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[Continued on next page]

(54) **Title:** METHODS AND SYSTEMS FOR DETERMINING AN ASSOCIATION BETWEEN NODES AND PHASES VIA A SMART GRID

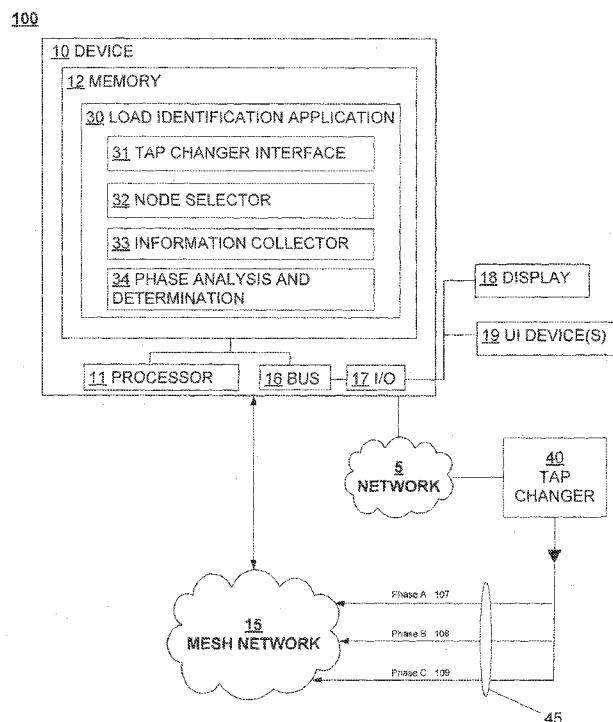


Figure 1

(57) **Abstract:** Determining the number of loads associated with each phase in a three-phase electric power system. The loads can be associated with the consumption of electric power at a node, such as a metering device located at a facility. In one implementation, a central device that is connected to such nodes via a smart grid and a radio frequency mesh network can be leveraged to determine a phase in real time. For example, the central device can include a processor that executes one or more computer program modules which can cause a load tap changer having access to a distribution feeder in the smart grid to vary a voltage level supplied across each phase of the power system. Additionally, the central device can communicate with nodes in the mesh network to cause the nodes to perform voltage measurements and collect information related to such measurements.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

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)
H02J G01D G01R

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/060259 A1 (VASWANI RAJ [US] ET AL) 11 March 2010 (2010-03-11)	8-15
Y	paragraphs [0032], [0033], [0036]; figures 1,3; table I	1-7, 16-22
Y	----- US 4 686 630 A (MARSLAND CHARLES N [US] ET AL) 11 August 1987 (1987-08-11) column 3, line 40 - column 4, line 15; figures 1, 13	1-7, 16-22
X,P	----- EP 2 388 600 A1 (GEN ELECTRIC [US]) 23 November 2011 (2011-11-23) paragraphs [0014], [0018]; figures 1,3,4	8
A	----- US 2011/161022 A1 (CAIRD KENNETH JAMES [US]) 30 June 2011 (2011-06-30) paragraphs [0018] - [0021]; figures 1-3	1,16



Further documents are listed in the continuation of Box C.



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INTERNATIONAL SEARCH REPORT

Information on patent family members

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