iJRASET
International Journal For Research in
Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** IV **Month of publication:** April 2019

DOI: https://doi.org/10.22214/ijraset.2019.4138

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 7 Issue IV, Apr 2019- Available at www.ijraset.com

Revolution Tracking Android for Portable Devices and Aerial Optimization

Haseeba N A[1], S Sivakumar[2]
[1]*Master of Engineering, Dept. of CSE, Dhanalakshmi Srinivasan College of Engineering, Coimbatore, India*
[2]*Assistant Professor, Dept. of CSE, Dhanalakshmi Srinivasan College of Engineering, Coimbatore, India.*

Abstract: Getting older in people makes them susceptible to slipping and this has become a problem today of universal human physique. Everyday living behavior for the elderly and disabled is a serious public health concern and an aging society. When trying to deal with the research of aging society, the fall is overestimated. Another study revealed that more than one-third of the population over 65 years of age falls at least once per year. Android Smartphone will transmit the slipping signal in this system.Mobile Android apps often have access to personal user device data and resources. Misuse of this data by malicious applications can lead to infringements of privacy and leakage of confidential data. A case in point would be a vindictive application recording a confidential business conversation surreptitious.The contextualization delineates inside the same destination be this paper intently situated sub-locations. We altered the Android operating system to stipulate and enact context-centered authentication restrictions. We have undertaken many simulations to analyze the energy efficiency for access control and the reliability of context tracking.
Keywords: CBAC,RSS,GPS,cellular radio,movement detection.

I. INTRODUCTION

Location-based applications on modern smartphones have received wide spread usage in today's society - to the point where it can even be said that many have become reliant on these types of applications. Location information is used to geo tag posts on social media we sites, to deliver the news, to help users navigate to a desired location, and to provide information on nearby restaurants and stores. However, users often have to balance the convenience and functionality of these location-based applications with a smartphone's battery life. Modern smartphones typically offer two main forms of determining a user's location:1)the GPS and 2) a network based method that uses features like Wi-Fi and the cellular radio. The tradeoff be these two comes down to accuracy vs. energy. Applications that require fine-grained location information opt to use the power-hungry GPS, while applications with more coarse requirements may use the network-based provider, which is less accurate, but has greater energy savings. The user is often given the ability to toggle location services on or off and, with Android phones, can also selectively enable or disable the previously mentioned two methods to fine-tune their phone's accuracy/energy tradeoff. However, in most cases, the average user will not pay much attention to these options due to forgetfulness, not knowing such options are available, or a lack of knowledge on the energy costs.We provide an analysis of the two localization methods available to modern smartphones and conjecture that the addition of an indoor localization method as well as the ability to detect indoor or outdoor context can improve battery life and increase location accuracy. To test this, we implement an indoor/outdoor detection service and a simple indoor localization method into the location services framework of the Android operating system. In this design, implement an indoor/outdoor detection system modified from another author's previous work and implement Wi-Fi RSS ranging as the prototype indoor localization method.
In practice, any such indoor localization method can be used to infer the user's location and future work can focus on this aspect to further increase location accuracy.

II. EXISTING SYSTEM

Existing system provide an analysis of the two localization methods available to modern smartphones and conjecture that the addition of an indoor localization method as well as the ability to detect indoor or outdoor context can improve battery life and increase location accuracy. To test this, we implement an indoor/outdoor detection service and a simple indoor localization method into the location services framework of the Android operating system.This system implement an indoor/outdoor detection system modified from another author's previous work and implement Wi-Fi RSS ranging as the prototype indoor localization method. In practice, any such indoor localization method can be used to infer the user's location and future work can focus on this aspect to further increase location accuracy. In this case, the detection restricts the energy efficiency of modified Fused Location Provider. The detection accuracy also has a large effect on the energy consumption under practical use.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 7 Issue IV, Apr 2019- Available at www.ijraset.com

III. PROPOSED SYSTEM

Apart from the existing system the proposed system introduces an alternate indoor localization system. This uses indoor atlas to acquire more precise location of smartphone in indoors. Then the energy conception is calculated by analyzing the battery charge consumed by different sensors in acquiring the location. This results are then compared with energy conception resulted by existing system to analyze the performance of both systems,

In this context-based access control (CBAC) mechanism for Android systems that allows smartphone users to set configuration policies over their applications' usage of device resces and services at different contexts. Through the CBAC mechanism, users can, for example, set restricted privileges for device applications when using the device at work, and device applications may re-gain their original privileges when the device is used at home. Policy restrictions are linked to context and are configured by the device user.Falls are one of the very serious problems in the healthcare system for the elderly, often resulting in a rapid decline in functionality and death. Serious consequences of sustaining a fall include broken or fractured bones, superficial cuts and abrasions as well as soft tissue damage. Several solutions are proposed to resolve such problems, however, major difficulties they encounter are cost, comfort and performance.

The sensing of falls using Android application to resolve such problems, however, major difficulties they encounter are cost, comfort and performance

IV. IMPLEMENTATION

Block Diagram

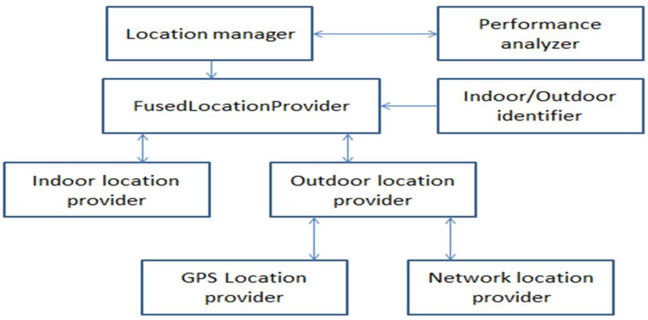


Figure 1.indoor outdoor localization

A. System Architecture

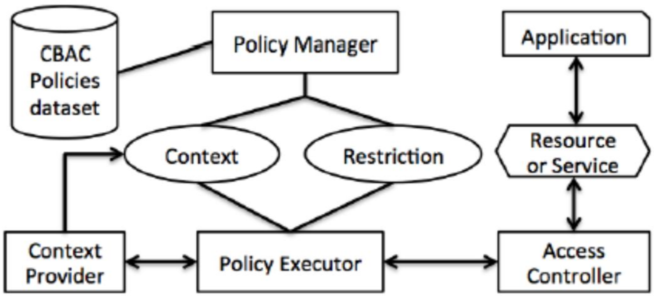


Figure. 2 System working overview

B. Indoor/Outdoor Detection Process

IO Detector utilizes a series of lightweight sensors for the indoor/outdoor detection. IO Detector primarily makes use of three types of light weight detectors: light detector, cellular detector, and magnetism detector. Light detector adopts light sensors to capture ambient light signals to determine the surrounding environment type. It also utilizes other two lightweight sensors, the proximity sensor and the system time clock, to assist the detection.Cellular detector detects the attenuation of cellular signals caused by obstacles (e.g., walls).

It normally indicates the entrance/exit of the device to/from an indoor environment.Magnetism detector exploits the dramatic disturbance of magnetic field inside or in the vicinity of buildings during the movement of the mobile phone.

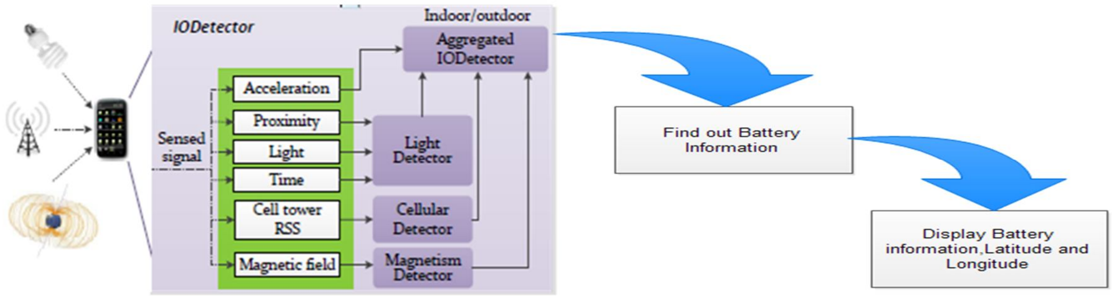


Figure 3.Light detector

C. Light Detector

Since mobile phones may be placed in pockets or bags, the light sensors may not be always available. We use proximity sensors on mobile phones to detect the presence of nearby objects which may block the light sensor. We associate a confidence level CL 2 [0;1] for the detection result. Different light signals will lead to different detection confidence levels.

We denote L to be the detected light intensity. If the light sensor is available, the light intensity L is then compared with a threshold σ 1. IF L> σ 1, light detector confirms an outdoor/semi-outdoor environment detection with a high level confidence CL = 1; if L <= σ 1, it needs to further differentiate whether it is an indoor environment or an outdoor/semi-outdoor environment at night. To this end, light detector refers to the system clock. If the clock indicates a daytime, the detector infers the environment to be indoor with a high confidence. If not, light detector compares L to a threshold σ 2. If > σ 2 < L <= σ 1, it indicates an indoor environment with a confidence level CL = σ 1--L / σ1 ; if L <= σ 2, the mobile phone is in an outdoor/semi-outdoor environment with a confidence level CL = σ 2--L/ σ 2.From Fig 1, the sunlight intensity in both daytime and night is distinguishable from that of indoor lights. According to In we empirical study, we set the threshold σ 1 to 2000Lux and σ2 to 50Lux.

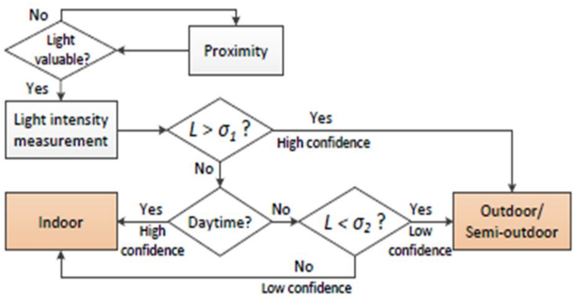


Figure 4.Flowchart for light detector

D. Magnetism Detector

The magnetic field exhibits distinct patterns in indoor/ outdoor environments. In the indoor environment, the Earth's geomagnetic field varies at different positions due to the disturbance of steel structures and electric appliances inside buildings. For instance, the intensity of the magnetic field near the equator and near the pole varies from 0.25 to 0.65gauss (i.e., 25 to 65mT). In comparison, a strong refrigerator magnet has a field of around 100 gauss (two orders of magnitude higher). Therefore, the intensity of magnetic fields shows a high variance across different places near and inside buildings than that in the open space.

E. Cellular Detector

This work choose to look at the cell to signal over other wireless signals (e.g.,WiFi) mainly due to the following considerations. First of all, cell tower signal is available with no additional energy cost since mobile phones have to maintain connectivity to cell towers for basic communication, and cellular networks have almost universal coverage, both outdoor and indoor. Continuous scanning of other wireless signals (e.g., WiFi), however, consumes much extra energy and above all, doing so outdoors may lead to unnecessary energy consumption due to poor signal availability in outdoor environments. On the contrary, the cell tower signal of much longer wavelength can easily diffract around these objects. Thus the shielding effect of human body is much weaker than the dividing wall effect and will not mislead the system.

Falls are one of the very serious problems in the healthcare system for the elderly, often resulting in a rapid decline in functionality and death. Serious consequences of sustaining a fall include broken or fractured bones, superficial cuts and abrasions as well as soft tissue damage. Several solutions are proposed

V. CONCLUSION

In this work an analysis of the energy consumed by Android's localization methods and proposed a modification to the Android operating system to consider indoor/outdoor context and make smarter decisions on which localization method to use on behalf of the user or application developer. In particular,modify the Fused Location Provider API to switch between the GPS and an indoor localization method depending whether or not the phone is detected to be indoors. In we results have shown that the combined indoor/ outdoor detection and an indoor localization method will drain less energy than the GPS and can also be more accurate in indoor environments .This work also proposed the development of a fall detection system based on a sensor located in the smart phones. The application was chosen for being considered the most discrete and comfortable way of analyzing aged people. It may also be less associated to the stigma of using a health device, wearable sensors etc. allowing a higher acceptance by users.

A. Future Scope

Future work can look into more energy efficient ways to determine indoor/outdoor context and implementing more accurate indoor localization methods on the smart phone platform and can relate fall detection and a more extensive data acquisition protocol, involving additional non fall activities, different fall events and extensive prolonged tests. Additionally, an optimized prototype will be developed, including a detailed analysis and optimization of the consumption, size, enclosure,and other advanced prototyping features.

REFERENCES

[1] IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS—PART C: APPLICATIONS AND REVIEWS, VOL. 37, NO. 6, NOVEMBER 2007 Survey of Wireless Indoor Positioning Techniques and Systems Hui Liu, Student Member, IEEE, HoushangDarabi, Member, IEEE, Pat Banerjee, and Jing Liu

[2] Survey of Wireless Based Indoor Localization TechnologiesJunjie Liu, junjie.liu@wustl.edu (A paper written under the guidance of Prof. Raj Jain)

[3] IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 64, NO. 4, APRIL 2015 Guest Editorial Special Section on "Indoor Localization, Tracking, and Mapping With Heterogeneous Technologies"

[4] N. Roy, H. Wang, and R. Roy Choudhury, "I am a smartphone and I can tell my user's walking direction," in Proceedings of the 12th Annual International Conference on Mobile Systems, Applications, and Services,ser. MobiSys '14. New York, NY, USA: ACM,2014,pp.329–342.[Online]. Available: http://doi.acm.org/10.1145/2594368.2594392

[5] S. Nath, "Ace: Exploiting correlation for energy-efficient and continuous context sensing," in Proceedings of the 10th International Conference on Mobile Systems, Applications, and Services, ser. MobiSys '12. New York, NY, USA: ACM, 2012, pp. 29–42. [Online]. Available: http://doi.acm.org/10.1145/2307636.2307640

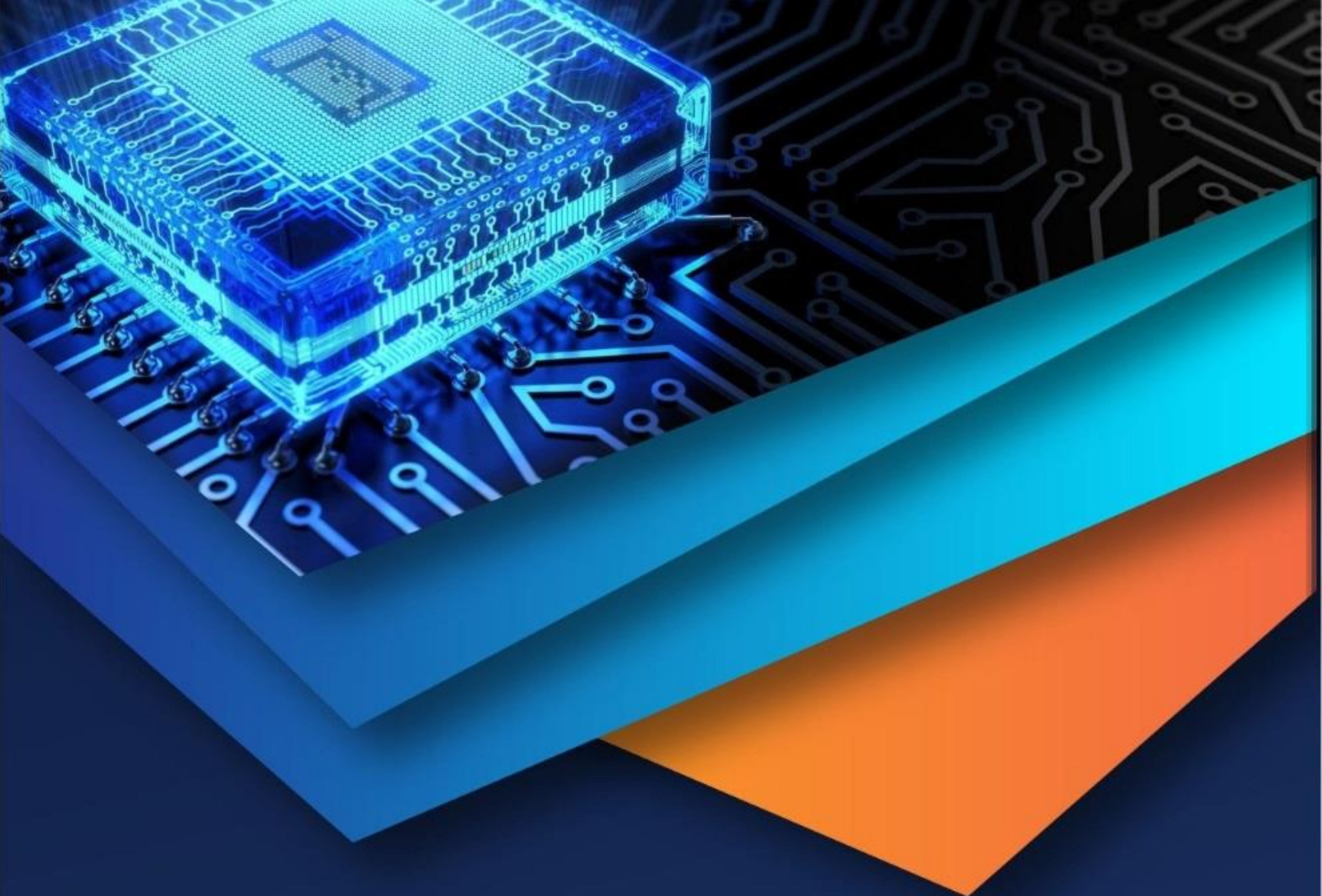
[6] C.-W. You, M. Montes-de Oca, T. J. Bao, N. D. Lane, H. Lu, G. Cardone, L. Torresani, and A. T. Campbell, "Carsafe: Adriver safety app that detects dangerous driving behavior using dual-cameras on smartphones," in Proceedings of the 2012 ACM Conference on Ubiquitous Computing, ser. UbiComp '12. NewYork, NY, USA: ACM, 2012, pp. 671–672. [Online]. Available: http://doi.acm.org/10.1145/2370216.2370360

[7] L. Zhang, J. Liu, H. Jiang, and Y. Guan, "Senstrack: Energy-efficient location tracking with smartphone sensors," Sensors JIn wenal, IEEE, vol. 13, no. 10, pp. 3775–3784, Oct 2013.

[8] M. B. Kjærgaard, J. Langdal, T. Godsk, and T. Toftkjær, "Entracked: Energy-efficient robust position tracking for mobile devices," in Proceedings of the 7th International Conference on Mobile Systems, Applications, and Services, ser. MobiSys '09. New York, NY, USA: ACM, 2009, pp. 221–234. [Online]. Available: http://doi.acm.org/10.1145/1555816.1555839

[9] Z. Zhuang, K.-H. Kim, and J. P. Singh, "Improving energy efficiency of location sensing on smartphones," in Proceedings of the 8th International Conference on Mobile Systems, Applications, and Services, ser. MobiSys '10. New York, NY, USA: ACM, 2010, pp. 315–330.[Online]. Available: http://doi.acm.org/10.1145/1814433.1814464

[10] IndoorAtlast, "Indooratlas homepage," https://www.indooratlas.com/.



10.22214/IJRASET

INDEX COPERNICUS 45.98

ISRA JIF IMPACT FACTOR: 7.129

SJIFactor TOGETHER WE REACH THE GOAL IMPACT FACTOR: 7.429

ISI

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY