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Battery Saver in Android Studio

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ABSTRACT: 70 percent people or even more than that use Android Operating System in the world. Android Operating System has groundbreaking features like Mobile Hotspot, Calling, Texting, Gaming, WIFI, Bluetooth etc in such small devices that fits in the palm of the hand. In between these revolutionary features, we are going to talk about the main feature which is its battery. Because of Battery, it is portable meaning, it can be carried anywhere and it doesn't need to be connected continuously to an electric socket like desktops, TVs, etc while using it. But still it needs to be charged at least once a day. Android Operating System uses a lot of resources which in turn reduces the battery charge too quickly. To tackle this situation many research has been done to optimize the Battery quality of android device but with limited supply of energy, the battery can't withstand the android applications for long-time. There are various ways to enhance power management. One of them is a battery saver application. This application can help the user to reduce power consumption slightly.

KEYWORDS: Android Operating System, Battery Saver, Phones.

I. INTRODUCTION

In Present as well as future, Android Operating System is essential for any person in any stream. Let it be a student, worker, employee, manager, trustee etc. To satisfy their needs Mobile phones should be charged and operational 24/7. Because the revolutionary features of Android Device can come in handy if any emergency situation occurs. But the portable battery has a limitation because of which it needs to be recharged at least once a day. Some Android Device has capacity more than one day.

As time went, more and more android developers developed sophisticated applications that used a lot of RAM and Battery charge. Even hardware got new upgrades such as extra sim slot, SD card, Camera, Flashlights, etc. The developers and researchers estimated that Wi-Fi, Location, Third Party Ads and other Third Party applications eats up very high usage of power.

Therefore, we studied different type's battery applications from Google Play store and tried to run it on Virtual Android Device. Results will be shown in main paper. We will pick only one android battery saver application which is the most efficient and easy to use and understand.

II. LITERATURE SURVEY

Android Battery has limited charge therefore; it should be kept either for charging or conserve/reserve the battery. So that it becomes handy in emergency purposes. There are various kinds of functions, features and applications in an android device. Each function requires a particular amount of battery consumption as we use it in our day-to-day life. It happens more often that an app or function uses more than necessary amount of battery required. Also some unwanted or unused apps consume unnecessary battery. This makes you recharge your android device again and again. Also continuously charging your device may result on damaging the battery or reducing the battery life. As you need to use your android device again and again, it is necessary that your device keeps up with you and enables you a longer time period for usage. This application is a good measure to preserve your battery. This application will make efficient use of android screen. We are making an application that will save battery by switching off the pixels of android screen. This will help in reducing battery usage slightly.

III. PROJECT SCOPE

Saving power of Android enabled devices have become a significant issue with 400,000 such devices being activated daily. Android Smartphone and tablets offer several power hungry hardware components and the app developers are exploiting these components at disposal to provide revolutionary user experience. But the battery life has not increased at the same pace to support the power demand. Thus many researches have been carried out to investigate how to minimize the power consumption in Smartphone. This battery saver is useful only for reading or texting purposes. You cannot watch movie, play games etc because it requires full screen and sometimes even full power of RAM, processors, network, location, etc based on what you are using. Other things like location, cache memory etc

can be optimized from settings application. We won't be showing how to do it in this paper. Point to be noted "THIS APPLICATION CAN REDUCE THE BATTERY CONSUMPTION SLIGHTLY". This information will help people understand the efficient way to use the 'ScreenHider' Application as well as Battery Saver Mode in Settings.

IV. METHODOLOGY

In this project, we will build an application which saves the battery by shutting down the pixels on the unwanted side of the screen black. In other battery saver apps there are many functions like cooling the temperature of the battery, cleaning the memory, cleaning cache, junk files etc. Our app doesn't contain such features, because most of these functions are available in Android Settings App. This application will reduce the battery usage by turning off the pixels of half screen in its initial opening. The name of the application is 'ScreenHider'. If Battery Saver Mode is used during playing games, watching movies etc, it affects the accessibility of the mobile and sometimes might use more battery then when the battery saver mode is off. So when using Battery Saver Mode, we can use it only when we don't use our mobile for high end tasks which requires most of its RAM, Memory, CPU cores, Brightness, Location etc.

Below are the features we are going to include in our android application project. When you opened the application for the first time, it will show you the interface given below:-

1. When the application starts it will display a screen where in the top there is the application icon, in middle there is a string or a sentence written "Welcome to the application that helps you save battery and gain more privacy when reading content on your device". Below shows that the application is stopped or started and below there is a button "Start". At the bottom of the screen are the names of the people who made the application.
2. After clicking start, it asks for permission for putting screen pixels in off state. It also shows text written on it "For this to work, you will be prompted in the next screen to enable the drawing over other application permission". After clicking proceeds, it directs towards the settings which ask for permission to display over other apps.
3. After allowing, press back and press Start button to start the service.
4. The application will start, half screen of the mobile will be covered in pixels in off state and on that will be written "the application has started, to continue the tutorial, tap on the black area".
5. As soon as you tap on the black area, the half side of the screen will become functional again and the other half of the screen will become black showing the interface "You saw that by tapping on the black area, the viewpoint has been switched there Tap again".
6. Then after tapping again the screen changes and you can see that both the top side and the bottom side of the screen has become black and the screen in the middle is visible of the mobile. There is an interface written as "You can interact with your original content through the viewport as usual".
7. Again tapping on the black area will make the screen visible of the above and the below position while becoming black again showing the interface as "Pressing the 'X' button will quickly stop the application. Tap on the black area to continue".
8. Again the interface will show "Thank you".
9. Pressing on the 'X' button will close the application and whole screen will become visible again.

This application is more efficient than the android battery saving mode and other third party battery saving applications.

V. CONCLUSION

From this project we understand the working of our "ScreenHider" or "Black Screen Battery Saver". The pros and cons of battery saver application will be discussed. The Battery is limited and the only way to extend it is by optimising it with our battery saver. Android Mobile phones are a need in today's world and we need to understand its battery optimization to use it anywhere at any time. Awareness is necessary so that it will help the people to use mobile phone more efficient.

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