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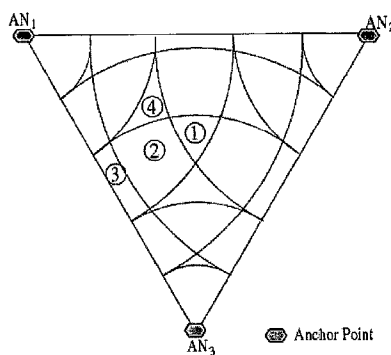
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(54) Title: LOCATION DEPENDENT KEY MANAGEMENT IN SENSOR NETWORKS WITHOUT USING DEPLOYMENT KNOWLEDGE



Example illustrating the location based keying scheme

(57) Abstract: A system for key management in sensor networks which takes the location of sensor nodes into consideration while deciding the keys to be deployed on each node. This system reduces the number of keys that have to be stored on each sensor node and also provides for the containment of node compromise. Thus compromise of a node in a location affects the communications only around that location. The location dependent key management system does not require any knowledge about the deployment of sensor nodes. The system starts off with the loading of a single key on each sensor node prior to deployment. Subsequent to deployment a plurality of beacons is transmitted a plurality of different transmission ranges from each anchor node, said beacons containing at least one nonce. Each sensor node receives beacons depending upon its location in the network. Thus, sensor nodes in different locations have different nonce sets, and each sensor node derives updated keys using a combination of the common key and its set of nonces. The system allows for additions of sensor nodes to the network at any point in time.



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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H04Q 7/00** (2006.01)

USPC: 370/328,338,345,352,354,356,408,469,502,522;713/168,171

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/328,338, 345, 352, 354, 356, 408, 469, 502, 522; 713/168, 171

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, E	US 2007/0171859 A1 (BRAHMBHATT et al) 26 July 2007 (26.07.2007), entire document	1-20
A,E	US 20080089519 A1 (EKBERG) 17 April 2008 (17.04.2008), entire document.	1-20



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