

**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 AVIAP001PC	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/US2017/043405	International filing date ( <i>day/month/year</i> ) 21 July 2017 (21.07.2017)	Priority date ( <i>day/month/year</i> ) 21 July 2016 (21.07.2016)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant AVIA, 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 6 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 22 January 2019 (22.01.2019)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Xiaofan Tang
Facsimile No. +41 22 338 82 70	e-mail: pct.team2@wipo.int

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

To:  CHAN Melvin D. AKA CHAN LLP 900 Lafayette Street, Suite 710 Santa Clara, California 95050 United States of America		Date of mailing <i>(day/month/year)</i> <span style="float: right;">01 Nov 2017</span>
Applicant's or agent's file reference AVIAP00IPC		<b>FOR FURTHER ACTION</b> See paragraph 2 below
International application No. PCT/US2017/043405	International filing date <i>(day/month/year)</i> 21 Jul 2017	Priority date <i>(day/month/year)</i> 21 Jul 2016
International Patent Classification (IPC) or both national classification and IPC IPC (2017.01) G06T 7/00 G06F 3/01 G06Q 30/02		
Applicant AIVIA, INC.		

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 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: Israel Patent Office Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel Facsimile No. 972-2-5651616	Date of completion of this opinion 31 Oct 2017	Authorized officer GORBUNOVA Yelena  Telephone No. 972-2-5651669
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US2017/043405

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*.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 13*ter*.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 13*ter*.1(a)).
    - on paper or in the form of an image file (Rule 13*ter*.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:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2017/043405

**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 <u>17,19</u>	YES
	Claims <u>1-16,18</u>	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-19</u>	NO
Industrial applicability (IA)	Claims <u>1-19</u>	YES
	Claims _____	NO

2. Citations and explanations:

2.1. State of the art

Reference is made to the following documents:

D1: A Design Space for Pervasive Advertising on Public Displays Florian Alt  
(Prof. Dr. Albrecht Schmidt, Prof. Nigel Davies, PhD) Munchen 07/12/2012

D2: WO2008132741 A2 (TRU-MEDIA TECHNOLOGIES INC.) 06 November 2008

D3: US2014316543 A1 (SHARMA et al.) 23 October 2014

2.2. Novelty

The present application does not meet the criteria of Articles 33(1) PCT, because the subject matter of independent claims 1-16, 18 is not new (Article 33(2) PCT).

The document D1, which may be regarded as the closest prior art to the subject matter of claim 1, discloses (the references in parentheses applying to this document):

A system comprising:

at least a first display (see pages 171-172 first paragraph);

at least a first imaging device (see page 172 third paragraph); and

a controller block coupled to the first display and imaging device, wherein the controller block is configured to:

acquire images from the imaging device (see page 176 first paragraph);

analyze the images from the imaging device to obtain a first analysis (see pages 178-179);

alter the content shown on the first display based on the first analysis of the images, wherein the content shown on the first display does not comprise images acquired from the imaging device (see page 177 first paragraph, Fig 7.1; pages 189-190 Section 7.6).

For sake of completion it is pointed out that similar conclusions regarding lack of novelty of claim 1 can also be made from D2 (see paragraphs 26-32, 81, 86-91, 141).

The dependent claims 2-16,18 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT):

Regarding claim 2, D1 discloses a network coupled to the controller block (see page 247), wherein the controller transmits the first analysis to a server; and the controller block is configured to cause a second display coupled to the network and separate from the first display, to show a content based on the first analysis (see page 127 second paragraph, Fig. 8.4; see page 223 last paragraph -224 first paragraph Section 9.1).

Regarding claim 3, D1 discloses detect a gaze event of a person, wherein the gaze event indicates a selection by the person's eye gaze of either at least a first content or a second content shown on the first display; upon determining the gaze event is for the first content, display a third content associated with the first content on the first display; and upon determining the gaze event is for the second content display a fourth content associated with the second content on the first display (see pages 177, 184).

Regarding claims 4-6, D1 discloses calibrating, based on a point of interest at about a frame center, between a frame left edge and a frame right edge of the first display and between a frame top edge and a frame bottom edge of the first display (see page 159, page 262 second paragraph).

Regarding claim 7, D1 discloses the controller which comprises a real-time processor and the processor is configured to perform image analysis of gaze click detection, group classification, movement detection and location estimation (see page 177 second paragraph, 158).

Regarding claim 8, D1 discloses the controller which comprises embedded storage or is coupled to external storage, which is used to store content images received from a server for a presenter and a reporter, and the controller based on image analysis data, determines associated display content (see page 34 second paragraph).

Regarding claim 9, D1 discloses the image analysis which comprises the controller being configured to determine a gaze duration, estimate face location, and generate a gaze\_click flag when duration is greater than a predetermined threshold time value (see pages 172, 176-177 second paragraph, page 180 Section 7.3.1, 284).

Regarding claim 10, D1 discloses the image analysis comprises the controller being configured to detect a movement of a person's eyes, a movement of a person's head, and a movement of a person's body, a persons gender, a person's age, a person's movement behavior or patterns, a persons distance form first display, a person's hair color, a person's clothing color, a person's clothing style such a pants, skirt, or other, appearance, posture, face recognition or face tracking or any combination of these (see Sections 2.5.4, 2.5.5., 5.1.1, 5.4.1, see also pages 157-159).

Regarding claims 11-13, D1 discloses alter the content shown on the first display is enabled by generating of a gaze\_click\_through flag which comprises a gaze\_click and weighting factors comprising at least on of a specific gender, age group, specific area, distance, preferred viewers, or other factors, or any combination of these (see pages 175, 177).

Regarding claim 14, D1 discloses the imaging device located in a separate location than the first display (see page 34).

The same reasoning applies to the subject matter of the claims 15-16.

Regarding claims 18, D1 discloses content displayed on the first display, captured images associated with the content on the first display are analyzed to determine an interest level, where lower interest content will be replaced with content similar to high interest content either in a single display or using multiple display units (see page 177 first paragraph, page 190 second paragraph).

### 2.3. Inventive step

The subject matter of the claim 17 differs from the system of D1 in that it specifies tracking a subject's eye, such that display unit B will display content that related to what was displayed in unit A when the subject's gaze was detected in unit A.

However D3 in the field of coordinating display session based on eye movement motion recognition, describes this feature (see paragraphs 121-124).

Therefore, it would be obvious to the skilled person in the art to combine the teaching of D1 with D3 to

display content in the display unit B related to what was displayed in unit A when the subject's gaze was detected in unit A, for improving user interface, thereby arriving at the subject matter claimed. Thus, the subject matter of said claim lacks inventive step over D1 in light of D3 (Article 33(3) PCT).

The subject matter of dependent claim 19 differs from the disclosure in D1 in that it specifies a gaze blinking to determine if a real human, however, this feature is obvious feature for a person skilled in the art.

Therefore the subject matter of this claim does not involve an inventive step (Article 33(3) PCT).

#### 2.4. Industrial applicability

The subject matter of claims 1-19 is industrially applicable in the sense of Article 33(4) PCT, because the claimed adaptive relay system can be made and used in industry.