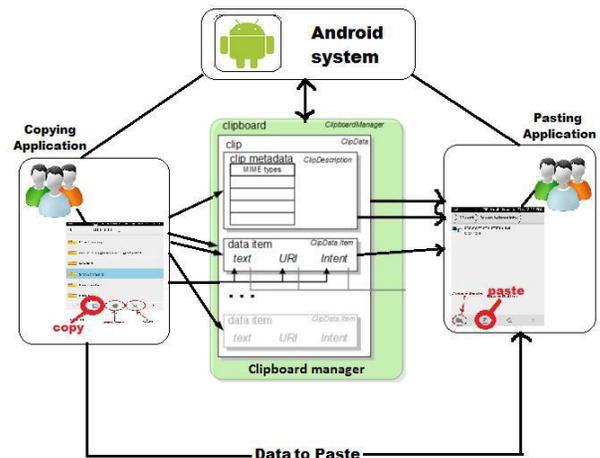


Fig. 1: Working Mechanism of Clipboard

As we know that the standard Android Built in Clipboard has very obvious limitations firstly it store one item at a time on clipboard memory if you had copy another item it overwritten on previous item and secondly if you turn off or restart the mobile it clears memory every time if in case you want previous copied contents you will be miss that contents. Suppose the employee working in the organization and the particular information he want to be use it throughout his working day now he/she go to respective location copy that data and paste it into their respective file but it is ok for only single data you copied then what about if you copy Multiple items at that time it gives you latest copied data for paste operation so to avoid

this problem my utility is going to maintain a buffer for copying data whatever user copy data that copied data is stored in their respective buffer memory and the buffer is created on hard disk so that the information you copied is permanent and when user go to for paste operation that time my utility populate all copied data that is stored inside the respective buffer suppose you use to paste the text data in word file that time my utility shows you all copied text buffer data now our job is to select respective data that we want to paste in the file so it save user time need not copy the same data again and again and increase the efficiency now my job is to extend the functionality of the Clipboard. Our findings- To understand the current clipboard manager situation of Android, we have conducted the first systematic study of the clipboard usage in Benign apps but problem is that if user copied multiple data then it will get latest copied data. Our purpose is to develop new clipboard manager for Android system which is used to maintain all copied data in a segregated manner suppose user copied image file it will be store inside image buffer same for video, text, audio, URL etc. when user going to paste data it will populate all buffer you have to just select respective file from that buffer. The benign sample consists of the top 15 free apps in each category in Google, and they were collected in Jan 2016.

Our analysis result shows that 1180 benign apps provide the functionality to put data on the clipboard, but there no application for Android system that will maintain unlimited copied data with no data loss.

Roadmap- The rest of this paper is organized as follows: Section I gives a Introduction on Android Clipboard. Section II gives history about the Android clipboard. While Section III discusses An overview of new android clipboard manager, Finally, Section IV describes the related work and Section 10 concludes.

II. LITERATURE SURVEY

In the Introduction five operating systems were mentioned-Google Android, Windows Phone, Apple iOS, BlackBerry, and Nokia Symbian. Surveys using the latest statistics predict that Apple iOS will remain the second biggest platform worldwide, after Google Android (Figure 2 and 3 shows this data until 2015, when Windows Phone will surpass it [17].

In January 2013, the number of Google Android apps overtook those of Apple iOS-800,000 apps are now available on Google Play. In October 2012, Google announced that the total number of apps in its store numbered 700,000. According to a recent press release, 775,000 apps are available in Apple’s

App Store. Currently, the Windows Phone Store offers 150,000 apps [17].

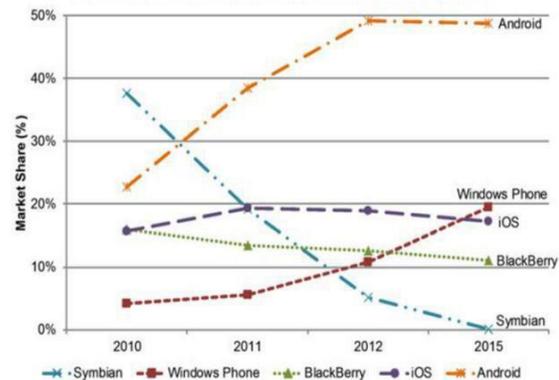


Fig. 2. Worldwide Smartphone market share forecast for 2010-2015 based on data from Gartner [17].

In conclusion, Google Android should be considered the biggest platform worldwide for the next several years. In addition, mobile phones that use Android are less expensive than those using iOS, which contributes to that operating system’s continuous growth. Thus, this study focused on apps for Google Android smart phones. Data were obtained from the Google Play website from the selected apps [17].

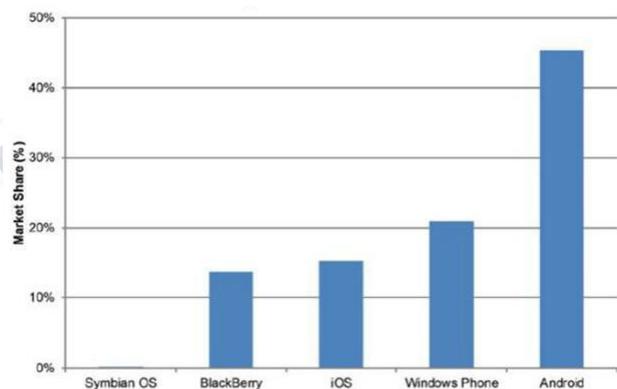


Fig. 3. Worldwide Smartphone market share forecast for 2015 based on data from IDC [17].

The term "cut and paste" comes from the traditional practice in manuscript-editing’s whereby people would literally cut paragraphs from a page with scissors and physically paste them onto another page. This practice remained standard into the 1980s. [1].

The act of copying/transferring text from one part of a computer-based document ("buffer") to a different location within the same or different computer-based

document was a part of the earliest on-line computer editors. As soon as computer data entry moved from punch-cards to online files (in the mid/late 1960s) there were "commands" for accomplishing this operation. This mechanism was often used to transfer frequently-used commands or text snippets from additional buffers into the document, as was the case with the QED editor [1]. Often this was done by the provision of a 'move' command, but some text editors required that the text be first put into some temporary location for later retrieval/placement. In 1983, the Apple Lisa became the first text editing system to call that temporary location "the clipboard" [1].

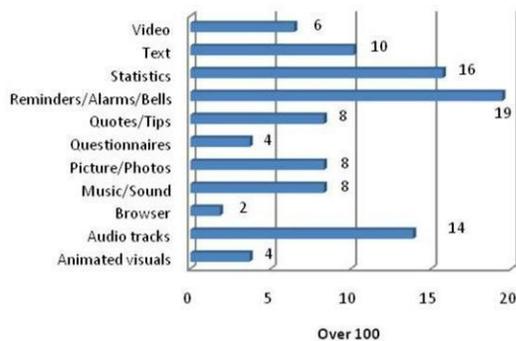


Fig. 4. Percentages of apps that utilized different resources [17].

As I studied ample of free Clipboard software utilities for Android & iOS each one have different functionality some utility store path of copied data some may store copied data but will not shown you copied data at the time you are going to perform paste operation some utility maintain the history of Clipboard.

III. AN OVERVIEW OF NEW CLIPBOARD MANAGER

The term Clipboard Manager is essential for many users to perform various operations. Clipboard Manager Enhance the basic functions of Cut, Copy and Paste operation of default Clipboard with one or more following additional features.

- (a) Maintain all copy data into their respective buffer
- (b) Maintain the logs of copied data the log contains such as date, time, name of application, path of application, Login user name.
- (c) Session Id creation for each user.
- (d) Logs are segregated according to application names. Created Hives like windows registry type structure.
- (e) Permanent storage for all copy data the buffers created for respective data is located on hard disk so need worry

about lost of data when you might be turn off system data is still present inside the buffer.

(f) Searching saved data when user perform paste operation my utility is going to show all copied data from respective buffer your job is only to search the data that you are going to paste from that copied data.

(g) Buffer Maintenance facility for proper maintenance of buffer space.

IV. IMPLEMENTATION

A. Main Window

This is the main window of my project from which you can access all functionality of my project like home, view logs, copy logs, Settings, Refresh, Exit, view different buffers etc.

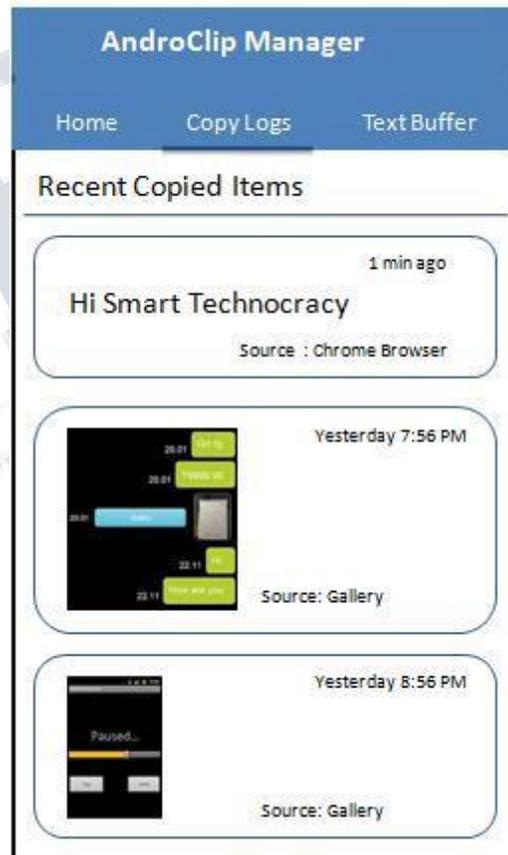


Fig. 5: Main Window of AndroClip Manager.

B. Video Buffer Window

The video buffer which contains all videos copied data whatever user copy data that copied data is stored inside the video buffer with copied data log. The log contains date & time, Application name, Path and Login

User Name of copied data. Same Buffer I am going to maintain for Images, Audio, text, Folders, URL etc.

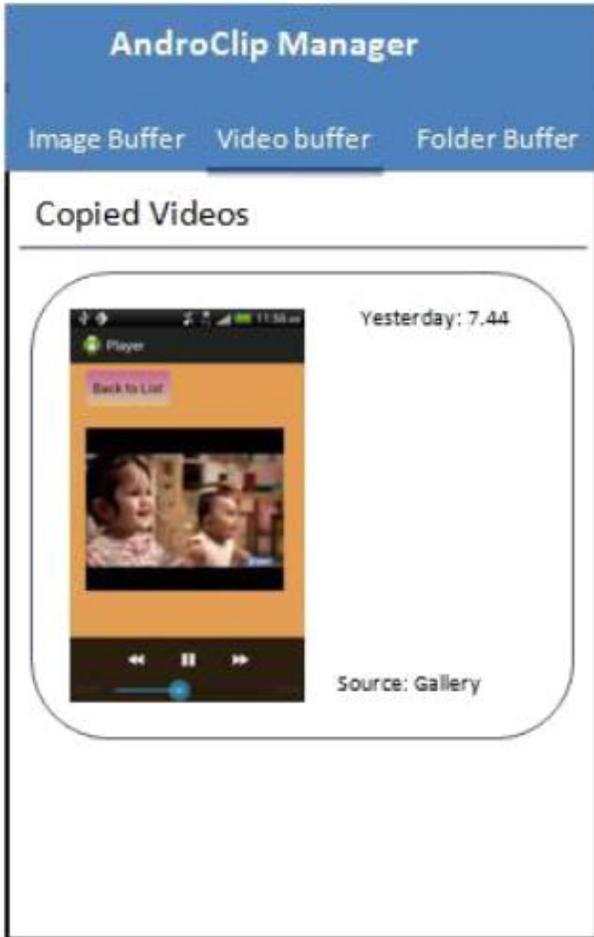


Fig. 6: Video Buffer Window

C. Maintaining all copied data into USB drive by attaching OTG USB Drive to mobile.

I have featured a few ways to hide your data in plain sight by attaching OTG USB drive to mobile purpose of this above implementation is that whatever user copy data that copied data is stored inside the respective buffer of my project which is located on hard disk at the same time the copied data is also stored in the USB drive which is attached to mobile using OTG cable. When you attached USB drive whatever data you have copied will store inside USB drive at the same time AndroClip manager also maintained that data. Once you copied data into USB drive then you can carry anywhere and attach to any mobile. Advantage is that no need to copy data one by one at one

attempt you copy all data that going to maintained in buffer as well as in USB drive.



Fig. 6: USB Drive attach to the Mobile for maintaining all copied data at one attempt.

V. CONCLUSION

In conclusion, Google Android should be considered the biggest platform worldwide for the next several years. In addition, mobile phones that use Android are less expensive than those using iOS, which contributes to that operating system's continuous growth. As detailed in the previous Section, We know very well that Android Clipboard has limitations that firstly it store only one item at a time a secondly when mobile turn off it clears memory every time. So my Utility is going to eradicate that limitations for that we are going to extends the functionality of Android clipboard manager so that it provide better and consistent user interface that save user time and enhance the efficiency.

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