

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 21188.433310	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US18/45238	International filing date (<i>day/month/year</i>) 03 August 2018 (03.08.2018)	(Earliest) Priority Date (<i>day/month/year</i>) 04 August 2017 (04.08.2017)
Applicant WALMART APOLLO, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out 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)).

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (see Box No. II).

3. **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
See extra sheet.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Group I: Claims 1-7, 15-20

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC - G06T 7/73 (2018.01)
 CPC - G06T 7/74; H04W 4/023; G06F 3/04815

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 9595115 B1 (CEDERLOF, C) 14 March 2017; column 2, lines 37-41; column 3, line 1, column 4, lines 1-5; column 5, lines 1-3; column 5, lines 8-10; column 10, lines 66, 67; column 20, lines 3-6	1, 2, 6, 7, 15, 16, 20 ---- 3-5, 17-19
Y	US 6563520 B1 (PARKER, R et al.) 13 May 2003; abstract; column 8, lines 50-54	3, 17
Y	US 2003/0232708 A1 (RABIEA, J) 18 December 2003; abstract	4, 18
Y	US 9665960 B1 (AMAZON TECHNOLOGIES, INC.) 30 May 2017; column 3, lines 14-16; column 11, lines 52-58; column 12, lines 65-67; column 13, line 1	5, 19

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

8 November 2018 (08.11.2018)

Date of mailing of the international search report

15 NOV 2018

Name and mailing address of the ISA/

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International application No.

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-***-Continued from Box No. III Observations where unity of invention is lacking-***-

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-7 and 15-20 are directed towards a method and a computer-readable storage medium for generating a 3D map of a storage area based on package weight and contents.

Group II: Claims 8-14 are directed towards an augmented reality device having a transparent display with an inner surface and an outer surface.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include at least a method and a computer-readable storage medium comprising: generating a three-dimensional map of the storage area; identifying next package content, and a next package weight; determining a storage location based on: the next package content; the next package dimensions; the next package weight; the package content of each of the plurality of packages; the package weight of each of the plurality of packages; and package placement rules, which are not present in Group II.

The special technical features of Group II include at least an augmented reality device comprising: a transparent display having an inner surface and an outer surface; receiving, from a server, physical package dimensions; identifying a current location of the augmented reality device; generating augmented view data based on the current location and the current view, wherein the augmented view data enables a virtual package to illustrate how the physical package should be placed within the storage location, which are not present in Group I.

The common technical features shared by Groups I and II are a processor; storage; an augmented reality device; a storage location corresponding to a package; package dimensions of a particular package; the augmented reality device providing a view of the storage area with a virtual package in the storage location, the virtual package having corresponding package dimensions.

However, these common features are previously disclosed by US 9,595,115 B1 (CEDERLOF). Cederlof discloses a processor (a computing device includes a processor and a memory; column 4, lines 22-24); storage (a computing device includes a processor and a memory; column 4, lines 22-24); an augmented reality device (the computing device is located within an augmented reality functional node/ARFN (device); column 4, lines 20-24); a storage location corresponding to a package (the current location data of the object in the room (storage location) is provided; column 3, lines 20, 21; column 20, lines 53-55); package dimensions of a particular package (a size of the object may be stored in the object data-store; column 10, lines 61, 62); the augmented reality device providing a view of the storage area with a virtual package in the storage location, the virtual package having corresponding package dimensions (the augmented reality module of the ARFN (device) may provide prompts via a computer generated scene/room (view of the storage area) instructing a deliver person to place the table in the particular location based on a rendering/projection (virtual package) of the table made using table attributes, including dimensions, received by the data-store in the augmented reality functional node/ARFN; column 2, lines 37-41; column 3, line 1, column 4, lines 1-5; column 5, lines 1-3; column 5, lines 8-10; column 20, lines 3-6).

Since the common technical features are previously disclosed by the Cederlof reference, these common features are not special and so Groups I and II lack unity.