

A Novel Approach for UHF-RFID-Based Positioning Through Spread-Spectrum Techniques

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Abstract

This paper presents a first theoretical and on simulations based approach for determining the positions of UHF-RFID tags with the adoption of spread-spectrum techniques. An UHF-RFID reader reads out all the surrounding tags within its reading range. Each tag contains information about its own location. Therefore, the reader gets the position of every tag, and, therefore, being able to generate a basic map. For determining the exact position of the reader itself, it must detect the distance to each of the transponder. These detection is realized by a spread-spectrum approach exploiting the complete UHF bandwidth of approximately 150MHz to achieve a high positioning resolution. This paper suggests techniques and presents first results for achieving such a localization approach.