

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 163347PCT	FOR FURTHER ACTION		See item 4 below
International application No. PCT/CN2017/076350	International filing date (<i>day/month/year</i>) 10 March 2017 (10.03.2017)	Priority date (<i>day/month/year</i>)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant CLOUDMINDS (SHENZHEN) ROBOTICS SYSTEMS CO., LTD.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 10 September 2019 (10.09.2019)
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From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) 30 November 2017	
Applicant's or agent's file reference 163347PCT	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/CN2017/076350	International filing date (day/month/year) 10 March 2017
Priority date (day/month/year)	
International Patent Classification (IPC) or both national classification and IPC G01C 21/34(2006.01)i; H04B 17/318(2015.01)i	
Applicant CLOUDMINDS (SHENZHEN) ROBOTICS SYSTEMS CO., LTD.	

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 43bis.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 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.

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/	Date of completion of this opinion	Authorized officer

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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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 43*bis*.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 filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
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 in 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.

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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			
1. Statement	Novelty (N)	Claims	1-11 <hr/> None <hr/>	YES <hr/> NO <hr/>
	Inventive step (IS)	Claims	None <hr/> 1-11 <hr/>	YES <hr/> NO <hr/>
	Industrial applicability (IA)	Claims	1-11 <hr/> None <hr/>	YES <hr/> NO <hr/>
2. Citations and explanations :				
[1] Reference document				
[2] D1: US 8311741 B1, 13 November 2012				
[3] Novelty and inventive step				
[4] D1 discloses a method and system for generating a travel route on the basis of wireless coverage (i.e., a navigation method and system; see description, columns 9-11, column 12, lines 48-55, fig. 2-5, and claims 1, 16, and 24). The method comprises:				
[5] receiving an origin and a destination for a travel objective; accessing a graph model associated with a geographic region proximate the travel objective, the graph model comprising multiple edges representing traversable paths between the origin and the destination; each edge being allocated a weighting factor determined according to parameters such as the distance and traffic conditions; acquiring wireless coverage data associated with the geographic region and adjusting weighting factors of the edges on the basis of the wireless coverage data, the wireless coverage data comprising signal strength information;				
[6] determining a route between the origin and the destination on the basis of the adjusted weighting factors of the edges for providing enhanced wireless coverage during travel; and				
[7] providing the route.				
[8] Claim 1 differs from D1 by: selecting a network comprising an optimal signal from mobile networks of multiple standards supported by a navigation apparatus. D1 further discloses categorizing wireless coverage information by a particular wireless provider such that information associated with different providers can be independently used in the determination of the route. For instance, the wireless coverage information associated with different providers is used to generate suggested routes for different users (description, column 6, lines 18-27). Moreover, supporting wireless mobile network services of different standards provided by different providers in the same wireless apparatus is a conventional configuration means in the art. Therefore, it would be obvious to a person skilled in the art to arrive at claim 1 on the basis of D1 and common general knowledge in the art. Claim 1 complies with PCT Article 33(2) but does not comply with PCT Article 33(3).				
[9] Some of the additional technical features of claims 2-4 (division of a traversable path and information interaction) are disclosed in D1 (description, column 1, lines 31-44, columns 9-11, and fig. 4 and 5). The remaining features are conventional means in the art for selecting from multiple networks and configuring a weight coefficient for a suggested formula. Therefore, claims 2-4 comply with PCT Article 33(2) but do not comply with PCT Article 33(3).				
[10] Claims 5-8 set forth an apparatus corresponding to method claims 1-4, separately. With reference to the comments on claims 1-4, claims 5-8 comply with PCT Article 33(2) but do not comply with PCT Article 33(3).				
[11] Regarding claims 9-11, D1 discloses a mobile device comprising corresponding conventional components, an instruction for executing the corresponding method, and a medium for storing the instruction (description, column 12, lines 48-55, fig. 1, and claims 16 and 24). Therefore, insofar as the navigation method defined in claims 1-4 complies with PCT Article 33(2) but does not comply with PCT Article 33(3), claims 9-11 also comply with PCT Article 33(2) but do not comply with PCT Article 33(3).				

WRITTEN OPINION OF THE
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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[12] **Industrial applicability**

[13] Claims 1-11 are industrially applicable in the sense of PCT Article 33(4).