

ANDROID BATTERY SAVER SYSTEM*

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ABSTRACT

This is a cutting-edge application that allows the system to employ built-in classes and offer them to the client in the form of a list for him to review. Applications that monitor battery usage and determine battery level are also included in the list. This paper describes the development and testing of an Android service that tries to save battery power by utilising Smartphone idle times to stop technologies such as Wifi and Bluetooth, as well as applications that may consume battery power; this service reads user-configured settings and stops/resumes technologies and applications accordingly. This type of software enables for quick and convenient use of a mobile device in daily life, but there is worry that interactive apps take a lot of power and require daily charging because Android apps continue in the background after being switched off, limiting battery life.

KEYWORDS

Battery Indicator, Battery Saver.

1 Introduction

Smartphone batteries are inherently small, and the number of applications that consume more power is which every day. It is well understood that most mobile phone applications are rarely useful if the phone is not connected to a specific network, so using network services while saving battery is counterproductive. Many applications currently installed on Smartphones use technologies that can easily deplete battery power; these applications use technology such as GPS, which is considered a power drain. Smartphones include a list of applications and services that may consume electricity, such as auto-synch applications, 3G, GPS, and Wi-Fi.

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The Android framework offers an interface that allows users to see where their battery power is spent; this interface is found in the phone panel's "Battery use" section. Power Tutor, for example, is a tool that provides more detail in a graphical and visualised format. Power Tutor offers more information about power-hungry hardware components and allows users to view statistics related to power consumption of particular hardware or applications in real-time or over a specific time span.

And when the Mobile is switched off, these tools show that hardware like GPS and Wi-Fi consume more power. The need for automated and conquerable tools to handle running certain applications and technologies is crucial to conserve battery power when Smartphones are not in use, while also reducing the need for

user-interference to manually switch on/off those hardware or applications and doing so on behalf. More strong these days, thanks to power-hungry technology like GPS, 3G, and Wi-Fi. All of these apps require more resources than other apps, such as video streaming apps like YouTube. These types of software are used by the majority of users on a regular basis. If you know where your phone's battery is being used, you will find a solution to these issues. In Android phones, a lot of apps start automatically. They still use an excessive amount of battery.

This type of application allows for efficient and convenient usage of the mobile device in everyday life, but there is a concern that these interactive apps consume a lot of power and need additional charging on a daily basis because Android applications run in the background after being turned off, reducing battery life. There is a need for technologies that can extend battery life by destroying apps or activities that aren't being used by the user. As a result, our primary goal is to optimise battery use.

The applications start automatically for two reasons, as can be seen in the permissions of the applications: many applications report persistent misuse and errors, so they are run in the background so that the developer can enhance the applications' functionality and functions in the near future. We've found that different phones use different amounts of energy. We demonstrate in this paper that the power consumption properties of different types of phones vary significantly.

2. EXISTING SYSTEM

As a "android" operating system, it is well-known in the world and provides a range of advantages. Every operating system has its own set of benefits and drawbacks. The most popular and significant drawback of Android is its high battery usage. Several studies on power consumption have been conducted in response to this disadvantage of the operating system. The power consumption with hardware elements of software has been praised by the

researchers. Each hardware element has different states, and the battery consumption is determined by those states. The current state of the art is divided into three sections as follows:

1) Power is used by connectivity features. Connectivity capabilities are included in the Android operating system. 3G, GPS, and Wi-Fi, for example, use a significant amount of battery. Many researchers have worked to reduce the power consumption of GPS. The four principles of this technique are suppression, substitution, piggybacking, and adaptation. Substitution is a technique that uses different positioning systems instead of GPS when high accuracy of location is not needed. Suppression uses a low-power accelerometer sensor while the consumer is in static mode. The process of caching and distributing position coordinates to all location-based applications is known as piggybacking.

2) Context-aware power management: This approach deals with the recording of context obtained from cell phone use. They proposed a context-aware battery management system (CABMAN). It comes with a variety of monitors that are used to record specific data, such as a context monitor that records context information, a battery monitor that records battery level, and a process monitor that records process running. CABMAN also has a specialised algorithm that can anticipate the next charging opportunity.

3) Power model generation: Power models must be produced in order to see the battery consumption dissipation pattern. The researchers were successful in developing a model known as a "Power Booster." This technique uses Smartphone sensors to track battery usage and tracks battery discharge activity. The key benefit is that it does not necessitate the use of an external power measurement system to display power consumption.



Fig 1.1 Battery Consumption

3. PROPOSED SYSTEM

"BATTERY SAVER" is a programme that controls the software and utilities on smart Android phones in order to save battery life. Android is a self-contained performance booster. which saves a lot of power internally, so saving power internally is almost impossible because it can cause unwanted changes in the operating system. As a result, power saving work must be performed externally by monitoring external applications and systems, which must be done with the user's assistance, as the user has the best knowledge of the services and applications he or she requires. Making this place completely automated is a challenge because it would not be practical for the users because we don't know what they want. Many software and services have internal optimising settings, such as keeping applications in sleep mode while the screen is off, which indicates that the cell is not being used by the user. However, most users are unaware of these settings and can tamper with them, causing the operating system to malfunction. It's a challenge to put those settings in a position where users can easily access them without having to worry about them interfering with other important settings on their Android phones.

Keeping track of battery consumption trends so that users can learn about and evaluate their habits and adjust their settings accordingly. Provide users with alerts in various colours, such as red for very low battery, or alarms at critical times, which can be set up by the user at his leisure. This makes it a very convenient app for users because they can set their expectations without having to worry about cell results. Displaying battery status to the user, as well as remaining time periods for low, high, or general use, so that the user can see and understand his actions and their effect on the cell of Android-powered devices.

"BATTERY SAVER" is a project that is extremely relevant in the current situation of the rapidly growing Android market and a multitude of applications that have a wide variety of human applications at the expense of battery life. This subject was chosen based on our previous experience with Android. Battery Saver is based on the Android framework, which uses a combination of java coding and XML files for presentation and interaction. The project was designed to support up to 14 different API levels. It was developed with Android 4.1.0 Ice Cream Sandwich and is compatible with Android versions 2.2 and up.

4. WORKING

Three modules make up the "battery saver." Each module provides a user-friendly and efficient interface for managing battery use. These three modules contribute to a significant increase in battery life and are highly customizable in the application. The following are the three modules:

4.1 STATIC MODE

Wi-Fi, Bluetooth, GPS, and other battery-draining hardware and technology are examples. We've gathered all of these options in this module, with the ability to enable or disable them. So that it reduces the extra overhead of the user to disable it from the phone setting. As a result, the system's usability improves.

4.2 BATTERY INDICATOR

The battery indicator provides a thorough abstraction of the battery consumption as well as other settings. This is the project's most critical module, which is built around device utilisation. This module includes an abstract level of setting that can be used whenever desired.

4.3 TASK MANAGER

It provides an interface for all of the device's running applications, as the name implies. The task manager assists in the termination of excessive and unnecessary tasks. As a result, we can improve RAM speed by eliminating a large number of unnecessary applications.

5 ADVANTAGES & DISADVANTAGES

5.1 ADVANTAGES

- The user gets a list of applications usage in a single place.
- The system notifies the user if the battery is low and indicates which app is using more power.
- The consumption rate is accurate.
- Also indicates which app consumes more power.

5.2 DISADVANTAGES

- This system doesn't use any backend.
- The system provides less information than the phones built in apps.

6. CONCLUSION

Battery Saver is a project which is extremely important in the current situation of the rapidly increasing Android market and a plethora of applications that have a wealth of human applications at the expense of battery life. This subject was chosen based on my previous experience with Android. Thus, Battery Saver effectively offers full information for a user to know his every move and its effect on battery, as well as some database to evaluate his usage pattern and set his own alerts and usage patterns while still saving battery.

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