

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 7001-02001	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2016/053182	International filing date (<i>day/month/year</i>) 22 September 2016 (22.09.2016)	Priority date (<i>day/month/year</i>) 25 September 2015 (25.09.2015)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant APPLE INC.			

<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 11 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input checked="" 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 checked="" type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<p align="center">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	<p>Date of issuance of this report 27 March 2018 (27.03.2018)</p>
	<p>Authorized officer</p> <p align="center">Athina Nickitas-Etienne</p> <p>e-mail: pct.team4@wipo.int</p>

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/US2016/053182

International filing date (day/month/year)
22.09.2016

Priority date (day/month/year)
25.09.2015

International Patent Classification (IPC) or both national classification and IPC
INV. G08G1/0962 G01C21/36

Applicant
NYQAMIN DYNAMICS LLC

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
P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040
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Date of completion of this opinion

see form
PCT/ISA/210

Authorized Officer

de la Cruz Valera, D

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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 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. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

the entire international application

claims Nos. 5-20

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search (*specify*):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):

no international search report has been established for the whole application or for said claims Nos. 5-20

a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

furnish a sequence listing in the form of an Annex C/ST.25 text file, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

furnish a sequence listing on paper or in the form of an image file complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in the form and manner acceptable to it; or the sequence listing furnished did not comply with the standard provided for in Annex C of the Administrative Instructions.

pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).

See Supplemental Box for further details

Box No. IV Lack of unity of invention

1. In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- paid additional fees
 - paid additional fees under protest and, where applicable, the protest fee
 - paid additional fees under protest but the applicable protest fee was not paid
 - not paid additional fees
2. This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- complied with
 - not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- all parts.
 - the parts relating to claims Nos. 1-4

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>2-4</u> |
| | No: Claims | <u>1</u> |
| Inventive step (IS) | Yes: Claims | <u>3, 4</u> |
| | No: Claims | <u>1, 2</u> |
| Industrial applicability (IA) | Yes: Claims | <u>1-4</u> |
| | No: Claims | |
2. Citations and explanations
- see separate sheet**

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)
and / or
2. Non-written disclosures (Rules 43*bis*.1 and 70.9)
see form 210

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

Re Item IV

Lack of unity of invention

1 The examiner has found the following matter constituting separate groups of inventions, not linked by a single general inventive concept:

1. claims: 1-4

Speed-dependent augmented reality displayed information.

2. claims: 5-8

Object perception enhancement by means of augmented reality.

3. claims: 9-12

Object revealing by means of augmented reality.

4. claims: 13-16

Augmented reality object simulation based on manual navigation monitoring

5. claims: 17-20

Environment highlighting using augmented reality.

2 The closest prior art to the subject matter of claim 1 has been found to be represented by D1.

D1 DE 10 2013 007974 B3 (AUDI AG [DE]) 23 October 2014
(2014-10-23)

2.1 To the subject matter of claim 1, D1 discloses an apparatus, comprising: an augmented reality display system, installed in a vehicle, which is configured to:
generate an augmented reality display (head up display), on a transparent surface installed in the vehicle (see e.g. par. 0039), which comprises a representation of a speed of the vehicle through an environment, wherein the

augmented reality display presents the representation as being spatially positioned within a portion of the environment which is perceptible via the transparent surface (se fig. 1); and
adjustably control a presented spatial position of the representation in the portion of the environment, based on a difference between the speed of the vehicle and a local speed limit associated with the environment (par. 0021, pars. 0038-0040).

Since all features claimed by claim 1 are disclosed in D1, the subject matter of the claim is not new. The subject matter of claim 4 is also disclosed in D1 (see Größe, pars. 0021, 0038-0040). The first claim in which a contribution to the prior art in the sense of a special technical feature, following the definition of Rule 13.2 PCT can be identified is claim 2.

The special technical features (cf. Rule 13.2 PCT) which can be identified in claim 2 are that the representation of the distance at which the representation (of the speed of the vehicle) is presented be based on the difference between the speed and the local speed limit.

In parallel claim 2, claim 3 requires that the elevation in the environment be based on such difference.

These features have the effect of providing a representation alternative to the change of size, contrast or color provided by the apparatus of D1.

The problem addressed by these identified features is how to provide an alternative to the enhanced display of the speed excess disclosed in D1.

- 2.2 By contrast, to the subject matter of claim 5, the identified special technical features are an apparatus configured to generate a display based on monitoring an object located in an environment in which the vehicle is located and which comprises a display element which conforms to at least one boundary of at least a portion of the perceived object and at least partially obscures one or more instances of content on the object.

These features have the effect of enhancing the visibility of an object in the environment of a display (e.g. improving its interpretation or its ease of understanding)

The problem addressed by these identified features is how to improve the interpretation of the meaning of objects present in the environment of a vehicle.

- 2.3 In turn, the subject matter of claim 9 incorporates the following special technical features:
the augmented reality display comprises a representation of an object in the environment which is at least partially obscured from perception in the environment by at least one other object located in the environment.
These features have the effect of allowing the perception of hidden objects by their reproduction by means of the augmented reality display.
The problem addressed by these identified features is how to provide a full representation of the environment of a vehicle.
- 2.4 The subject matter of claim 13 lacks clarity, to the extent its interpretation for the purpose of the unity analysis is compromised. A contribution to the disclosure of claim 1 appears to be constituted by the representation of a simulated object at a particular position in the environment, based on monitoring a manual navigation of the vehicle by one or more occupants of the vehicle.
These features have the effect of simulating an environment.
The problem addressed by these identified features, relying on the description, appears to be related to influencing the performance of the driver by addition of simulated objects.
- 2.5 Finally, the contribution of claim 17 to the prior art can be summarised as the display incorporating a display element which highlights a portion of the environment perceptible via the transparent surface which is associated with a particular zone.
These features have the effect of enhancing the situational awareness to an environmental feature associated to a physical area.
The problem addressed by these identified features is to enhance safety of driving to both the driver and other persons (e.g. children) in a given zone (cf. par. 0074).
- 2.6 As can readily be seen, the five groups of inventions identified are expressed in terms of special technical features which are neither the same nor corresponding (i.e. address distinct problems) among them. The provisions of Rule 13.1 and 13.2 PCT are, thus, not satisfied.

Re Item V

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

3 Reference is made to the following documents:

D1 DE 10 2013 007974 B3 (AUDI AG [DE]) 23 October 2014
(2014-10-23)

D2 WO 2015/037325 A1 (DENSO CORP [JP]) 19 March
2015 (2015-03-19)

3.1 As detailed under Item IV, the subject matter of claims 1 and 4 cannot be regarded as new in view of D1 (Article 33(2) PCT).

3.2 The subject matter of claims 2 and 3 cannot be considered to involve an inventive step (Article 33(3) PCT) for the following reasons:

- Claim 2, the representation of the distance to data in a display, e.g. by means of projecting a perspective impression with a view to enhancing perception is known in the art of interfaces, see D2, where the distance to the signals of speed and speed limit vary. As D1 recognises the interest in providing a variation of perception with the perceived difference with the speed limit, it would be obvious to provide this variation in other known manners, in particular by providing a varying perceived distance, arriving thereby to the claimed subject matter without the involvement of an inventive step.

- To claim 3, the requirement that the elevation, i.e. the spatial positioning of the representation of speed be based on the difference between speed and the local speed limit does not appear to address or solve a perception problem. Indeed, the displacement in position of the data will, if at all, render more difficult to the driver the actual reading of data. As no particular advantage is neither derivable from the description of the application itself, the claimed solution appears to constitute a mere design option for the presentation of the speed limit information, deprived of inventive character.

Re Item VI

The attention of the applicant is drawn equally to

4 Reference is made to the following document:

D4 WO 2016/092825 A1 (DENSO CORP [JP]) 16 June 2016
(2016-06-16)

D4 discloses all features of claims 1,2 and 4 (see figures 10,11) and which might be of relevance for assessing patentability in regional and national proceedings.

Re Item VIII

Certain observations on the international application

5 Irrespective of the fact that no opinion on the novelty and inventiveness of the subject matter of claim 13 is provided, it is pointed out, for the sake of efficiency in the procedure that this subject matter lacks clarity, contrary to the requirements of Article 6 PCT. The expression manual navigation is vague and not recognised in the field. It is further only referred to in claims 13,14 15 and on paragraphs 0065 and 0066 of the description, which do not further provide any further clarification of its meaning. While it does not reflect any common single inventive concept with those of the first invention, the examining division would not be in the position to search for this unclear subject matter.