

## PATENT COOPERATION TREATY


From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

|   |   |  |  |
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| To:<br>HUGHES, Thomas<br><br>Medtronic 60 Middletown Avenue c/o Legal Mailstop MS 54<br>North Haven, Connecticut 06473 USA  |   | Date of mailing<br>(day/month/year) <b>20 December 2018 (20.12.2018)</b> |  |
| Applicant's or agent's file reference<br>356533WO01   |   | <b>FOR FURTHER ACTION</b><br>See paragraph 2 below                       |  |
| International application No.<br><b>PCT/US2018/049457</b>   | International filing date (day/month/year)<br><b>05 September 2018 (05.09.2018)</b> | Priority date(day/month/year)<br>06 September 2017 (06.09.2017)          |  |
| International Patent Classification (IPC) or both national classification and IPC<br><b>A61B 34/00(2016.01)i, A61B 90/00(2016.01)i, A61B 34/35(2016.01)i</b>  |   |  |  |
| Applicant<br><b>COVIDIEN LP</b>   |   |  |  |
| <p>1. This opinion contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> <p>2. <b>FURTHER ACTION</b></p> <p>If a demand for international preliminary examination is made, this opinion will 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 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.</p> <p>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.</p> <p>For further options, see Form PCT/ISA/220.</p> |   |  |  |

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| Name and mailing address of the ISA/KR<br>International Application Division<br>Korean Intellectual Property Office<br>189 Cheongsa-ro, Seo-gu, Daejeon,<br>35208, Republic of Korea<br>Facsimile No. +82-42-481-8578 | Date of completion of this opinion<br><br>19 December 2018 (19.12.2018) | Authorized officer<br><br>HAN, Inho<br><br>Telephone No. +82-42-481-3362 |  |
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/US2018/049457**

**Box No. I Basis of this 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 43*bis*. I(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 13*ter*. I(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 13*ter*. I(a)).
    - on paper or in the form of an image file (Rule 13*ter*. I(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:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/US2018/049457**

**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)                   | Claims | <u>1-37</u>             | YES |
|                               | Claims | <u>NONE</u>             | NO  |
| Inventive step (IS)           | Claims | <u>2-11,15-24,28-37</u> | YES |
|                               | Claims | <u>1,12-14,25-27</u>    | NO  |
| Industrial applicability (IA) | Claims | <u>1-37</u>             | YES |
|                               | Claims | <u>NONE</u>             | NO  |

2. Citations and explanations :

2.1 Reference is made to the following documents:

- D1: US 2008-0240547 A1 (CHO, J. I. et al.) 02 October 2008
- D2: US 2007-0156017 A1 (LAMPRECHT, B. et al.) 05 July 2007
- D3: US 2012-0237095 A1 (ZHAO, W. et al.) 20 September 2012
- D4: US 2007-0184422 A1 (TAKAHASHI, A.) 09 August 2007
- D5: US 2009-0207238 A1 (KIM, Y. T. et al.) 20 August 2009

2.2 Novelty and Inventive Step

D1, which is considered to be the closest prior art to the subject-matter of claim 1, discloses a method for vision processing on a network based intelligent service robot, the method comprising acquiring an input image from two cameras; performing an input image pre-processing to calibrate the left/right image signals acquired from the two cameras to have the same circumstance, using various image processing methods; performing a stereo matching, at a stereo matching unit, by computing a disparity map after finding out points corresponding to each other in the left/right images calibrated in an input image pre-processing unit (see claim 7). The subject-matter of claim 1 differs from D1 in the generating a stereoscopic visual perception notification, when it is determined that the right-eye view image or the left-eye view image includes the characteristic; and displaying a stereoscopic image including the stereoscopic visual perception notification. However, the feature would be easily modified or optimized from the disclosure of D2 considering a method for a robotic surgical system comprising a telestration generator coupled to the stereo telestration device, the telestration generator to generate telestration graphics for overlay on the stereo images of the surgical site, wherein the generating of the stereo-view of the telestration graphic includes determining a disparity map between pixels in left images and right images of the stereo view of the surgical site to position the stereo view of the telestration graphic at one or more depths in the stereo-view of

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the surgical site (see claims 1, 17, and 19). Although D1 and D2 do not individually disclose the difference, when they are combined, it is easily derived by a person skilled in the art. Accordingly, the subject-matter of claim 1 would be obvious over D1 in view of D2. Therefore, claim 1 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3).

The additional feature of claim 2 differs from these prior art documents in identifying a cause of the characteristic included in the right-eye view image or the left-eye view image. And it is not obvious to a person skilled in the art by the documents, taken alone or in combination. Therefore, claim 2 meets the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

Claims 3-11 are dependent on claim 2 and therefore meet the requirements of PCT Article 33(2) and (3).

The additional feature of claim 12, relating to type of the stereoscopic visual perception notification, is not disclosed in D1 and D2. However, the feature would be merely a design option when the general knowledge in relevant field of the art is used.

The additional feature of claim 13 can be readily derived by a person skilled in the art from the disclosure of D2 in a stereo endoscopic camera to generate stereo images of a surgical site (see claim 23).

Accordingly, claims 12 and 13 would be obvious over D1 in view of D2. Therefore, claims 12 and 13 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3).

The subject-matter of claim 14 relates to a system for providing stereoscopic visual perception notifications during a robotic surgical procedure. But it has the same technical features as those of claim 1 except for the category. Thus, the same reasoning as in claim 1 applies to claim 14. Accordingly, the subject-matter of claim 14 would be obvious over D1 in view of D2. Therefore, claim 14 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3).

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The additional features of claims 15-26 are substantially the same as those of claims 2-13, respectively. Thus, the same reasoning as in claims 2-13 applies to claims 15-26, respectively. Therefore, claims 15-24 meet the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step. Also, claims 25 and 26 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3).

The subject-matter of claim 27 relates to a non-transitory computer-readable storage medium storing instructions . But it has the same technical features as those of claim 1 except for the category. Thus, the same reasoning as in claim 1 applies to claim 27. Accordingly, the subject-matter of claim 27 would be obvious over D1 in view of D2. Therefore, claim 27 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3).

The additional features of claims 28-37 are substantially the same as those of claims 2-11, respectively. Thus, the same reasoning as in claims 2-11 applies to claims 28-37, respectively. Therefore, claims 28-37 meet the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

### 2.3 Industrial Applicability

Claims 1-37 are industrially applicable under PCT Article 33(4).