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(54) Title: METHODS AND SYSTEM FOR CALCULATION OF LIFE CYCLES AND IDENTIFICATION OF DEMAND FOR GOODS

(57) Abstract: The invention relates to a method and a system for calculation of life cycles and identification of demand for goods by evaluation of state variables of technical goods such as distributed control systems, field devices and personal computers and their respective spare parts which data concerning specific properties and/or features of those goods are collected systematically and stored in a database, whereas the goods are identified according to there properties with regard to specific criteria being relevant for the benefit or malfunction of the respective good.



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Method and System for Calculation of Life Cycles and Identification of Demand for Goods

Description

The invention refers to a method and system for calculation of life cycles and identification of demand for goods by evaluation of state variables of technical goods such as distributed control systems, field devices and personal computers and their respective spare parts which data concerning specific properties and/or features of those goods are collected systematically and stored in a database in order to have all information available for reliable assessment of the life cycle of the respective good.

It is already known that any prediction of certain occurrences within the near or far future is desirable, but it is known, too, that such predictions often fail to become true.

Furthermore with the increase of calculation power the efforts for developing such methods and system which allow any reliable prediction or at least a safe estimation of selected criteria with respect to measurable properties or appreciable data of goods, in particular technical equipment such as turbines, generators, electric motors, switchgear and their respective spare parts and the like are raised.

Hence it is an object of the present invention to provide a method and a system for the calculation of system properties influenced by the life cycle as well as for identification of demand for goods according to the preliminary part as stated before which are easily viable at rather low effort.

Accordingly the method according to the invention is characterized in that the goods are identified in accordance with their properties with regard to specific criteria being relevant for the benefit or malfunction of the respective good.

Such criteria for identification of the goods may be the operation period, the frequency of failures as well as the number of failures, the load during operation, the estimated downtime, the service man hours, and the frequency of maintenance services.

According to a preferred embodiment the specific properties and/or features which are relevant for the use of those selected goods and/or for the duration of their use free of interruption and/or for their in-service behaviour, are collected and evaluated with respect to the operational availability of the specific goods.

Preferably a specific algorithm is used for the calculation of metrics, whereas such metrics are estimated downtime, service man hours, or number of failures, which metrics are employed to gain any relevance for the next 10 to 15 years. Accordingly the result of the calculation is a predictive estimation and/or assessment.

According to an advantageous embodiment of the invention an exemplary algorithm can be a simulation of a plant using estimated probabilities for failures. Consequently the output of said exemplary algorithm are metrics such as downtimes, service man hours consumed and the like.

Another variant of the method according to the invention the data of those goods being of interest for possible customers are evaluated by means of an algorithm in order to identify those goods being within reach of calculated downtime or of planned maintenance.

Additionally another embodiment of the method according to the invention provides that for the data of those goods belonging to selected customers likewise an algorithm is being employed in order to predict for those goods the prospective break for service by means of the evaluation these data.

Finally the method according to the invention will provide for prediction of opportunities for any actions like repair, maintenance, service, or substitution by adopting the respective data.

A System for evaluation of state variables of technical goods such as turbines, generators, electric motors, switchgear and their respective spare parts which data concerning specific properties and/or features of those goods are collected systematically and stored in a database, is characterized in that the system identifies the goods according to their properties with regard to specific criteria being relevant for the benefit or malfunction of the respective good.

Moreover the system employs the criteria for identification of the goods whereas these are such as estimated downtime, service man hours, number of failures.

Preferably according to an advantageous embodiment of the system according to the invention the system evaluates the specific properties and/or features which are supposed to be relevant for the use of those selected goods and/or for the duration of their use free of interruption and/or for their in-service behaviour and are collected with respect to their operational availability.

According to the invention the system employs a specific algorithm for the calculation of metrics such as estimated downtime, service man hours, number of failures occurring within the next 15 years. Whereas the result of the calculation is a predictive estimation and/or assessment.

Furthermore the system according to the invention advantageously adopts an exemplary algorithm for simulation of a plant using estimated probabilities for failures the outcome of adopting said exemplary algorithm are metrics such as downtimes, service man hours consumed and the like.

Besides that the system provides means for evaluation of the data of those goods being of interest for possible customers whereas the means utilize an algorithm in order to identify those goods being within reach of calculated downtime or of planned maintenance.

Finally the system according to the invention evaluates the data of those goods belonging to selected customers by means of an algorithm in order to predict for those goods the prospective break for service and/or for prediction of opportunities of preferred actions.

Claims

1. Method for calculation of life cycles and identification of demand for goods by evaluation of state variables of technical goods such as distributed control systems, field devices and personal computers and their respective spare parts which data concerning specific properties and/or features of those goods are collected systematically and stored in a database, whereas the goods are identified according to their properties with regard to specific criteria being relevant for the benefit or malfunction of the respective good.
2. Method according to claim 1 whereas the criteria are such as estimated downtime, service man hours, number of failures.
3. Method according to claim 1 or 2 whereas the specific properties and/or features being relevant for the use of those selected goods and/or for the duration of their use free of interruption and/or for their in-service behaviour being collected are evaluated with respect to their operational availability.
4. Method according to at least one of the preceding claims whereas a specific algorithm is used for the calculation of metrics for the next 15 years.
5. Method according to claim 4 whereas the result of the calculation is a predictive estimation and/or assessment.
6. Method according to at least one of the preceding claims whereas an exemplary algorithm is a simulation of a plant using estimated probabilities for failures.
7. Method according to claim 6 where the output of said exemplary algorithm are metrics such as downtimes, service man hours consumed and the like.
8. Method according to at least one of the preceding claims whereas the data of those goods belonging to selected customers are evaluated by means of an algorithm in order to predict for those goods the prospective break for service.

9. Method according to claim 3 whereas the respective data are used for prediction of opportunities for preferred actions.
10. System for calculation of life cycles and identification of demand for goods by evaluation of state variables of technical goods such as distributed control systems, field devices and personal computers and their respective spare parts which data concerning specific properties and/or features of those goods are collected systematically and stored in a database,
characterized in that
the system identifies the goods according to their properties with regard to specific criteria being relevant for the benefit or malfunction of the respective good.
11. System according to claim 10 whereas the criteria for identification of the goods are such as estimated downtime, service man hours, number of failures.
12. System according to claim 10 or 11 whereas the system evaluates the specific properties and/or features being relevant for the use of those selected goods and/or for the duration of their use free of interruption and/or for their in-service behaviour being collected with respect to their operational availability.
13. System according to at least one of the preceding claims 10 to 12 whereas the system employs a specific algorithm for the calculation of metrics such as estimated downtime, service man hours, number of failures occurring within a pre-determined time period
14. System according to claim 13 whereas the result of the calculation is a predictive estimation and/or assessment.
15. System according to at least one of the preceding claims 10 to 14 whereas it adopts an exemplary algorithm for simulation of a plant using estimated probabilities for failures.
16. System according to claim 15 whereas the outcome of adopting said exemplary algorithm are metrics such as downtimes, service man hours consumed and the like.

17. System according to at least one of the preceding claims 10 to 16 whereas the data of those goods being of interest for possible customers are evaluated by means of an algorithm in order to identify those goods being within reach of calculated downtime or of planned maintenance.
18. System according to at least one of the preceding claims 10 to 18 whereas the system evaluates the data of those goods belonging to selected customers by means of an algorithm in order to predict for those goods the prospective break for service.
19. System according to at least one of the preceding claims 10 to 18 whereas the system utilizes selected data for prediction of opportunities of preferred actions.

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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)

G06Q

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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L	Statement in accordance with the Notice from the European Patent Office dated 1 October 2007 concerning business methods (OJ 11/2007; p572f) The claimed subject matter, with due regard to the description, relates to processes comprised in the list of subject matter and activities for which no search is required under Rule 39 PCT. The only identifiable technical aspects of the claimed invention relate to the use of conventional, general-purpose data processing technology for processing data of an inherently non-technical nature. The information technology employed is considered to have been generally known as it was widely available to everyone at the date of filing/priority of the present application. The notoriety of such prior art cannot reasonably be contested. No	1-19
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	documentary evidence was therefore considered required. -----	