A Novel Concept for a Long Lifetime Wireless Geofencing System With an Integrated Sub-10 µA Wake-Up Receiver

Heinrich Milosiu, Fritz Meier, Helena Preiss, Frank Oehler, Alexander Pflaum
Fraunhofer Institute for Integrated Circuits IIS
Am Wolfsmantel 33, 91058 Erlangen, Germany
{heinrich.milosiu, fritz.meier, helena.preiss, alexander.pflaum, frank.oehler}@iis.fraunhofer.de

Summary

This paper shows the benefits of a sub-10 µA wake-up receiver circuit used for wireless geofencing and localisation applications with very low maintenance. The wake-up receiver is a wireless receiver which continuously scans the radio channel for certain messages. Having received and decoded such a message containing additional data, the wake-up receiver triggers different actions in smart objects. The wake-up receiver consumes only 7.5 Microwatts and is suitable for mobile battery-operated smart objects. It is shown how the wake-up receiver can be used to implement a wireless in-door geofencing system. This application profits the most from the low and deterministic current consumption and the short reaction time below 500 ms.