

2007.06.25.

Dear Dr. Rafael Pereira Pires,

With regard to the above-mentioned paper submitted to New Generation Computing journal, we are regretful to inform you that under the discussion of the Editorial Committee based on the referees' comments, it has been decided that the paper will not be included in the journal. For your information, comments from two referees are herein enclosed. We are sorry for the outcome of the review for this paper, but as submission to the journal is always welcome, we are looking forward to another opportunity of contacting you. Thank you most sincerely for your submission and your patience for our negative conclusion.

Sincerely yours,

Koichi Furukawa, Dr.  
Editor-in Chief  
New Generation Computing

Encls.

\*\*\*\*\*

[#619]

Paper Title: Evaluation of an RSSI-based Location Algorithm for Wireless Sensor Networks

Author(s): Rafael Pereira Pires, Lucas Francisco Wanner and Antonio Augusto M. Frohlich

<<< Refereee 1 >>>

Detailed Comments to the Author(s):  
(Please be as constructive and informative as possible.)

Since the variation of positions measured by RSSI is serious, the reduction of the variation is an important issue. Actually, many commercial or academic approaches have been explored. However, the paper lacks any technical comparison between the proposed approach and other existing approaches. The paper also lacks technical explanations about the proposed heuristics-based approach. Therefore, the readers cannot understand any contributions of the paper. The reviewer wants to know differences between the proposed approach and existing calibration approaches. Before proposing an approach for improving RSSI measurement, you need to analyze error sources in RSSI. In fact, RSSI's potential errors can be classified into various types of errors, e.g., multiple-path propagation, obstacles, noises, etc. The variation of positions depend on these types.

<<< Refereee 2 >>>

Detailed Comments to the Author(s):

(Please be as constructive and informative as possible.)

This paper proposes HECOPS algorithm and shows several techniques to implement it on sensors operated by EPOS operating system, and a preliminarily experiments according to a simple scenario. RSSI is a useful

and common way to measure distance, and implementation of localization with

RSSI on sensor is a worthy challenge because sensor node has severe resource restrictions. Therefore, the purpose of this paper is interesting.

However, contribution of this paper seems to be little. Author spends a lot of pages to show how to implement the algorithm on actual sensors, but

the implementation is quite simple with common techniques. At first, the Newton-Raphson method is common way to calculate distance. Additionally, in

the position calculation phase, authors propose confidence-based node selection, but it is not sufficient to estimate node location accurately.

A lot of metrics about node selection to improve the accuracy are proposed (i.e. "Spread-based Heuristic for Sensor Selection in Sensor Networks", V. Sadaphal, J. Bijendra, COMSWARE2006). Moreover, the experiment is not

enough to justify the proposition. For example, there are no adequate reasons of values of parameters used in Equation (1) or the angle used to determine that a node is in the same direction or not. Especially, the angle could adjust performance trade-off; if the angle is set to be large,

a node can find many anchors, but accuracy of distance adjusted by the anchors would be low, and if the angle is set to be narrow, the accuracy will be high, but a node would be able to find few anchors.

\*\*\*\*\*

New Generation Computing Web Site is available!!

<http://www.ohmsha.co.jp/ngc/>

\*\*\*\*\*

New Generation Computing

Ohmsha, Ltd.

3-1 Kanda Nishiki-cho, Chiyoda-ku, Tokyo 101-8460 Japan

tel: +81-3-3233-0641/2425 fax: +81-3-3233-2426

<http://www.ohmsha.co.jp/>

<http://www.ohmsha.co.jp/english/journal/ngc/frame.htm>

\*\*\*\*\*