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Android ROM Porting: A Review

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ABSTRACT

Android is a mobile operating system (OS) based on the linux kernel developed by Google. A "ROM" is the operating system software that runs an Android device. It is stored in the "Read Only Memory" portion of the hardware on the Android smartphone and/or tablet. All Android devices contain ROM installed by the manufacturer. But, we can gain the ability to install custom ROMs that will completely change the look and feel of the software. Android ROM porting refers to making a ROM compatible to our device. Flashing a ROM means installing the system image into the device's internal flash memory. This memory holds the Android's firmware just like the other devices with an embedded OS. Designed to improve the user experience and performance of the Android OS, a very popular custom ROM is Cyanogen Mod.

Keywords: *ROM, ROM Porting, Cyanogen Mod, Flashing ROM.*

I. INTRODUCTION

Android is a mobile operating system (OS) based on the Linux kernel and developed by Google. It consists of a user interface which is based on direct manipulation. Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers. The OS uses touch inputs that correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Android OS is open source software which Google released the code under the Apache License. Android Open Source Project allows the user to modify and distribute it freely. Android also has application developer community that further extends the functionality of the device [1]. This is what makes Android to grow much more rapidly than its competitors.

II. ANDROID ARCHITECTURE

Android operating system comprise of different software components arranges in stack. Different components of android operating system are:

1. Linux kernel: Bottom layer of android operating system is Linux kernel. Android is built on top of Linux 2.6 Kernel and few architectural changes made by Google. Linux Kernel provides the basic system functionality such as process management, memory management and device management.

   Linux kernel provides device drivers which make our task easier while interfacing the android with peripheral devices.
2. Libraries: On the top of Linux Kernel another layer called libraries is present. It provides different libraries useful for well-functioning of android operating system. Libraries are java libraries which are built specifically for android operating system.

Some of the libraries are listed below:

Libraries	Explanation
SQLite	It is used to access data published by content providers and includes SQLite database management classes.
SSL	This is used to provide internet security.
OpenGL	It is used to provide Java interface to the OpenGL/ES 3D graphics rendering API.