BATTERY HEALTH ANALYSER

Mathan Babu P, Mohamed Jasim M, Mohamed Jassim U
Mithilesh A, Mohammed Thoufeeq S
B.E III Year Computer Science and Engineering
SNS College of Technology
Coimbatore, India
mathan.p.cse.2020@snsct.org,jassim.u.cse.2020@snsct.org
,jasim.m.cse.2020@snsct.org,
smthoufeeq1106@gmail.com

Ragavi Priya S AP/CSE
M.E Computer Science and Engineering
SNS College of Technology
Coimbatore, India
priya.skrv@gmail.com

Abstract

Mobile batteries use lithium-ion technology. Compared with older generations of battery technology, lithium-ion batteries charge faster, last longer, and have a higher power density for more battery life in a lighter package. All rechargeable batteries are consumable components that become less effective as they chemically age. As lithium-ion batteries chemically age, the amount of charge they can hold diminishes, resulting in shorter amounts of time before a device needs to be recharged. This can be referred to as the battery's maximum capacity the measure of battery capacity relative to when it was new. As Android User no one knows about their Battery Health & Battery Cycle Count Without Knowing it. So Many people are not aware of their battery and so they always replace their mobiles instead of Batteries. Batteries are a complex technology, and a number of variables contribute to battery performance and related Phone performance. All rechargeable batteries are consumables and have a limited lifespan—eventually their capacity and performance decline such that they need to be replaced.

Keywords-component; Battery Health; Battery Monitoring; Charge Cycle; Lithium-Ion.

I. INTRODUCTION

Your Phone is designed to deliver an experience that is simple and easy to use. This is only possible through a combination of advanced technologies and sophisticated engineering. One important technology area is battery and performance. Batteries are a complex technology, and a number of variables contribute to battery performance and related Phone performance. All rechargeable batteries are consumables and have a limited lifespan eventually their capacity and performance decline such that they need to be replaced. As batteries age, it can contribute to changes in Phone performance. By Creating an App that allows users to know more about their battery health and battery charge cycle. As they know about it more it'll help to manage the Battery Health efficiently.

Compared with traditional battery technology, lithium-ion batteries charge faster, last longer and have a higher power density for more battery life in a lighter package. When you know a little about how they work, they can work that much better for you. It charges fast for convenience and slow for longevity. Your Phone lithium-ion battery uses fast charging to quickly reach 80 per cent of its capacity, then switches to slower trickle charging. The amount of time it takes to reach that first 80 per cent will vary depending on your settings.

This combined process not only lets you get out and about sooner, it also extends the lifespan of your battery. It makes charging easier.

II. LITERATURE SURVEY

[1] Developing energy efficient mobile applications is an important goal for software developers as energy usage can directly affect the usability of a mobile device. Unfortunately, developers lack guidance as to how to improve the energy efficiency of their implementation and which practices are most useful. In this paper we conducted a small-scale empirical evaluation of commonly suggested energy-saving and performance enhancing coding practices. In the evaluation we evaluated the degree to which these practices were able to save energy as compared to their unoptimized code counterparts. Our results provide useful guidance for mobile app developers. In particular, we found that bundling network packets up to a certain size and using certain coding practices for reading array length information, accessing class fields, and performing invocations all led to reduced energy consumption. However, other practices, such as limiting memory usage had a very minimal impact on energy usage.

III. LITHIUM-ION BATTERIES

Lithium-ion batteries chemically age, the amount of charge they can hold diminishes, resulting in shorter amounts of time before a device needs to be recharged. This can be referred to as the battery's maximum capacity the measure of battery capacity relative to when it was new.

In addition, a battery's ability to deliver maximum instantaneous performance, or "peak power," may decrease. In order for a phone to function properly, the electronics must be able to draw upon instantaneous power from the battery.

IV. PROJECT ANALYSIS

Mobile batteries use lithium-ion technology. Compared with older generations of battery technology, lithium-ion batteries charge faster, last longer, and have a higher power density for more battery life in a lighter package. All rechargeable batteries are consumable components that become less effective as they chemically age. As lithium-ion batteries chemically

age, the amount of charge they can hold diminishes, resulting in shorter amounts of time before a device needs to be recharged. This can be referred to as the battery's maximum capacity—the measure of battery capacity relative to when it was new. As Android User no one knows about their batteries.
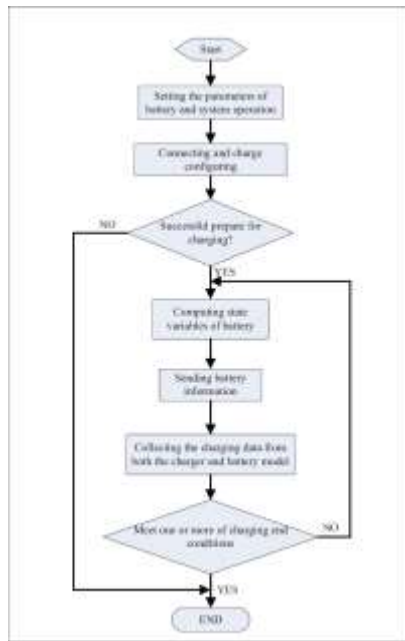

Figure.1

V. PROPOSED SYSTEM

"Battery life" is the amount of time a device runs before it needs to be recharged. "Battery lifespan" is the amount of time a battery lasts until it needs to be replaced. One factor affecting battery life and lifespan is the mix of things you do with your device. A battery's lifespan is related to its "chemical age," which is more than just the passage of time. It includes different factors, such as the number of charge cycles and how it was cared for. By Creating An Application to monitor and manage the battery health and it's performance. BT ANALYSER will allow user to monitor their mobiles battery health and to use it better to manage batteries life. All rechargeable batteries are consumable components that become less effective as they chemically age.

VI. RESULT

Creating an App that allows users to know more about their battery health and battery charge cycle. As they know about it more it'll help to manage the Battery Health efficiently. By Creating An Application to monitor and manage the battery health and it's performance. BT ANALYSER will allow user to monitor their mobiles battery health and to use it better to manage batteries life.

VII. FUTURE WORK

Lithium-Ion rechargeable batteries require routine maintenance and care in their use and handling. Read and follow the guidelines in this document to safely use Lithium-Ion batteries and achieve the maximum battery life span. The typical estimated life of a Lithium-Ion battery is about two to three years or 300 to 500 charge cycles, whichever occurs first. One charge cycle is a period of use from fully charged, to fully discharged, and fully recharged again.

Use a two to three year life expectancy for batteries that do not run through complete charge cycles. Rechargeable Lithium-Ion batteries have a limited life and will gradually lose their capacity to hold a charge. This loss of capacity (aging) is irreversible. As the battery loses capacity, the length of time it will power the product (run time) decreases.

Lithium-Ion batteries continue to slowly discharge (self-discharge) when not in use or while in storage. Routinely check the battery's charge status. The product user manual typically includes information on how to check battery status, as well as battery charging instructions.

VIII. CONCLUSION

A charge cycle is the process of charging a rechargeable battery and discharging it as required into a load. The term is typically used to specify a battery's expected life, as the number of charge cycles affects life more than the mere passage of time. A "charge cycle" is not a unit of time; the length of time spent charging or discharging does not affect the number of charge cycles. The name Battery Management System, is fittingly, a built-in electronic system that protects and manages the operations of the battery.

A. ABBREVIATIONS

- API - Application Programming Interface, GUI - Graphical User Interface, PHP - Hypertext Preprocessor, IDE - Integrated Development Environment, OS Operating System, JVM Java Virtual Machine.

B. EXISTING SYSTEM

- USING SETTINGS MENU : Every Android device allows you to track the battery status through its Settings menu. But it must be noted that the information provided and the navigation option may vary depending on your Android build and version. Open the Settings app on your phone and go to the Battery. Under the Battery section, tap the three-dot icon on the top right corner and click on Battery Usage to find the list of apps consuming the most power since the last charge. Should you wish to force an app to close, tap on the app name and choose a setting that suits your purpose.

- USING A DIAL CODE : Little do people know that you can access a hidden diagnostics menu on Android phones by dialling a secret code comprising numbers, asterisks and hashes. Here's how you can use the Phone app to check the battery information of your Android mobile phone.

C. *Problem Statement*

- All rechargeable batteries are consumable components that become less effective as they chemically age. As lithium-ion batteries chemically age, the amount of charge they can hold diminishes, resulting in shorter amounts of time before a device needs to be recharged.

- This can be referred to as the battery's maximum capacity—the measure of battery capacity relative to when it was new. As Android User no one knows about their Battery

IX.   REFERENCE

[1] D. McIntire, K. Ho, B. Yip, A. Singh, W. Wu, and W. J. Kaiser, "The Low Power Energy Aware Processing (LEAP)Embedded Networked Sensor System," in Proceedings of the 5th International Conference on Information Processing in Sensor Networks, ser. IPSN '06. New York, NY, USA: ACM, 2006, pp. 449–457. Billing hurst, Mark. "Augmented reality in education in video based in computer graphics and applications." New Horizons for Learning 12 (2002).

[2] Anderson MJ (2001) A new method for non-parametric multivariate analysis of variance. Austral Ecology 26(1):32–46. David Fonseca, Nuria Martí, Ernesto Redondo, Isidro Navarro, Albert Sanchez Computers in human behavior 31, 434-445, 2014.

[3] M.A. Hannan et al. A review of lithium-ion battery state of charge estimation and management system in electric vehicle applications: challenges and recommendations Renew. Sustain. Energy Rev.(2017).Specht, Marcus, Stefaan Ternier, and Wolfgang Greller. "Mobile augmented reality for learning: A case study." Journal of the Research Center for Educational Technology . 7.1 (2011): 117.

[4] Guangming Song, Hui Wang, Jun Zhang, and TianhuaMeng,"Automatic Docking System for Recharging Home Surveillance Robots", IEEE Transactions on Consumer Electronics, Vol. 57, No. 2, pp. 428-435 May 2011 Chien, Chien-Huan, Chien-Hsu Chen, and Tay-Sheng Jeng. "An interactive augmented reality system for learning anatomy structure." Hong Kong(2010).

[5] Irsyad N. H., Edi Leksono, M. Iqbal, FX Nugroho S., Nugraha, Deddy Kurniadi, Brian Yuliarto, Development of Battery Management System for Cell Monitoring and Protection, IEEE Int. Conf. on Elect. Engineering and Computer Science, pp. 24-25 Nov. 2014.

[6] ShiliangLuo, Bin Ren, The Monitoring and Managing Application of Cloud Computing Based on Internet of Things, Elsevier, Computer Methods and Program in Biomedicine 130 (2016) 154-16.

[7] Y. Xing, E. W. M. Ma, K. L. Tsui, and M. Pecht, Battery Management Systems in Electric and Hybrid Vehicles, Energies, vol. 4, no. 12, pp.1840–1857,Oct. 2011.

[8] D. Dasgupta, A. Roy, and A. Nag, "Toward the design of adaptive selection strategies for multi-factor authentication," Computers & Security, vol. 63, pp. 85–116, 2016.

[9] Dressler F, Fuchs G (2005) Energy-aware operation and task allocation of autonomous robots. In: Proceedings of 5th IEEE international workshop on robot motion and control (IEEE RoMoCo'05), pp 163–168.

[10] L. Zhang, et al. "Accurate online power estimation and automatic battery behavior based power model generation for smartphones." Proceedings of the eighth IEEE/ACM/IFIP international conference on Hardware/software codesign and system synthesis. page. 105--114, ACM, 2010.