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**Datasheet for the decision
of 13 October 2023**

Case Number: T 0372/21 - 3.5.01

Application Number: 16192292.7

Publication Number: 3287960

IPC: G06Q10/00

Language of the proceedings: EN

Title of invention:

COMPUTER SYSTEM AND METHOD TO PROCESS ALARM SIGNALS

Applicant:

ABB Schweiz AG

Headword:

Computer system and method to process alarm signals/ABB
SCHWEIZ

Relevant legal provisions:

EPC Art. 56, 111(1)

RPBA 2020 Art. 11

Keyword:

Appeal decision - remittal to the department of first instance
(yes)

Remittal - special reasons for remittal (yes)

Inventive step - improper application of problem and solution
approach

Decisions cited:

T 0528/07, T 0641/00, G 0010/93



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Case Number: T 0372/21 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 13 October 2023

Appellant: ABB Schweiz AG
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Representative: Bittner, Peter
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 20 January 2021
refusing European patent application No.
16192292.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Höhn
Members: N. Glaser
E. Mille

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse the European patent application No. 16192292.7 pursuant to Article 97(2) EPC on the grounds of lack of inventive step (Article 56 EPC).
- II. The appellant requested to set aside the impugned decision and to grant a patent on the basis of the claims of the pending main request or on the basis of the claims of any pending auxiliary request 1 to 3. Oral proceedings were requested as an auxiliary measure.
- III. In a communication the Board set out its preliminary opinion that it was not able to take a final decision in regard of inventive step. This required a proper application of the problem-solution approach in view of the closest prior art which was not given in the impugned decision. The appellant was asked to indicate whether it agrees the case to be referred back to the first instance for further prosecution and, if necessary, to withdraw the request for oral proceedings.
- IV. In response, the appellant agreed the case to be referred back to the department of first instance for further prosecution. Further, the appellant withdrew the auxiliary request for oral proceedings in the appeal proceedings.
- V. Claim 1 of the main request reads as follows :

"1. A computer system (100) configured to process alarm activations received from one or more technical systems (200) wherein a particular alarm activation represents a deviation of the technical status of a particular technical system from its normal technical status, the computer system (100) comprising:

a data storage interface (111) configured to record a plurality of received alarm activations in a data storage unit (110) wherein the recorded alarm activations correspond to one or more alarms (A1 to A6);

a data processing component (120) configured

to determine, from the recorded alarm activations, a plurality of time intervals (11" to 15", 11' to 110') for alarm analysis;

to compute similarity measures for pairs of the determined time intervals wherein the similarity measures depend on the occurrence of the recorded alarm activations in respective pairs of the determined time intervals, and wherein the contribution of a particular alarm activation to the similarity of two time intervals is reduced with an increasing occurrence of the alarm in the determined time intervals so that, the more often an alarm occurs in determined time intervals other than the two compared intervals, the lower is its significance for the similarity measure of the two compared intervals; and

a user interface component (130) configured to provide one or more pairs (131, 132) of time intervals to an operator of the one or more

technical systems (200) wherein the one or more pairs (131, 132) of time intervals include time intervals with similarity measures indicating similar alarm floods in the respective time intervals."

Reasons for the Decision

1. Background of the invention
 - 1.1 The invention relates to alarm signal processing.
 - 1.2 An alarm, as used by the invention, is defined in the technical standard IEC 62682 section 3.1.7. It is an audible and/or visible means of indicating to the operator of an equipment a malfunction, process deviation, or abnormal condition requiring a timely response, see [0002] of the application. In real world situations, often a series of activations ("alarm floods") are generated which depend on a single root cause, where actually a single alarm would be sufficient, see [0003]. This leads to a bad alarm quality.
 - 1.3 Available alarm management tools can identify correlated pairs of alarms and it is also known to perform a pattern matching of alarm flood sequences, but these algorithms are computationally very demanding and need intensive data cleaning and preparation, see [0004].
 - 1.4 The solution is to prompt an operator only with relevant or characterizing alarms of the alarm flood which allows the operator to quickly react to the alarms and readjust the technical status of the monitored technical system to re-ensure proper operation of it, see [0005]. The solution is based on the principle that the less frequent a particular alarm signal occurs outside

of alarm floods the more characteristic it is for an alarm flood. If several alarm signals frequently occur together (within a given time interval) they are candidates for alarm suppression rules. For implementation details it is referred to IEC 62682 section 3.1.7 which defines interfaces and communication protocols to enable the computer system to receive the plurality of alarm activations.

2. Main request - Article 56 EPC

2.1 Claim 1 of the main request was refused for a lack of inventive step over D1 (EP2720100) and common general knowledge about standard data processing techniques. The technical features of claim 1 were seen to be a computer system with a data storage, a data processing component and a user interface, such as disclosed in D1, whereas the remaining features were considered to be an abstract model of presenting groups of occurred alarms according to certain rules of a user, which are of non-technical nature, relating to alarm management which the examining division interpreted as a business method, see point 2.5, page 7, third paragraph.

2.2 The appellant in summary argued that while the present invention may be regarded as a computer-implementation, it solved a technical problem and served a technical purpose. Even a general-purpose computer may be inventive if it implements novel and inventive functions.

2.3 The appellant criticized the arbitrary and inconsistent separation of the subject-matter of claim 1 into technical and non-technical features, in particular the tearing apart of "alarm" and "activations" which renders the feature entirely meaningless. This separation was inappropriate and not in line with established case

law in the field of presentation of information. The data processing component features of the claim define how exactly the received signals are processed to provide information, which relates to the internal state of a technical system, to an operator of this system.

2.4 The appellant argued that the situation in the present application was similar to T 528/07, reasons, points 3.3 to 3.5, which stated that "giving visual indications automatically about conditions prevailing in an apparatus or system is basically a technical problem". It was sufficient for achieving the required technical effect that when such cognitive information related to the internal system state was provided to the operator. This technical effect is explained in [0032] of the application.

2.5 The appellant concluded that the examining division incorrectly applied the problem-solution approach, because the mathematical features of claim 1 cannot be seen as a non-technical process. A non-technical person would not understand the concept of alarm floods. It required a system engineer or the like with a deep technical understanding of the monitored technical system to gain such insight. A limitation to a particular action to be taken by the operator was an undue limitation with regard to the inventive concept behind the invention.

2.6 The Board agrees with the appellant that the examining division wrongly identified features as non-technical which clearly have a technical purpose and achieve a technical effect. Splitting the feature "*alarm activations wherein the alarm activations correspond to one or more alarms*" into a technical ("*activation*") and

a non-technical part ("*alarm*") is artificial and only served the purpose to include part of the feature into a business method whereas the claim clearly introduced and defined "*alarm activation*" to "*represent[s] a deviation of the technical status of a particular system from its normal technical status*".

- 2.7 The application, [0002], describes an alarm as an auditable and/or visible means of indicating to the operator of an equipment, an equipment malfunction, process deviation, or abnormal condition requiring a timely response, and an alarm activation as a particular instance of an alarm. The examining division was therefore wrong by stating that "*alarm activations*" do not seem linked to a specific technical system.
- 2.8 The examining division was wrong to include the remaining features of claim 1, see point 2.1 above, into a model of presenting groups of occurred alarms according to certain rules to a user, see point 2.2 of the impugned decision, whereas it would have been necessary to properly discuss whether these features make a technical contribution to alarm management or not. The Board agrees with the appellant, see middle of page 3 of the grounds, that the striking out of features in claim 1 led, on the side of the alleged business method, to matter which grammatically and semantically was void of any meaning.
- 2.9 In the Board's view this was an incorrect application of the COMVIK approach, which only permits "an aim to be achieved in a non-technical field" to appear in the formulation of the problem (T 641/00, *supra*, reasons, point 7). The lack of a proper discussion of features whether they are technical or non-technical led to an improper or incomplete mapping with the prior art, such

as D1, and consequently to an improper application of the problem-solution approach. An appropriate feature mapping of the claimed subject-matter with regard to the prior art, however, is a prerequisite for a proper discussion of whether features have a technical effect or not.

- 2.10 According to the established case law, since the main purpose of appeal proceedings is to give a losing party an opportunity to challenge a decision on its merits, remittal in accordance with Article 111(1) EPC is an option to be considered by the boards where essential questions regarding the patentability of the claimed subject-matter have not yet been examined and decided on by the department of first instance (see the Case Law of the boards of appeal, 10th edition 2022, V.A. 9.3.2.a)). The primary purpose of ex parte appeal proceedings is to examine the correctness of the decision issued (G 10/93, OJ EPO 1995, 172, reasons, point 4), and not to perform examination on matter which was not properly discussed at first instance proceedings.
- 2.11 The Board further notes that the grounds of appeal make only a very general comment about D1 and do not provide a detailed discussion of the prior art in favor of inventive step.
- 2.12 Due to the circumstances outlined above and due to the fact that the discussion was limited to the technical and non-technical nature of the features of claim 1, the Board is not able to take a final decision in regard of inventive step which would require a proper application of the problem-solution approach in view of the closest prior art.

2.13 As a result, after considering all the relevant circumstances of the case at hand, the board, noting that Article 11 RPBA 2020 cannot be seen as limiting the discretionary power of the board provided by Article 111(1) EPC, considers it appropriate to remit the case to the examining division for further prosecution.

Order

For these reasons it is decided that:

1. The appealed decision is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



T. Buschek

M. Höhn

Decision electronically authenticated