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(54) Title: SELF-ASSEMBLING WIRELESS NETWORK, VEHICLE COMMUNICATIONS SYSTEM, RAILROAD WHEEL AND BEARING MONITORING SYSTEM AND METHODS THEREFOR

(57) Abstract: A low power self-organizing network is made up of a plurality of wireless communication nodes communicating wirelessly with each other. The nodes each have a sensor providing a respective sensor data value indicative of a physical parameter in the environment of that node. The wireless network discontinues communication with any nodes in which the sensor data value is outside a range of network sensor data values. The network is preferably a group of vehicles moving 'together, especially a train in which each node is associated with a respective wheel of a railroad car. The nodes are low-power devices that communicate using wireless communications according to a Zigbee protocol. The nodes each have an additional sensor sensing a physical parameter the respective wheel thereof and determines from said electrical signal a degree of degradation of a bearing of the wheel, and transmits data of the degree of degradation to the main node. The main node communicates with another computer system using a higher power communication system and transmits thereto data indicative of degradation of said bearings.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: G06F 15/16(2006.01)
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USPC: 709/203

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. : 709/203, 340/933, 340/870.16

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	US 6867708 B2 Darby, Jr.; Albert Donald et al. March 15, 2005 ; See Col. 5 Line 60-65, Col. 8 Lines 55-65, Col. 24, Lines 50-65, Col 28. Lines 20-45	1-64
A	US 5959568 A Woolley; Louis A. 28 September 1999 Col.3 Lines 1-35; Col. 6 Lines 25-55, Col. 13 Lines 10-50	1-64
A	US 6331823 B1 El-Ibiary; Yehia 18 December 2001 ; See Col. 2 Lines 30-55 , Col. 3 Lines 35-45	1-64



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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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