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Simulating large wireless sensor networks using radio-triggered cellular architecture

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Abstract

A wireless sensor network is an ad hoc network in which the nodes can sense, actuate, compute and communicate with each other. Sensor networks can be used in many applications, such as environmental monitoring and industrial applications. Despite their potential applications, such networks have resource restrictions, such as low computational power, reduced bandwidth and specially limited power source. Real world wireless sensor networks infrastructures are still very expensive and hard to implement. Therefore, most of the evaluations of new protocols are being made through simulation tools. The objective of this work is to apply a power management technique to prolong the life time of sensor networks. Power management protocols employ wake-up/sleep schedules. We present power management scheme that eliminates wake-up periods. This type of wake-up capability is enabled by a radio-triggered hardware component inspired by the observation that the wake-up radio signal contains enough energy to trigger a wake-up process. A simulator has been developed to solve the topology control problem by dividing the network into cells. The solution presented is based on the geographical position and the operational states of sensors. The results indicate that radio triggered cellular architecture can increase the life time of large wireless sensor networks. © 2011 LVV POLYTECHNIC NATL UNIV.

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1 Akyildiz, I.F., Su, W., Sankarasubramaniam, Y., Cayirci, E. A survey on sensor networks (2002) IEEE Communications Magazine, 40 (8), pp. 102-105. Cited 4352 times. doi: 10.1109/MCOM.2002.1024422

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2 Hill, J.L., Culler, D.E. Mica: A wireless platform for deeply embedded networks (2002) IEEE Micro, 22 (6), pp. 12-24. Cited 454 times.

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doi: 10.1109/MM.2002.1134340

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- 3 Ye, W., Heidemann, J., Estrin, D.

An energy-efficient MAC protocol for wireless sensor networks
(2002) *Proceedings - IEEE INFOCOM*, 3, pp. 1567-1576. Cited 1053 times.



- 4 Sekine, M., Nakamura, S., Sezaki, K.

An energy-efficient protocol for active/sleep schedule synchronization in wireless sensor networks
(2006) *2006 Asia-Pacific Conference on Communications, APCC*, art. no. 4023178.
ISBN: 1424405734; 978-142440573-2
doi: 10.1109/APCC.2006.255873

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- 5 (2004) *Network Simulator - NS (Version 2)*. Cited 2 times.

UCB/LBNL/MTN, Visited on october
<http://www.isi.edu/nsnam/ns/>



- 6 Park, S., Sawides, A., Srivastava, M.B.

SensorSim: A simulation framework for sensor networks
(2000) *Proceedings of the 3rd ACM International Workshop on Modeling, Analysis and Simulation of Wireless and Mobile Systems*, pp. 104-111. Cited 67 times.
ISBN: 1581133049

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- 7 Gu, L., Stankovic, J.A.

Radio-triggered wake-up for wireless sensor networks
(2005) *Real-Time Systems*, 29 (2-3), pp. 157-182. Cited 38 times.
doi: 10.1007/s11241-005-6883-z

[View at publisher](#)



- 8 Santi, P.

Topology control in wireless ad hoc and sensor networks
(2005) *ACM Computing Surveys*, 37 (2), pp. 164-194. Cited 179 times.
doi: 10.1145/1089733.1089736

[View at publisher](#)



- 9 Cunha, R., Silva, A., Loreiro, A.

Simulating large wireless sensor networks using cellular automata
(2005) *Proceeding of the 38th Annual Simulation Symposium ANSS'05*
IEEE Computer Society, 2005, San Diego, CA, USA



- 10 Qela, B., Wainer, G., Mouftah, H.

Simulation of large wireless sensor networks using cell-DEVS
(2009) *Proceedings - Winter Simulation Conference*, art. no. 5429272, pp. 3189-3200.
ISBN: 978-142445770-0
doi: 10.1109/WSC.2009.5429272

[View at publisher](#)



- 11 Gardner, M.

The fantastic combinations of John conways new solitaire game of life
(1970) *Scientific American*
April



- 12 Karl, H., Willig, A.

(2007) *Protocols and Architectures for Wireless Sensor Networks*. Cited 494 times.
Wiley, 1st Edition



- 13 Doherty, L., Pister, K., Ghaoui, L.E.

Convex position estimation in wireless sensor networks
(2001) *IEEE INFOCOM 2001*. Cited 21 times.
Anchorage, AK



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