Energy Monitoring of Mobile Voice Communications

M. Marcu* and C. Milos*

* "Politehnica" University of Timisoara/ Faculty of Automation and Computers,
Timisoara, Romania

Abstract— **Voice communication remains one of the main functions of mobile devices even though new features and applications are available. Currently there are a lot of voice communications technologies running on different types of mobile devices. The multitude and complexity of devices that implement a large spectrum of multimedia and wireless communication protocols require closer evaluation and understanding in respect to their energy efficiency. In this work we tried to identify, model and estimate the energy consumption of voice communications on mobile devices. We used TAPI (Telephony API) to identify ongoing and incoming calls and next to estimate their energy consumption.**

REFERENCES

[1] Robert N. Mayo, Parthasarathy Ranganathan," Energy Consumption in Mobile Devices: Why Future Systems Need Requirements-Aware Energy Scale-Down", Power-Aware Computer Systems - PACS Conference, pp. 26-40, 2003

[2] Niranjan Balasubramanian, Aruna Balasubramanian, Arun Venkataramani, "Energy Consumption in Mobile Phones: A Measurement Study and Implications for Network Applications", Proceedings of the 9th ACM SIGCOMM conference on Internet measurement conference, IMC 2009, USA, 2009.

[3] M. R. Jongerden and B. R. Haverkort, "Battery modeling," Technical Report TR-CTIT-08-01, Centre for Telematics and Information Technology University of Twente, Enschede, January 2008

[4] Marijn Jongerden, Boudewijn Haverkort, Henrik Bohnenkamp, Joost-Pieter Katoen, "Maximizing System Lifetime by Battery Scheduling", Proceedings of the 39th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2009), pages 63–72. IEEE Computer Society Press, 2009.

[5] N. Ravi, J. Scott, L. Han, and L. Iftode, "Context-aware battery management for mobile phones: A Feasibility Study" Pervasive Computing and Communications, IEEE International Conference on, vol. 0, pp. 224–233, 2008.

[6] Nilanjan Banerjee1, Ahmad Rahmati, Mark D. Corner, Sami Rollins, Lin Zhong, "Users and Batteries Interactions and Adaptive Energy Management in Mobile Systems", Proc. Int. Conf. Ubiquitous Computing 2007, Springer, Innsbruck, Austria, 2007,217-234.

[7] Perrucci, G., Fitzek, F., Sasso, G., Kellerer, W. and Widmer, J., "On the Impact of 2G and 3G Network Usage for Mobile Phones' Battery Life", Proceedings of the European Wireless Conference, May 2009, pp. 255.

[8] Yuvraj Agarwal, Ranveer Chandra, Alec Wolman, Paramvir Bahl, Kevin Chin, Rajesh Gupta, "Wireless Wakeups Revisited Energy Management for VoIP over Wi-Fi Smartphones", Proceedings of the Fifth International Conference on Mobile Systems, Applications, and Services (MobiSys), San Juan, Puerto Rico, June 2007.

[9] Gian Paolo Perrucci, Frank H.P. Fitzek, Giovanni Sasso, M. Katz, "Energy Saving Strategies for Mobile Devices using Wake-up Signals", 4th International Mobile Multimedia Communications Conference (MobiMedia 2008), ICTS/ACM, Oulu, Finland, July 2008.

[10] Microsoft Developer Network, "Telephony Application Programming Interfaces", http://msdn.microsoft.com/en-us/library/ms734273(v=vs.85).aspx