Energy budget in mobile health assistance systems

Reuter L.¹, Schwarzmeier A.², Weigel R.², Fischer G.²
¹eesy-id GmbH, Erlangen, Germany,
lukas.reuter@eesy-id.com
²Lehrstuhl für Technische Elektronik, FAU Erlangen-Nuremberg, Erlangen, Germany,
[schwarzmeier, weigel, fischer]@lte.e-technik.uni-erlangen.de

Introduction

Many research projects are active in the field of vital parameter monitoring. The resulting wireless electronic devices are becoming smaller with the goal of autonomous twenty-four-seven monitoring of the patient’s vital parameters. The goal is to maximize the battery running time by optimizing the devices’ energy management. This will be done by intelligent usage of the wireless interfaces.

Methods

We used a multi-channel energy measurement device that was designed to measure the power consumption of mobile electronic health devices. We measured the power consumption of the devices’ sub circuits which were responsible for data storage and transmission. These were a microSD card, a GSM modem and a Bluetooth device. We took these three components because they are common in the electronic mobile health devices that we target at.

Results

We were able to quantify the energy that is needed to store data on a microSD card and the energy that is needed to transmit a specific amount of data over the air using a GSM modem and a Bluetooth module. We will seek for a common property which allows the direct comparison between these components regarding energy efficiency.

Conclusion

Using the attained knowledge we can derive energy models which allow saving energy by making an intelligent decision between data storage and data transmission.