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**Abstract:**  
Energy profiling in embedded systems is widely used in order to create a product that will run more with less charging periods. New technologies have been developed for both processing and communication modules of such systems that can be used in sensors networks and wearable applications. In this paper two different architectures that use Bluetooth Low Energy (BLE) as communication protocol are analyzed from energy consumption and performance point of view. On one hand we have a system that uses a single chip for processing and BLE communication, while on the other hand an analysis was performed on a system that has different chips for BLE communication and processing. The benchmarks developed include power mode transitions, BLE state consumption and performance analysis of various tasks and in the end comparison between real world wearable applications.

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| Download PDF          | <b>I. Introduction</b><br>According to financial analysis and predictions, during the last period of time, wearable devices have become an indispensable accessory of our daily basis activity. We can include here smart watches, fitness trackers, and even biomedical devices. Therefore, it is necessary to start analyzing the technological solutions that are used in order to develop new wearables and Internet of Things (IoT) products in a more efficient way and with a high quality of service. A primary requirement for the quality of service is the working period of a device without the need to recharge. |             |
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| Email                 | <b>Author Keywords</b><br>Bluetooth, Bluetooth Low Energy, BLE, wearable devices, Internet of Things, energy profiling   | Authors     |
| Print                 | <b>Authors</b><br><br>Marian-Emanuel Ionascu<br>Politehnica University of Timisoara, Piata Victoriei Nr. 2, 300006<br>Timisoara, Romania<br><br>Marius Marcu<br>Politehnica University of Timisoara, Piata Victoriei Nr. 2, 300006<br>Timisoara, Romania   | Figures     |
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