On the Prevention of Collisions in EPC Gen2 RFID Contention

Joan Melià-Seguí, and Name Surname, *Senior Member, IEEE*

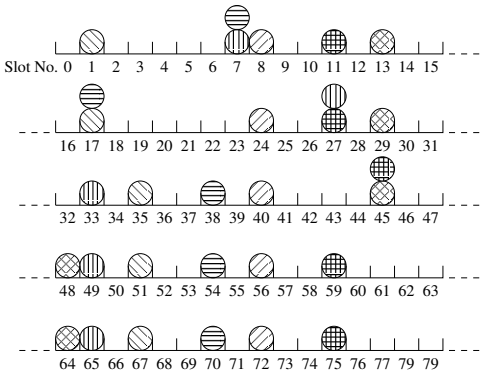

Fig. 1. CSMA/ECA contention

***Abstract*—The EPC Gen2 RFID technology relies on a random contention protocol to arbitrate the access to the radio channel. Because of the simplicity of the RFID platform, the pseudo-random number generator has some limitations that we study in detail. In particular, some of the possible outcomes of the generator are much more likely than others. As a result, the number of collisions in this technology is relatively high.**

We propose to use an improved contention protocol in which an RFID tag keeps using the same backoff value as long as its contention results in a successful transmission, and computes a new backoff value after collisions. This solution has already been studied in the context of wireless local area networks. In the present letter, we adapt the solution to the RFID technology and present a performance evaluation based on simulation. The proposed solution dramatically reduces the time required to identify all the tags, specially in a logistics context in which the contents of a pallet are to be read in different locations (e.g., warehouse, truck and shop).

***Index Terms*—Medium Access Control, decentralized constraint satisfaction solver, learning MAC protocol**

I. Introduction

THIS is a very nice introduction introducing the topics that will be covered in the paper. And this [1] is a reference to the best paper ever written..

II. Keeping the backoff value after successes

Isn't Fig. 1 beautiful?

The authors are with Universitat Pompeu Fabra. Roc Boronat 138, 08018 Barcelona, Catalunya, Spain. E-mail: joan.melia@upf.edu

III. Simulation results

IV. Multiple Readings Scenario

V. Conclusion

Acknowledgment

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References

[1] J. Barcelo, B. Bellalta, C. Cano, and M. Oliver, "Learning-BEB: Avoiding Collisions in WLAN," in *Eunice*, 2008.