

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

| | |
|---|--|
| Applicant's or agent's file reference see form PCT/ISA/220 | FOR FURTHER ACTION See paragraph 2 below |
|---|--|

| | | |
|--|--|--|
| International application No. PCT/US2018/036699 | International filing date (day/month/year) 08.06.2018 | Priority date (day/month/year) 08.06.2017 |
|--|--|--|

International Patent Classification (IPC) or both national classification and IPC
INV. G08B29/04 G08B29/14 G08B29/18

Applicant
TYCO FIRE & SECURITY GMBH

1. This opinion contains indications relating to the following items:


- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

| | | |
|---|--|---|
| Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465 | Date of completion of this opinion see form PCT/ISA/210 | Authorized Officer Bilard, Stéphane Telephone No. +49 89 2399-0 |
|---|--|---|



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|----------------------|
| Novelty (N) | Yes: Claims | <u>1-13</u> |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | <u>5, 12</u> |
| | No: Claims | <u>1-4, 6-11, 13</u> |
| Industrial applicability (IA) | Yes: Claims | <u>1-13</u> |
| | No: Claims | |

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

1 **Re Item V**

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.1 Reference is made to the following documents:

D1 US 2017/061783 A1 (NALUKURTHY RAJESHBABU [IN] ET AL)
2 March 2017 (2017-03-02)

D2 EP 2 843 636 A1 (E I TECHNOLOGY LTD [IE]) 4 March 2015
(2015-03-04)

D3 US 2017/092108 A1 (TRAINOR CHRISTINE [US] ET AL) 30
March 2017 (2017-03-30)

1.2 **Inventive step / Negative**

1.2.1 Notwithstanding the clarity issues raised in the section "Re Item VIII" of the present written opinion, the present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-4, 6-11, 13 does not involve an inventive step in the sense of Article 33(3) PCT.

1.2.2 Document D1 is considered to be the closest prior art to the subject matter of claim 1.

1.2.2.1 Document D1 discloses a computer program product (§[0016], [0020]) tangibly stored on a computer readable hardware storage device, the computer program product for detecting changes in operational characteristics of a group of sensor devices (§[0028], [0029], [0037], [0038]), the computer program product comprising instructions to cause a processor to:
collect sensor information from plural sensor devices (see also claim 1 of D1) deployed in a system, with the collected sensor information (claim 1, §[0047]) including sensor data and sensor device metadata;
continually analyze the collected sensor information to detect changes in the operational characteristics of a sensor device in the group of sensor devices;
upon detection of a change in the operational characteristics of the sensor (again see claim 1, §[0028], [0029], [0037], [0038]),

access a database that stores maintenance organization contact information;
generate based on the detected changes and the access to the database a
request for maintenance on the sensor device; and
send the request to the maintenance organization contact.

It is not specifically disclosed in D1 that the processor will generate and send a request for maintenance on the sensor device(s) to the maintenance organization. Nevertheless it is disclosed in D1 that data and failure probability reports are sent to each authorized human users including users involved in maintenance (§[0029], [0031], [0035], [0039], [0044]).

1.2.2.2 The subject-matter of claim 1 therefore differs from this known computer program product in that it **explicitly** :

accesses a database that stores maintenance organization contact information;
generates based on the detected changes and the access to the database a
request for maintenance on the sensor device; and
sends the request to the maintenance organization contact.

The technical effect associated with these differences is that the computer program product of claim 1 is foreseen to trigger the maintenance operation itself by sending the request for maintenance to the maintenance contact, therefore permitting to avoid the step of analysis by a maintenance team of the collected data to determine whether or not a maintenance operation is required for a sensor device.

1.2.2.3 The problem to be solved by the present invention may therefore be regarded as how to adapt the known computer program product of document D1 to potentially optimize the process of triggering a maintenance operation according to the data associated with the sensor devices.

1.2.2.3.1 Document D2 discloses an alarm device monitoring and control tool (fig. 1-4 ; claim 10) comprising a programmed computer, and (in §[0108]-[0111], and more particularly in §[0111]) the teaching of using said alarm

device monitoring and control tool *"as an asset management tool that can be interrogated remotely or via a central monitoring station for alarm events, fault conditions and early warning flags such as predictive maintenance warnings via the interpretation of the alarm status on battery voltage, date installed, dust level compensation , etc. This information could be used to flag to the responsible organization for the maintenance of the devices that such devices are near alarm or in a near fault condition and replacement or service is required thus saving potential emergency call-out events and costs"*.

Claim 10 of D2 further discloses that : *"the processor is adapted to generate and send user notifications arising from said event data processing, through a medium such as SMS or email"*.

The person skilled in the art would see the advantage of these teachings of document D2 and apply it to the known computer program product of document D1 in order to solve the above-mentioned problem without exercising an inventive skill.

- 1.2.2.3.2 Document D3, cited by the applicant, discloses a computer program product that monitors a group of sensor devices in order to detect conditions at physical premises thanks to continual analysis of data from a group of sensors located at the premises. In claim 1, it is disclosed that the computer program product comprises instructions to cause a processor to *"detect during the continual analysis of sensor data that one or more of the sequences of state transitions is a drift sequence; correlate the detected drift state sequence to a stored determined condition at the premises to produce a prediction of a subsequent state as being either a safe state or a drift state or an unsafe state over a time period, with the time period defined as a window of time in the future defined so that a response team has sufficient time to address a predicted condition when the prediction of the subsequent state is the drift state to restore the premises to the safe state; generate a message based on the determined condition being at least in the drift or unsafe states; and send the generated message as an alert to a user device"*.

Even if the sensor data in this document are related to the conditions at the premises and not the condition of the sensor devices themselves, and given the disclosure of D1 (the sensor data being here related to the condition of the sensor devices) the person skilled in the art would see

the advantage of the above underlined teaching of document D3 and apply it to the known computer program product of document D1 in order to solve the above-mentioned problem without exercising an inventive skill

1.2.2.4 Therefore, notwithstanding the clarity issues raised in the section "Re Item VIII" of the present written opinion, when considering the disclosure of D1 and the teaching of either D2 or D3, the solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Article 33(3) PCT).

1.2.3 D1 further discloses the additional subject matter of claim 3.

D3 further discloses the additional subject matter of claims :

- 2 / in claims 1 and 2 of D3 ;
- 3 / in claim 3 of D3 ;
- 4 (partially) / in claim 4 of D3 ;
- 6 / in claim 6 of D3 ;
- 7 / in claim 7 of D3 ;
- 8 and 9 / the system of D3 being foreseen to monitor premises, the choice of having said system remote from or installed at the premises being an ordinary choice of the skilled person ,
- 10 / in claim 8 of D3 ;
- 11 (partially) / in claims 9 and 10 of D3 ;

The additional subject matter of claim 13 (method) only differs with the additional subject matter of claim 6 in that it comprises a determination/ approximation of the age of the one or more sensor devices in the drift conditions. Given that there is no further use of said age for a given purpose in the method, this additional subject matter does not have an identified advantageous technical effect, and therefore does not render claim 13 inventive over the disclosure of D1 and D3. For the same reason, the subject matter of claim 4 and 11 is also not considered as involving an inventive step.

1.2.3.1 Therefore, notwithstanding the clarity issues raised in the section "Re Item VIII" of the present written opinion, when considering the disclosure of D1 and D3, the subject matter of claims 2-4, 6-11, 13 also does not involve an inventive step (Article 33(3) PCT).

1.3 Inventive step / Potentially positive

1.3.1 Claims 5 and 12 / Notwithstanding the clarity issues raised in the section "Re Item VIII" of the present written opinion, and even if D1 (§[0024]) and D2 (§[0101]) disclose that one of the identified data of each sensor device can be its date of installation (which is somehow related to the concept of approximate age of said sensor device), the use of the age approximation by the computer program product to further identify the other sensor devices having said approximate age to generate a second set of alerts, is not explicitly disclosed by the available prior art as disclosed in the present search report.

2 Re Item VII

Certain defects in the international application

2.1 Independent claims 1, 6, 13 are not in the two-part form in accordance with Rule 6.3(b) PCT.

2.2 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

2.3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 and D2 is not mentioned in the description, nor are these documents identified therein.

2.4 In the description, on page 17, is commented a "fig. 9" whereas there isn't any fig. 9 in the drawings sheets.

2.5 In claim 2, the use of the singular form for the first verb "corresponds" appears to be not correct.

3 Re Item VIII

Certain observations on the international application

- 3.1 The application does not meet the requirements of Article 6 PCT, because claims 1, 5, 6, 12, are not clear.
- 3.1.1 Although claims 1 and 6 have been drafted as separate independent claims, these claims (being both product claims) and their respective dependent claims appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
- 3.1.2 Claim 5 is drafted as being dependent on claim 1. Nevertheless, "the determined drift condition and ~~the~~ age" of the sensor device are only introduced in claim 4. Therefore, claim 5 should be dependent on claim 4. For the same reason, claim 12 should be dependent on claim 11.
- 3.1.3 Furthermore, in claims 5 and 12 is mentioned "a second set of alerts" while no first set of alerts has been defined in any of their respective dependent claims.
- 3.2 The subject-matter described on page 7, lines 14, 15, "the entire contents of which are incorporated herein by reference", does not fall within the scope of the claims. This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear, Article 6 PCT.