

ANDROID ROOTING AND INSTALLING CUSTOM ROM'S

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Abstract- In this paper various things about Android Rooting, obtaining Superuser permission, switching from stock ROM to custom ROM have been discussed. It focuses on things like what is a Rooting, stock ROM, custom ROM, how can it be installed, what are the pros and cons of installing the custom ROM by removing its original stock ROM, advantages of use of custom ROM have also been discussed. Methods of rooting device and installing a custom ROM by removing its default stock ROM, we will explain in this paper that will help friends & other users to easily root their android device and install a custom ROM if they wish. Whatever we are going to explain in this paper if you wish to implement it, please do at your own risk. Because there are 50-50 chances that android may go into state called boot loop or it may also get brick & may get dead permanently.

Key words: ROM, Superuser, root, android, recovery.

1. INTRODUCTION

1.1 What is Android ?

After good response from the users using Nokia Symbian, Apple iOS and Microsoft Windows, there came into market a new Operating System called as Android. Android is the mobile operating system developed by Google. Android is a Linux-based software system, and similar to Linux, is free and open source software. One of the most widely used mobile OS these days is ANDROID. [1]

1.2 ROM and its types

A ROM is the operating system software that runs the Android. It is stored in the Read Only Memory portion of the hardware on the Android Smartphone. All mobiles comes with preloaded ROM in it by manufacturer. That ROM is called as Stock ROM, whereas other custom ROM can be flashed by user, but for that purpose user need to root the android device and to obtain Superuser access. [1]

- **Stock ROM:** The official ROM provided by default from manufacturer.
- **Custom ROM :** It is developed mostly by the third party developers. It can either be a modified version of the stock ROM or it can be completely different from the stock ROM.

In normal Android device, user can access only specific system functionality that is granted by device manufacturer. But a user can gain fully access to the android device by rooting its device. Rooting will provide complete Superuser access grant to the device user, but at the same time your device will then void its warranty.

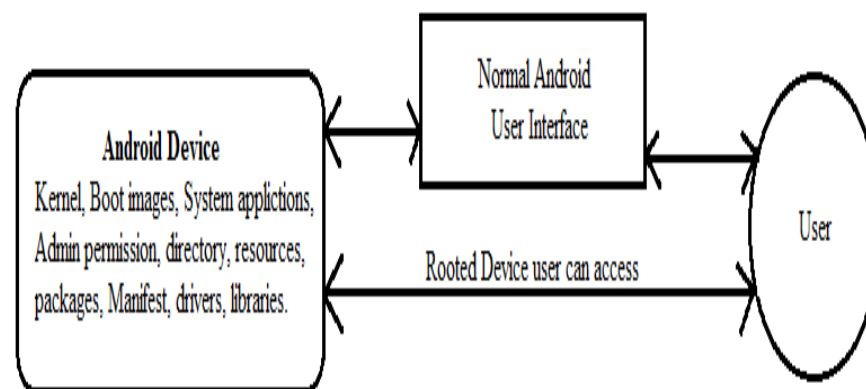


Fig-1: Rooting Device Architecture

1.3 WHAT IS ROOTING

The process of rooting modifies the existing operating system so that one can have complete control over it. After getting root you can extend system functionality, It gives permission to alter system application, settings, run specialized applications which require administrator-level permissions. Hence it increases little amount of security. Rooting is an illegal process as stated in this paper above. [2]

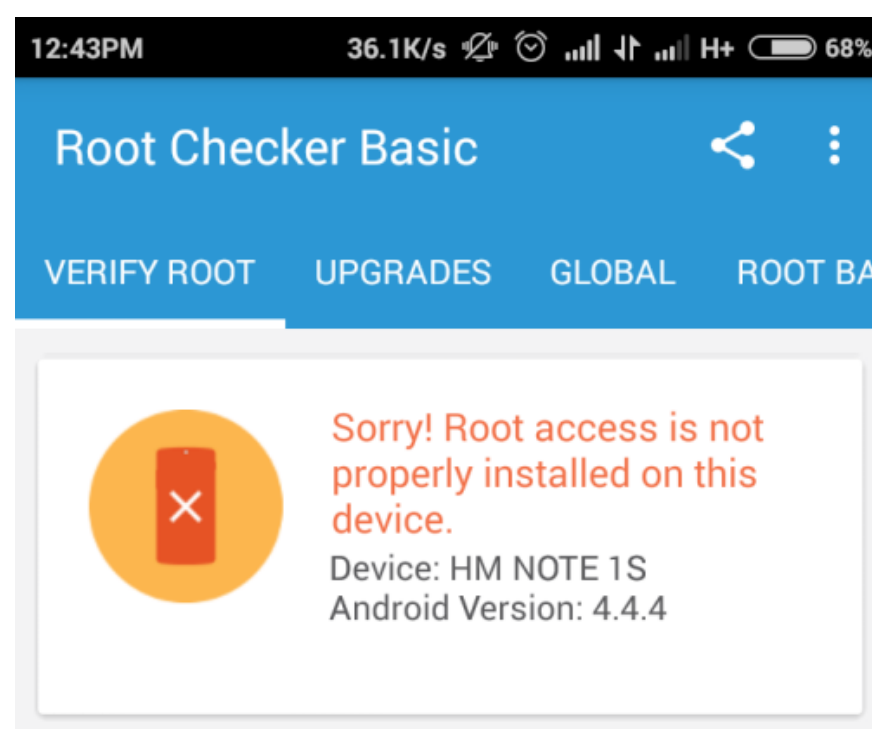


Fig-2 No Root access

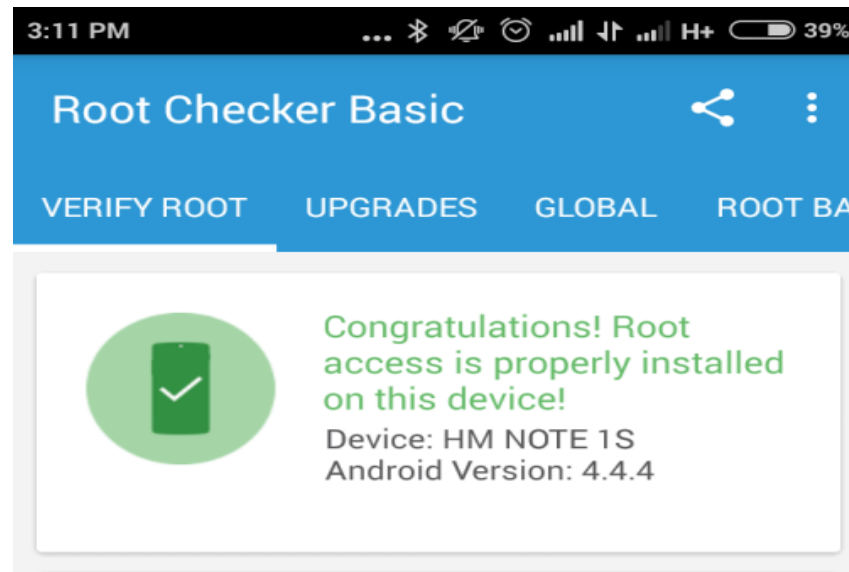


Fig-3 Root access granted

1.4 Who is Superuser

The user with full administrative privileges for accessing the device is known as a Superuser. Superuser is unlocked when the device is rooted. Superuser can allow other applications Root Access. Superuser app is the app a user should install after rooting, if rooting is not done Superuser access cannot be obtained. Rooting device allows user to establish total control over the device, but Superuser is the app that provides the button for that control. [3]

2. PROPOSED SYSTEM

The proposed system is one can root any android device, gather Superuser access right then flash any custom ROM in that device. We are performing this on Micromax A120 device by flashing custom ROM of Xiaomi Redmi MIUI running on Android 4.4.2 Kitkat version. We can flash any ROM in any device provided the specification of device should support the ROM specifications, otherwise some features may not work properly.

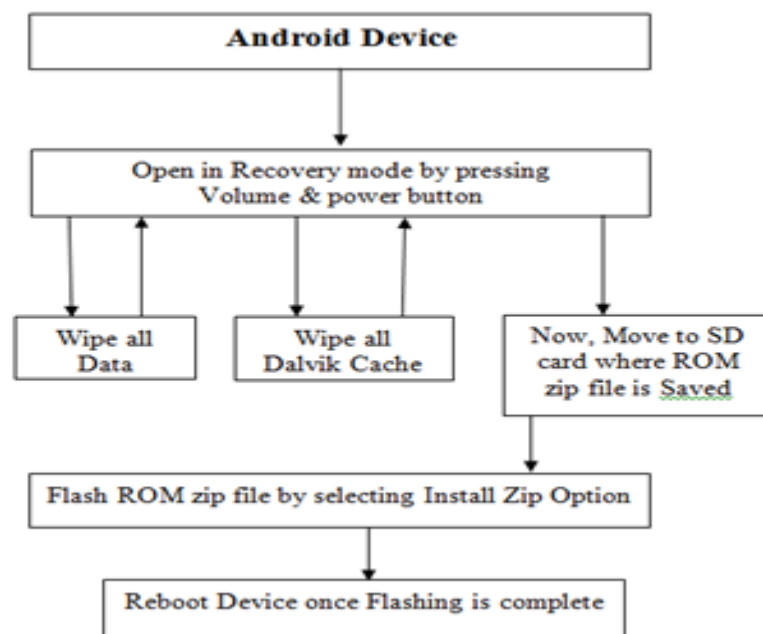


Fig-4 Android device flashing architecture

3. Process to install custom ROM

3.1 Download the Custom ROM and CWM recovery:

Download the custom ROM from XDA developers website. Make sure you download proper ROM for your device, because many devices has its different variants available so properly details must be observe before downloading the ROM otherwise it will not work. ROM will be downloaded in zip form. Place that ROM in your device SD card. ROM size may vary depending on the variants of device description. Also download ClockWorkMode recovery for the device place it in SD card.

3.2 Reboot device into Recovery Mode

To enter into recovery mode, switch off the device first after that hold the volume up + volume down + power button all together for 5 seconds, the device will reboot into recovery mode. Flash the CWM recovery first before moving forward to flash custom ROM.

3.3 Steps to flash Custom ROM

1. You must have CWM recovery installed.
2. Make sure you take full backup from CWM in case anything goes wrong.
3. Keep the downloaded CUSTOM ROM into SD card. [4]
4. Reboot device into recovery mode.
5. Wipe all data/factory reset.
6. Go to advanced and wipe the dalvik cache option.
7. Go to mounts and storage and format /system.
8. Go back and select install zip from SD card, select "CUSTOM ROM.zip" and confirm. [4]
9. It will take few minutes to flash the device.
10. Reboot after flashing is complete.

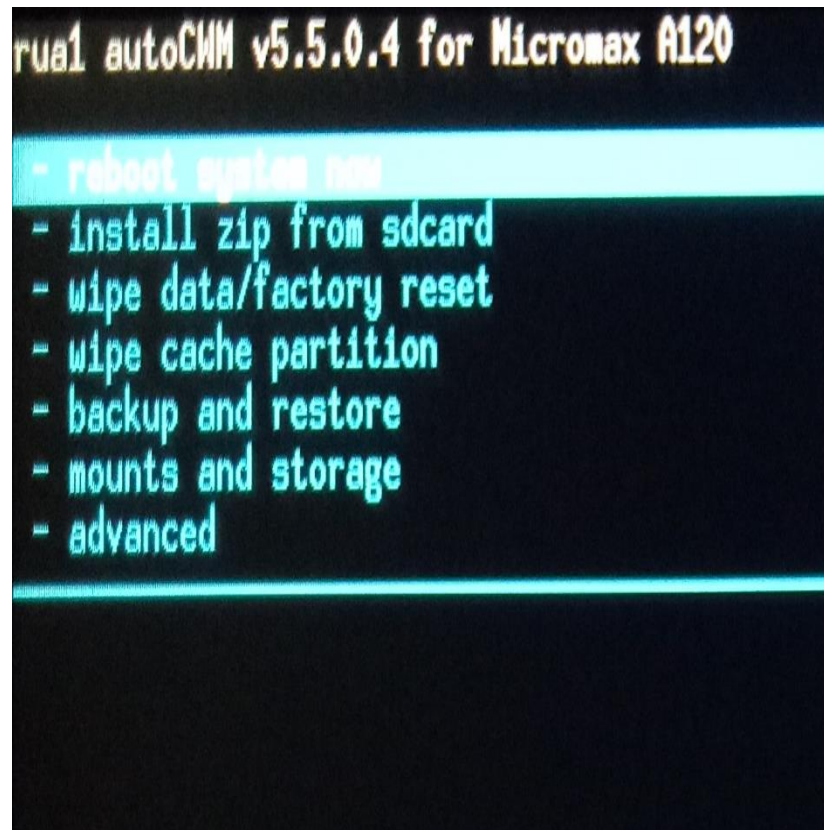


Fig-5 Recovery Mode Screen

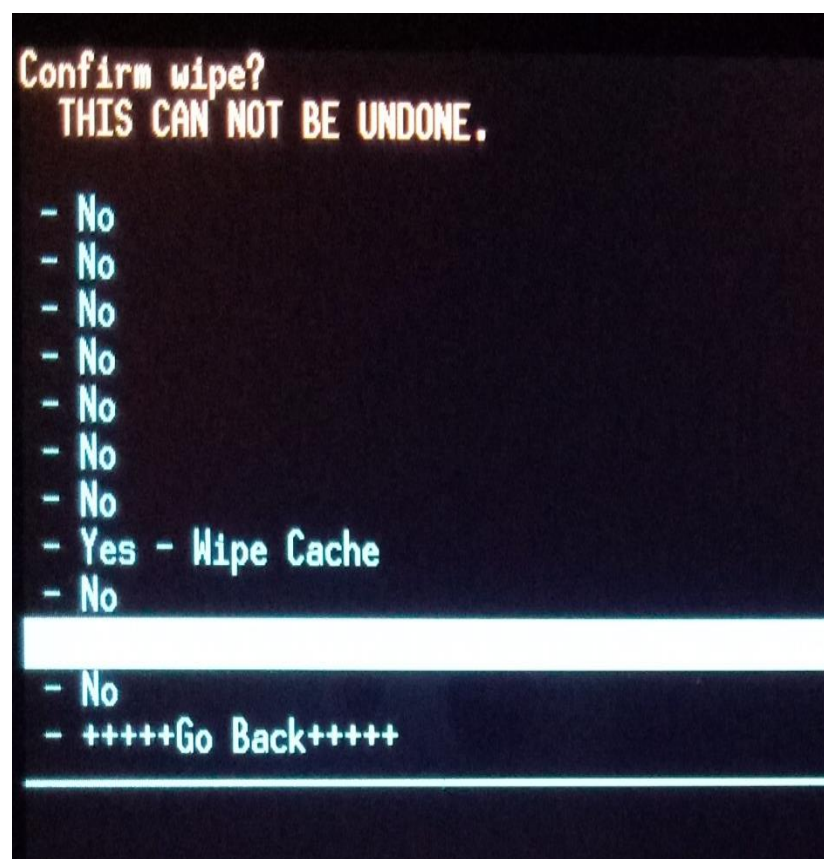


Fig-6 Wipe cache Screen

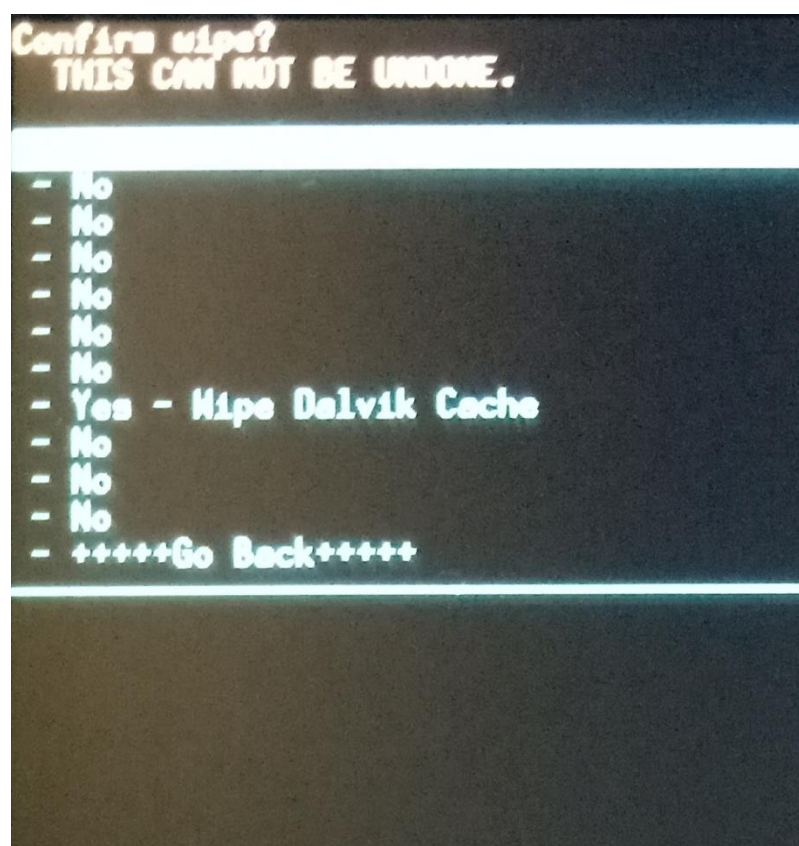


Fig-7 Wipe Dalvik cache Screen

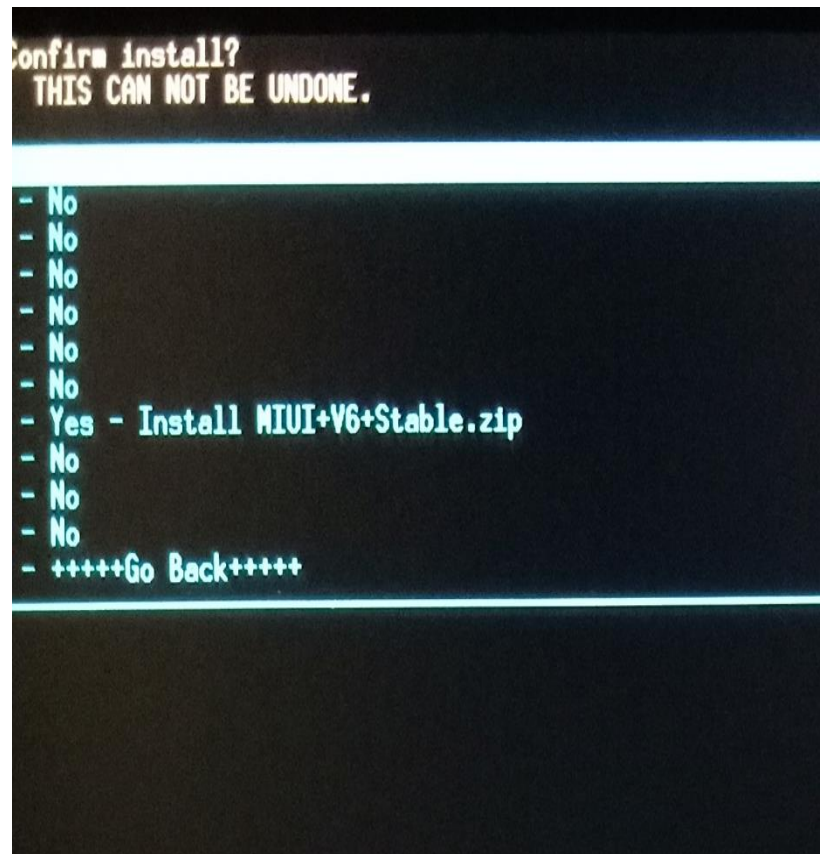


Fig-8 Install Custom ROM Zip Screen

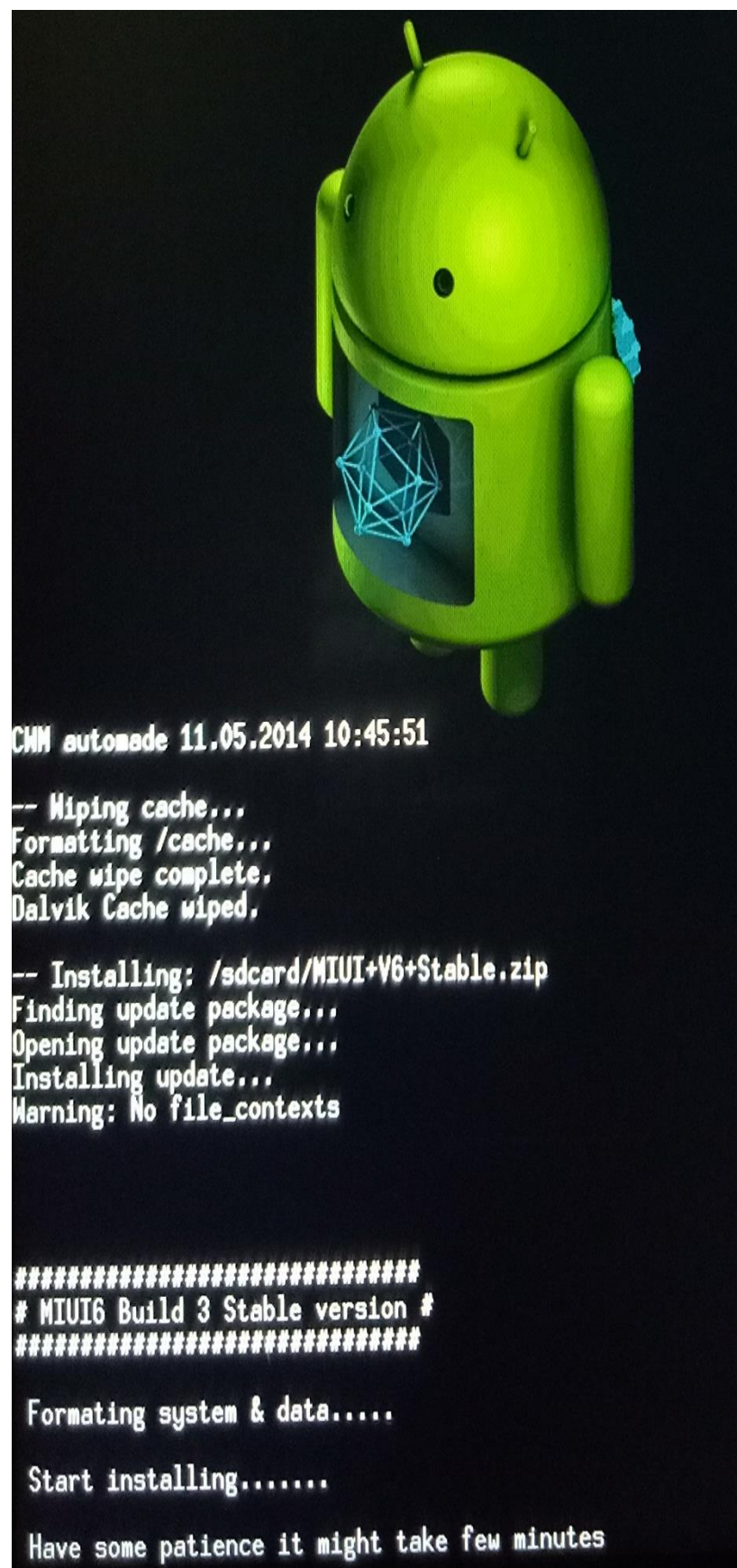


Fig-9 During Installing process of ROM(Flashing) Screen

4. BENEFITS OF ROOTING AND INSTALLING CUSTOM ROM ON DEVICE

1. One can install latest version of android if company is not releasing updates for your device.
2. Before the official release of new operating system one can flash and use the latest upcoming version and if any bugs are found can inform Google to fix the bugs, in other words become Beta tester for Google.
3. One can take backup of game data if device is rooted, which is not possible in non-rooted device.
4. One can remove system apps after rooting to free the space of memory used by those applications preinstalled by company.
5. Using custom ROM performance of the device increases as user can select access control to the apps which user needs.

5. DISADVANTAGES OF ROOTING AND INSTALLING CUSTOM ROM ON DEVICE

1. There are chances of device getting into boot loop, that means if device is not get rooted properly, it will go into infinite reboot mode.
2. The company warranty will get void for that device, if the device is rooted.
3. Bricking is the main reason, so company don't allow user to root the device, some device after rooting become useless as rooting and flashing will damage the device kernel.

6. CONCLUSION

Thus we conclude that android device can be rooted successfully also we can flash other CUSTOM ROM in android device. As android is open source we can do changes in it. There are many benefits as well as disadvantages of android rooting and flashing custom rom to the device as we mentioned above. Once the device is rooted the user will gain full access control to device and will be called as Superuser. You can watch our work video tutorials on YouTube.

How to root android device link: (**Redmi note prime 4G rooting demo is shown**)

<https://www.youtube.com/watch?v=SVSrtVR1LDE>

How to flash CUSTOM ROM link: (**Micromax Canvas Colors 2 A120 flashing demo is shown**)

<https://www.youtube.com/watch?v=31w-x2WXR3A>

7. REFERENCES

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- [2] <http://latestupdates.org/root-redmi-note-prime-one-click/>
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- [4] <https://forum.xda-developers.com/showthread.php?t=2777619>
- [5] <http://ijcsit.com/docs/Volume%206/vol6issue02/ijcsit20150602213.pdf>

8. BIOGRAPHIES



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