

Performance evaluation of bluetooth low energy in indoor positioning systems

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Abstract-

Local positioning systems (LPS) are attracting much attention, both commercially and scientifically, as they represent a natural extension of global positioning systems to indoor scenarios. Amongst all the viable wireless technologies used in this context, WiFi and Bluetooth are the most widely extended. These technologies are also chosen for their simplicity, low cost and integration into mobile devices. The appearance of the new Bluetooth specification, named Bluetooth low energy (BLE), and the emergence of new popular devices that incorporate it, opens the door to new LPS wireless solutions based on BLE. Here, we evaluate the viability of BLE for indoor positioning scenarios. In addition, we develop a framework to analyse, understand and help migrate previous LPS systems, based on other technologies, to BLE. We show experimentally that, with proper configuration of the BLE devices, great performance can be obtained in terms of discovery time and energy consumption.

Index Terms-

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