

**Review Form: 1st International Workshop on
Services and Infrastructure for the Ubiquitous and Mobile Internet (SIUMI'05)**



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WEB MINDS

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In conjunction with the 25th Int. Conference on Distributed Computing Systems (**ICDCS'05**)

Paper Number: #20

Paper Title: A Sensor Based Tracking System Using Witnesses

Authors: Jyh-How Huang and Shivakant Mishra

Reviewer1:

Familiarity Rate your familiarity with the topic	1	2	3X	4	
	Novice	Some knowledge	Familiar	Expert	
Significance Technical relevance and practicality of ideas in the paper	1	2X	3		
	Not significant	Somewhat significant	Highly significant		
Novelty How original the problem and/or solution method is	1X	2	3		
	Not novel	Somewhat novel	Highly novel		
Quality of Presentation Writing and presentation style/accuracy	1	2X	3		
	Poorly written	Could be improved	Well written		
Overall Recommendation	1	2X	3	4	5
	Strong reject	Weak reject	Weak accept	Accept	Strong accept

Contributions

The use case scenario is different but Infrastructure less dissemination of location data in sensor networks is not new. The authors report on design work including calculations regarding requirements on communication, distribution of sensors, etc.

Strengths and weaknesses

The good thing about this paper is that this projects presents hands-on design which could produce practical results However, Many publication have appeared on location tracking from The Cricket Indoor Location System onward <http://nms.lcs.mit.edu/projects/cricket/> Infrastructureless Location Aware Configuration for Sensor Networks was already reported on by Xi Wang Fabio Silva John Heidemann (ISI-TR-2004-589). Their work was not cited or mentioned among related work. There is no section on contributions or a discussion of improvements over related work. This paper needs significant improvements in order to get accepted.

Detailed public comments

The authors should cite related work and discuss improvements over previous results.

Reviewer2:

Familiarity Rate your familiarity with the topic 3	1	2	3	4	
	Novice	Some knowledge	Familiar	Expert	
Significance Technical relevance and practicality of ideas in the paper 3	1	2	3		
	Not significant	Somewhat significant	Highly significant		
Novelty How original the problem and/or solution method is 3	1	2	3		
	Not novel	Somewhat novel	Highly novel		
Quality of Presentation Writing and presentation style/accuracy 2	1	2	3		
	Poorly written	Could be improved	Well written		
Overall Recommendation 3	1	2	3	4	5
	Strong reject	Weak reject	Weak accept	Accept	Strong accept

Contributions

The paper presents a sensor based tracking system characterized by different advantages: (i) it is loosely-coupled, (ii) it has a high power efficiency and (iii) it is cheap. The system is discussed and analyzed qualitatively.

Strengths and weaknesses

The idea presented in the paper seems good, but the authors do not present experimental or simulation data. It is really difficult to assess the strengths of the paper in absence of an experimental and/or simulation analysis.

Detailed public comments

It is opinion of the reviewer that the paper starts discussing a really interesting topic, but presenting only preliminary results. The presentation of some results is needed to improve paper strength. An idea could be to start from simulation analysis, extracting useful statistics and, possibly, comparing results with those of other tracking solutions. Another topic to develop are strategies to maintain/discard witness information in the limited available memory space.

Reviewer3:

Familiarity Rate your familiarity with the topic	1	2	X		4
	Novice	Some knowledge	Familiar		Expert
Significance Technical relevance and practicality of ideas in the paper	1		2		X
	Not significant		Somewhat significant		Highly significant
Novelty How original the problem and/or solution method is	1		X		3
	Not novel		Somewhat novel		Highly novel
Quality of Presentation Writing and presentation style/accuracy	1		2		X
	Poorly written		Could be improved		Well written
Overall Recommendation	1	2	X	X	5
	Strong reject	Weak reject	Weak accept	Accept	Strong accept

Contributions

The paper is addressing a wireless sensor-based tracking system, called Cenwits. The system uses RF communication and beacons. The topic is important, but the degree of novelty is not very high. The paper presented is more an implementation than a research work. The authors describe only high-level technical details of the tracking system proposed.

Strengths and weaknesses

I hesitate between "Weak accept" and "Accept" because the novelty is not very high and the prototype development is not mature enough. Security and reliability of the tracking system necessitate appropriated protocols and schemes development and implementation, defined in the paper as Future work.

Detailed public comments

I would recommend to elaborate p. IV. Prototype Implementation with detailed information and more results. Additionally, I have following remark to the authors:

The number of beacons and their position within the area covered have a crucial influence on the localization accuracy. In general a high fraction of beacons positioned as far apart as possible combined with a high connectivity is desirable [1].

[1]. C. Savarese, J. Rabaey, and K. Langendoen, "Robust positioning algorithms for distributed ad-hoc WSNs, in USENIX Technical Annual Conference, Monterey, CA, USA, June 2002, pp. 317-327.