

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

To: ABG Intellectual Property Law, S.L. Avenida de Burgos 16D Edificio Euromor 28036 Madrid ESPAGNE		Date of mailing (day/month/year) 04.08.2021	
Applicant's or agent's file reference P16310PC00		IMPORTANT NOTIFICATION	
International application No. PCT/EP2020/063303	International filing date (day/month/year) 13.05.2020	Priority date (day/month/year) 14.05.2019	
Applicant Banco Bilbao Vizcaya Argentaria, S.A.			

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:  European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Fax: +31 70 340 - 3016	Authorized Officer Viegas da Cruz, I Tel. +31 70 340-1923
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P16310PC00	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2020/063303	International filing date (day/month/year) 13.05.2020	Priority date (day/month/year) 14.05.2019	
International Patent Classification (IPC) or national classification and IPC INV. G06K9/00			
Applicant Banco Bilbao Vizcaya Argentaria, S.A.			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 14 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of 33 sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ 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 Article 35(2) with regard to novelty, inventive step or 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			
Date of submission of the demand 12.03.2021		Date of completion of this report 04.08.2021	
Name and mailing address of the international preliminary examining authority:  European Patent Office P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Fax: +31 70 340 - 3016		Authorized officer De Coi, Juri Telephone No. +31 70 340-3604 	

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ 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 (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

- | | |
|---------|---|
| 1, 3-29 | as originally filed |
| 2, 2a | filed with the demand for preliminary international examination |

Claims, Numbers

- | | | |
|------|--------------------------|------------|
| 1-15 | filed with the letter of | 02-07-2021 |
|------|--------------------------|------------|

Drawings, Sheets

- | | |
|-----|---------------------|
| 1-7 | as originally filed |
|-----|---------------------|

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2020/063303

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 30.03.2021 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-15</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-15</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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 V

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

- 1 Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure:
- D1 WO 2018/191435 A1 (ALIBABA GROUP HOLDING LTD [US]) 18 October 2018 (2018-10-18)
- D2 Rob Lightner: "How to remove personal data from image files", 20 June 2011, XP055716052,
Retrieved from the Internet: <https://web.archive.org/web/20170629160331/https://www.cnet.com/how-to/how-to-remove-personal-data-from-image-files/>
- D3 JERRY ALAN FAILS ET AL: "Interactive machine learning", INTERNATIONAL CONFERENCE ON INTELLIGENT USER INTERFACES, 12 January 2003, pages 39-45, XP058170971
- D4 US 2013/259314 A1 (KOZITSKY VLADIMIR [US] ET AL) 3 October 2013 (2013-10-03)
- D5 K. N. DIVYA ET AL: "RECOGNITION OF VEHICLE NUMBER PLATES AND RETRIEVAL OF VEHICLE OWNER'S REGISTRATION DETAILS", INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN TECHNOLOGY & SCIENCE, vol. 2, no. 3, 30 May 2014, pages 61-66, XP055632344
- 2 The present application does not meet the requirements of Article 33(1) PCT because the subject-matter of claim 1, as understood in the light of the description and drawings (see below), does not involve an inventive step within the meaning of Article 33(3) PCT.
- D1 is considered to be the prior art closest to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):
- 2.1 a computer-implemented method (§111: "FIG 9 is a flowchart illustrating [...] a computer-implemented method [...] according to an implementation of the present disclosure". Also see Fig. 9) for a system to assign quantitative

characteristics (*in D1, "loss assessment" or "maintenance plan"—§57 makes it clear that both the loss assessment and the maintenance plan are "quantitative characteristics": "the loss assessment can include [...] cost assessment [...] the maintenance plan includes information about maintenance costs"*) to an object (*in D1, "vehicle"*) based on at least one photograph (§4: *"The present application aims to provide a picture-based vehicle loss assessment method [...] of a vehicle component"*) that a portable device (*in D1, "mobile phone"*) takes of the object (§25: *"the vehicle owner user can take photos for [...] an entire vehicle by using a [...] mobile phone"*), ~~wherein the quantitative characteristics are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object, said~~ portable device being configured for taking photographs (*see above*) and storing them in an internal memory (*mobile phones are known to store photographs in their memory*), wherein the system comprises:

- 2.1.1 an identification module (*in D1, "damage identification model"*) configured for receiving the at least one photograph that the portable device takes, identifying a typology (*in D1, "damage type"*) of the photographed object, and providing said identified typology together with a level of accuracy (*in D1, "confidence"—§46: "The damage identification model is set to output at least one damaged part and a damage type corresponding to the damaged part [...] and [...] data information indicating a confidence level for a degree of authenticity of the damage type". S2 and S3 in Fig. 1 make it clear that the damage identification model receives the vehicle's photo*),
- 2.1.2 a valuing module (*in D1, "loss assessment processing module"*) configured for obtaining (*in D1, "generating"*) a valuation (*in D1, "maintenance plan"*) of the photographed object based on a typology of the photographed object (§7: *"the apparatus includes [...] a loss assessment processing module, configured to: generate a maintenance plan based on [...] the damage type"*), and
- 2.1.3 a characterization module (*in D1, "loss assessment processing module"*) which assigns quantitative characteristics to the photographed object depending on its valuation (*see §2.1.2 of the present communication. The "assessment" and the "quantitative characteristics" are assumed to identify, as explicitly mentioned in p. 5, l. 28–30 of the present application: "the valuation itself [...] can also be considered a financial characteristic"—it is clear from the context that the "financial characteristic" is a "quantitative characteristic"*), and

- 2.1.4 a temporary storage server (*in D1, "cloud server"*), with a database (*in D1, "price database"*), configured for ~~anonymizing at least one photograph that the portable device has taken and further configured for storing in the database, in a temporary manner,~~ said at least one anonymized photograph that the identification module will receive (§25: *"the vehicle owner user uploads the photographed photos (pictures) [...] After acquiring the to-be-processed pictures [...] a cloud server can first identify damaged components [...] Then, a rule engine can [...] invoke different price databases"*), ~~anonymizing being an irreversible process in which any reference to the authorship of the photograph is completely eliminated,~~
- 2.2 wherein the method comprises the steps of:
- 2.2.1 a) the identification module receiving at least one photograph of an object, wherein the photograph was stored in an internal memory of a portable device (*see §2.1–§2.1.1 of the present communication*),
- 2.2.2 b) the identification module identifying at least one typology of the photographed object furthermore providing its level of accuracy (*see §2.1.1 of the present communication*), such that:
- 2.2.2.1 in the event that said level of accuracy is ~~equal to or~~ lower than a given threshold (*in D1, "preselected confidence level"*), the at least one photograph is rejected (§117: *"a maximum number of images with a confidence level equal or higher than a preselected confidence level can be used". In other words, if the confidence level is lower than the preselected confidence level, the photograph is rejected*), and
- 2.2.2.2 in the event that said level of accuracy is greater than the given threshold, the at least one photograph is assigned the "valid" state and the following step is carried out (*see §2.2.2.1 of the present communication. In particular, according to p. 4, l. 26–29 of the present application, "assigning 'valid' state to a photograph must be understood to mean that typologies of a specific object could be correctly identified from said photographs". Hence, D1 discloses assigning the "valid" state to the at least one photograph*),
- 2.2.3 c) the valuing module receiving the at least one typology of the photographed object from the identification module (*see §2.1.2 of the present communication. In particular, since the loss assessment processing module generates a maintenance plan based on the damage type, it is implicit that the loss assessment processing module received the damage type*),

- 2.2.4 d) the valuing module linking the at least one typology of the object with the valuation of the photographed object (*see §2.1.2 of the present communication*),
- 2.2.5 e) the characterization module receiving said valuation linked with the at least one typology by the valuing module (*trivially true, since the assessment module and the characterization module identify*) and the characterization module assigning quantitative characteristics to the object depending on said valuation (*see §2.1.3 of the present communication*), and
- 2.2.6 f) sending said valuation and quantitative characteristics of the object to the portable device (§119: *"the maintenance plan is transmitted to the user [...]. The application can be configured to display the maintenance plan for the user of the mobile device on a graphical user interface of the application". Also see Fig. 8 and 914 in Fig. 9*);
- 2.3 wherein the method additionally comprises the following steps performed by the ~~temporary~~ storage server:
- 2.3.1 g) receiving at least one photograph of an object (*see §2.1.4 of the present communication*) stored in an internal memory of the portable device (*see §2.1 of the present communication*),
- 2.3.2 h) selecting the photograph or photographs complying with (*in D1, "meeting"*) a pre-established quality (*in D1, "predetermined processing"*) requirement, preferably photographs taken under conditions with good lighting (§29: *"it can further be determined whether the picture quality of the to-be-processed picture meets a predetermined processing requirement. If the picture quality is relatively poor [...] the component picture can be discarded, and feedback is sent to [...] user to pay attention to [...] the focus and the lighting". Also see §113–§114, 904 in Fig. 9 and §2.2.2.1 of the present communication*), up to a pre-established maximum number of photographs (*see §2.2.2.1 of the present communication*),
- 2.3.3 i) ~~anonymizing the at least one photograph of an object,~~
- 2.3.4 j) ~~storing in the database~~ storing the at least one anonymized photograph of an object (*see §2.1.4 of the present communication*),
- 2.3.5 k) sending the at least one ~~anonymized~~ photograph to the identification module (*see §2.1.1 of the present communication*);

- 2.3.6 wherein the steps of ~~anonymizing~~, storing, and sending are carried out on the photographs selected by the ~~temporary~~ storage server in step h) (*Fig. 9 makes it clear that only pictures meeting the predetermined processing requirement are further processed—in particular, stored and sent*);
- 2.4 wherein the method additionally comprises assisting the user of the portable device to take the at least one photograph with an ~~augmented reality algorithm~~, ~~said augmented reality algorithm comprising~~ at least one of the following types of help:
- 2.4.1 help for centering the object to be photographed (*see §2.3.2 of the present communication. By sending feedback to the user to pay attention to the focus, the user is helped for centering the object to be photographed*), or
- 2.4.2 help for capturing the best lighting (*see §2.3.2 of the present communication. By sending feedback to the user to pay attention to the lighting, the user is helped for capturing the best lighting*), or
- 2.4.3 help for moving the camera of the portable device, or
- 2.4.4 help for clearly capturing a distinctive element of the object, or
- 2.4.5 a combination of at least two of the above.
- 3 The subject-matter of claim 1 differs from the subject-matter of D1 in the following features:
- 3.1 (in the following, *Feature 1*) [a computer-implemented method... the object,] wherein the quantitative characteristics are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object, [said portable device... the system comprises:]
- 3.2 (in the following, *Feature 2A*) [a] temporary [storage server... storing in the database,] in a temporary manner, [said at least one anonymized photograph...]
- 3.3 (in the following, *Feature 2B*) [a temporary storage server... configured for] anonymizing at least one photograph that the portable device has taken and further configured for [storing... said at least one] anonymized [photograph...] anonymizing being an irreversible process in which any reference to the authorship of the photograph is completely eliminated,
- 3.4 (in the following, *Feature 2C*) [a temporary storage server... storing] in the database, [in a temporary manner...]
- 3.5 (in the following, *Feature 3*) [in the event that said level of accuracy is] equal to or [lower than a given threshold, the at least one photograph is rejected, and]

- 3.6 (in the following, *Feature 4*) [wherein the method... performed by the] temporary [storage server:]
- 3.7 (in the following, *Feature 5*) i) anonymizing the at least one photograph of an object.
- 3.8 (in the following, *Feature 6*) [j] storing] in the database [the at least one anonymized photograph of an object,]
- 3.9 (in the following, *Feature 7*) [k] sending the at least one] anonymized [photograph to the identification module;]
- 3.10 (in the following, *Feature 8A*) [wherein the steps of] anonymizing, [storing, and sending... in step h);]
- 3.11 (in the following, *Feature 8B*) [wherein the steps of... photographs selected by the] temporary [storage server in step h);]
- 3.12 (in the following, *Feature 9*) [wherein... take the at least one photograph with] an augmented reality algorithm, said augmented reality algorithm comprising [at least one of the following types of help:]
- 4 Features 2B, 5, 7 and 8A provide the technical effect that the identity of the one seeking to obtain the financial information is protected. Feature 9 provides the technical effect that greater precision in the identification of the typology of the photographed object is allowed. Finally, Features 1–2A, 2C–4, 6 and 8B cannot be related to a specific technical effect or technical problem in the application as filed.
- 5 As a consequence, the interactions of: (i) Features 2B, 5, 7 and 8A; (ii) Feature 9; and (iii) Features 1–2A, 2C–4, 6 and 8B; do not produce a synergistic technical effect. For this reason, to prove that the set of such features does not involve an inventive step, it is enough to show that: (i) Features 2B, 5, 7 and 8A; (ii) Feature 9; and (iii) Features 1–2A, 2C–4, 6 and 8B; are obvious (see PCT-EPO Guidelines G-VII.7).

Feature 1

- 6 Quantitative characteristics related to the calculation of bank loans cannot be *themselves* related to a specific technical effect or technical problem in the application as filed. More specifically, whether the quantitative characteristics are related to the calculation of bank loans or (as in D1) to a maintenance plan

of a vehicle refers to the information content of the quantitative characteristics which is, as such, not technical and which, in absence of a technical purpose, does not contribute to the technical character of the claimed invention.

7 Thus, quantitative characteristics related to the calculation of bank loans form part of a requirement specification for the skilled person (see PCT-EPO Guidelines G-VII.5.4.1). The objective technical problem to be solved by the claimed invention may therefore be regarded as how to modify D1 so as to employ quantitative characteristics related to the calculation of bank loans.

8 In absence of any further technical implementation details, the skilled person would solve the problem as claimed, thereby arriving at the claimed invention without making an inventive step.

Features 2A, 4 and 8B

9 Storing the anonymized photograph *in a temporary manner* cannot be *itself* related to a specific technical effect or technical problem in the application as filed. In particular, how long the anonymized photograph is stored (whether temporarily or persistently) is an administrative rule and hence *per se* not serving a technical purpose. More specifically, no technical difference would be detected in the system's behavior if such a rule were replaced by a different one, just like, when employing said rule, the choice of different time intervals for storing the anonymized photograph does not cause the system to behave in a technically different way.

10 Thus, storing the anonymized photograph in a temporary manner does not contribute to the technical character of the claimed invention but forms part of a requirement specification for the skilled person (see PCT-EPO Guidelines G-VII.5.4.1). The objective technical problem to be solved by the claimed invention may therefore be regarded as how to modify D1 so as to store the anonymized photograph in a temporary manner.

11 In absence of any further technical implementation details, the skilled person would solve the problem as claimed, thereby arriving at the claimed invention without making an inventive step.

Features 2B, 5, 7 and 8A

- 12 According to p. 8, l. 2–4 of the present application, Features 1B, 3 and 5 provide the technical effect that the identity of the one seeking to obtain the financial information is protected.
- 13 The technical problem to be solved by the present invention may be regarded as how to modify D1 to protect the identity of the one seeking to obtain the financial information.
- 14 The solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Articles 33(1) and 33(3) PCT) since, faced to the technical problem and having D1 at hand, the skilled person would find D2 which belongs to the field of image anonymization, targets the protection of personal data and discloses (the references in parentheses applying to D2):
- 14.1 [a temporary storage server... configured for] anonymizing at least one photograph that the portable device has taken and further configured for [storing in the database, in a temporary manner, said at least one] anonymized [photograph...] anonymizing being an irreversible process in which any reference to the authorship of the photograph is completely eliminated (*p. 3, l. 1–7: "Select the 'Details' tab, then click on 'Remove Properties and Personal Information.' [...] If you'd rather choose which info to keep and which to delete, select 'Remove the following properties from this file' at the top and then scroll down the list to select the info you want to remove, then click 'OK.' This does not create a copy, so preserve the information externally if you think you'll want it later!". In particular, by checking the Authors checkbox in the figure on p. 3, any reference to the authorship of the photograph is completely eliminated*),
- 14.2 i) anonymizing the at least one photograph of an object (*see §14.1 of the present communication*),
- 14.3 [k) sending the at least one] anonymized (*see §14.1 of the present communication*) [photograph to the identification module;]
- 14.4 [wherein the steps of] anonymizing, (*see §14.1 of the present communication*) [storing, and sending... in step h);]
- 15 In order to solve the aforementioned technical problem, the skilled person would add the features under §14 of the present communication for protecting the identity of the one seeking to obtain the financial information, thereby arriving at the claimed invention without any inventive step.

- 16 For the sake of completeness, it is noted that a possible modification of claim 1 requiring the method disclosed therein to be performed automatically (i.e., without the human intervention disclosed in D2) would not make the claim inventive, since automation of known human behaviour is a routine matter not involving inventive skill (T1937/09.5.4 and T0634/01.6).

Features 2C and 6

- 17 Storing the anonymized photograph *in the database* cannot be related to a specific technical effect or technical problem in the application as filed. As no such technical effect is derivable from the application as filed, the objective technical problem is regarded as how to provide an alternative storage solution to store the anonymized photograph in a method according to D1.
- 18 It is established Case Law that, when the technical problem is that of providing a further method (here, a further method having an alternative storage solution to store the anonymized photograph), i.e., simply that of providing an alternative to the prior art, any feature or combination of features already conventional for that sort of method represents an equally suggested or obvious solution to the posed problem. Thus, arbitrarily selecting one among equally obvious alternative variations is deprived of any inventive character.
- 19 Here, the usage of the database is one such equally obvious alternative which the skilled person would choose to solve the problem of storing the anonymized photograph without resorting to an inventive step.

Feature 3

- 20 The criterion according to which the photograph is rejected (here, if level of accuracy is equal to or lower than a given threshold) is an administrative rule. Therefore, the objections laid out at §9–§11 of the present communication apply *mutatis mutandis*.

Feature 9

- 21 According to p. 19, l. 14–15 of the present application, Feature 9 provides the technical effect that greater precision in the identification of the typology of the photographed object is allowed.

- 22 The technical problem to be solved by the present invention may be regarded as how to modify D1 to allow greater precision in the identification of the typology of the photographed object.
- 23 The solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Articles 33(1) and 33(3) PCT) since autofocus as well as other AR-based technologies to automatically set shutter speed and aperture are common general knowledge (see e.g., Nikon D5300).
- 24 Therefore, faced to the technical problem of allowing greater precision in the identification of the typology of the photographed object, the skilled person would employ an AR algorithm. By doing so, the skilled person would only apply common general knowledge without resorting to an inventive step.
- 25 The additional features of claims 2–12 are trivial adaptations of the subject-matter of D1, i.e., they are not inventive within the meaning of Article 33(3) PCT. More specifically:
- 25.1 (claim 2) edge enhancement, color correction and removal of objects from images are well-known techniques in the field of image processing;
- 25.2 (claim 3) D1, §32 ("the component identification model used to identify a vehicle component in a picture can be constructed [...] by using a designed machine learning algorithm. [...] the component identification model can be constructed based on a convolutional neural network");
- 25.3 (claim 4) D1, §42 ("a plurality of damaged parts in a single damage sample picture can be identified during model training [...] by using marking data. [...] The marking data is a picture marked with a region and a corresponding type");
- 25.4 (claims 5–6) interaction with the user is disclosed in D1, §62 ("The information about the maintenance strategy can be determined based on user's selection. For example, the user can select a maintenance place [...], select an authorized dealership or a general repair shop, and input a vehicle brand and a model"). Moreover, interactive machine learning is common general knowledge (see e.g., D3);
- 25.5 the subject-matter of claim 7 cannot be regarded as inventive since it amounts to providing the ML algorithm with a bigger training set (namely, the one obtained by augmenting the original one with the output of the algorithm). Moreover, it is questionable whether such an approach produces the claimed

- technical effect of obtaining "a higher level of accuracy", since it is more credible that it would rather lead the algorithm to reinforce its previous (both correct and incorrect) behavior;
- 25.6 (claims 8–9) OCR-based automatic number-plate recognition is well-known (see e.g., D4);
- 25.7 it is questionable whether the subject-matter of claims 10–12 is unitary with the rest of the present application. Assuming it is:
- 25.7.1 (claims 10 and 12) see §25.6 of the present communication. Moreover, number plate-based retrieval of vehicle-related information is also well-known (see e.g., D5, abstract: "In this paper vehicle numbers are recognized and later used for retrieval of vehicle owner details");
- 25.7.2 (claim 11) image segmentation is common general knowledge.
- 26 The objections above applying to the subject-matter of claims 1–12 also apply *mutatis mutandis* to the subject-matter of claims 13–15, as understood in the light of the description and drawings (see below).

Re Item VIII

Certain observations on the international application

- 27 The present application does not meet the requirements of Article 6 PCT because claim 1 is unclear:
- 27.1 it is unclear what the (first occurrence of the) expression "the user" refers to, since no antecedent is provided;
- 27.2 it is unclear whether the expression "[anonymizing] at least one photograph" refers to the same at least one photograph previously defined or to a distinct one. In the first (resp. second) case, it should be replaced by the expression "*the* at least one photograph" (resp. "*a second* at least one photograph" or similar ones).
- 28 The objections above applying to the subject-matter of claim 1 also apply *mutatis mutandis* to the subject-matter of claims 13–15.

EUROPEAN PATENT OFFICE

D-80298 Munich

GERMANY

By Epoline

CHAPTER II

N/Ref.: **P16310PC00**

Application No.: **PCT/EP2020/063303**

Publication No.: **WO2020229527**

Madrid, 12 March 2021

Re.: International application No. PCT/EP2020/063303 for "METHOD AND SYSTEM FOR OBTAINING INFORMATION ABOUT AN OBJECT BASED ON A PHOTOGRAPH THEREOF", in the name of BANCO BILBAO VIZCAYA ARGENTARIA, S.A.

Filing of the PCT Demand

[IGB/FP]

Dear Sirs,

We hereby request that the above identified International patent application be treated under PCT Chapter II. We enclose the Demand for the preliminary examination of this application.

This patent application is being currently prosecuted before the European Patent Office (EPO) as International Search Authority (ISA). The EPO has also been elected as International Preliminary Examining Authority (IPEA).

The administrative fees are being paid through Epoline.

In response to the written opinion, applicant respectfully submits the following comments to be taken into consideration when carrying out the International Preliminary Examination.

Amendments and basis for them

The following amendments have been performed in the set of claims:

Instant claim 1

- A specification of what has to be understood as a quantitative characteristic has been added into the claim. Basis for this amendment can be found in page 5, lines 32-35 of the patent application as filed:

“Quantitative characteristics must be understood to be the calculation of any type of bank loan which will allow the user to acquire the photographed object and estimate the cost to insure said object.”

- For the sake of clarity, the action the valuing module is configured for has been redrafted in order to increase its comprehensibility. In particular, said module is configured for obtaining a valuation of a photographed object based on a typology of said photographed object. Basis for this amendment can be found, *inter alia*, in page 5, lines 21-24 of the patent application as filed:

This valuing module allows obtaining the valuation of the photographed object which is understood as the valuation of the retail price of said object calculated depending on the identified typologies.

- For the sake of clarity, the actions the temporary server is configured for have been redrafted in order to increase its comprehensibility. On the one hand, said server anonymizes photographs taken from a portable device and, on the other, the server stores temporarily the anonymized photographs in its database. Basis for this amendments can be found, *inter alia*, in page 8, lines 6-12 of the patent application as filed:

The system in charge of carrying out the method further comprises a temporary storage server with a database. Said server receives the photograph or photographs either directly from the internal memory of the portable device or after their processing by the cleaning module. The server then anonymizes the photographs, stores them temporarily in its database, and sends them to the identification module.

- Instant claim 1 now comprises the features of claim 3 of the patent application as filed. Accordingly, former claim 3 has been deleted and the rest of the claims have been renumbered and their dependencies modified.

Instant claim 5 (former claim 6)

Instant claim 5 now specifies that the training sub-module receives the typology alternative that has been selected in the previous step of the method and trains the machine learning algorithm based on said typology alternative. Basis for this amendment can be found in page 12, lines 21-29 of the patent application as filed:

... These options are sent by said sub-module to the portable device so that the option which fits the object about which financial information is to be obtained is selected. Once the selection is carried out, it is sent back to the training sub-module to use the photograph by way of a “training photograph”; i.e., the machine

learning algorithm is trained by assigning to the photograph the option of typology selected in the portable device.

The applicant notes that, in this context, “option” refers to the “typology alternative”. Additionally, the applicant remarks that typology alternative of the selected typology is a redundancy so, for the sake of clarity, just the terms “typology alternative selected” remain in the claim.

Description

To meet the requirements of Rule 5.1(a)(ii) PCT, documents D1 and D2 have been identified and briefly discussed in the description of the patent application.

A working copy is enclosed for the Examiner's convenience showing the amendments in the new claims and description pages as compared to the original claims and description. In this working copies additions are underlined and deletions are crossed out.

However, it should be taken into account that any deletion of subject matter or claims are done without prejudice to their ulterior reintroduction into the present application or their inclusion in a future national/regional phase of the present application.

Clarity (Art. 6 PCT)

The ISA considers that former claims 1 and 6 are unclear. In order to overcome this objection, the applicant has amended both claims as follows:

In instant claim 1, the action the valuing module is configured for has been redrafted in order to increase its comprehensibility. In particular, said module is configured for obtaining a valuation of a photographed object based on a typology of said photographed object.

Additionally, in instant claim 1 the actions the temporary server is configured for have been redrafted in order to increase its comprehensibility. On the one hand, said server anonymizes photographs taken from a portable device and, on the other, the server stores temporally the anonymized photographs in its database.

Finally, instant claim 5 (former claim 6) now specifies that the training sub-module receives the typology alternative that has been selected in the previous step of the method and trains the machine learning algorithm in base of said typology alternative.

Thus, the applicant deems that the whole set of claims complies with the requirements of Art. 6 PCT.

Prior art documents

The following documents were cited by the ISA:

- **D1:** International patent application WO 2018/191435 A1 published on 18 October 2018 in the name of ALISABA GROUP HOLDING LTD.
- **D2:** "How to remove personal data from image files", published on 20 June 2011 in the name of Rob Lightner:
(<https://web.archive.org/web/20170629160331/https://www.cnet.com/how-to/how-to-removepersonal-data-from-image-files/>).
- **D3:** "Interactive machine learning", published on 12 January 2003 in the name of JERRY ALAN FAILS ET AL.
- **D4:** Patent application US 2013/259314 A1 in the USA, published on 3 October 2013 in the name of KOZITSKY VLADIMIR ET AL.
- **D5:** "RECOGNITION OF VEHICLE NUMBER PLATES AND RETRIEVAL OF VEHICLE OWNER'S REGISTRATION DETAILS", published on 30 May 2014 in the name of K. N. Divya ET AL.

Inventive step (Art. 33(3) PCT)

The ISA considered that none of the claims involved an inventive step over the combination of documents D1 and D2. The applicant disagrees with the ISA and respectfully submits that presently all amended independent claims involve an inventive step for the reasons set out below.

Closest prior art

Document D1 describes (see [0004]) a picture-based vehicle loss assessment method to quickly, accurately, and reliably identify specific information about a damaged part and a degree of a vehicle component. [...] Information about a maintenance plan can be provided to a user for fast and efficient vehicle loss assessment processing, so as to greatly improve user experience.

This document aims to provide a user with a maintenance plan of a vehicle based on a photograph of a part of said vehicle that has been damaged, for example, in a traffic accident. On the contrary, the purpose of the claimed method is to provide a user with a bank loan to acquire and a cost estimations to insure an object from a photograph taken from said object. Thus, the purposes of both methods is completely different.

According to the Guidelines G-VII 5.1, in practice, the closest prior art is generally that which corresponds to a similar use and requires the minimum of structural and functional modifications to arrive at the claimed invention (see T 606/89).

The applicant respectfully deems that document D1 could not be a good candidate to be the closest prior art. On the one hand, at it has been previously mentioned, it is not directed to a similar use than the claimed method. On the other, the applicant has found, at least, ten differences between the subject matter of instant claim 1 and document D1 (see next section); that is, the structural and functional modifications that must be performed in D1 to arrive at the claimed invention would not be minimum.

D1 as closest prior art

In any event, as suggested by the ISA, for assessing inventive step it will be assumed that the skilled person could consider D1 as the closest prior art. This document is not directed to the same or similar purpose of the invention but it at least belongs to the technical field of providing a user with quantitative characteristics, different from the claimed ones, based on a photograph of a car, which is a specific type of object.

The applicant considers that D1 fails to disclose, at least, the following features of instant claim 1:

- Feature 1** *“the quantitative characteristics are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object”*
- Feature 2A** *“a temporary storage server, with a database”*
- Feature 2B** *“configured for anonymizing at least one photograph that the portable device has taken, anonymizing being an irreversible process in which any reference to the authorship of the photograph is completely eliminated”*
- Feature 2C** *“further configured for storing in the database, in a temporary manner, said at least one anonymized photograph”*
- Feature 3** *“in the event that said level of accuracy is equal to or lower than a given threshold, the at least one photograph is rejected,”*
- Feature 4** *“h) selecting the photograph or photographs complying with a pre-established quality requirement, preferably photographs taken under conditions with good lighting, up to a pre-established maximum number of photographs,”*

- Feature 5** *“i) anonymizing the at least one photograph of an object”*
- Feature 6** *“j) storing in the database the at least one anonymized photograph of an object”*
- Feature 7** *“k) sending the at least one anonymized photograph to the identification module”*
- Feature 8** *“the steps of anonymizing, storing, and sending are carried out on the photographs selected by the temporary storage server in step h)”*

The ten distinguishing features previously set out give rise to the following technical effect: a secure method to quickly provide a user with bank loans to acquire an object and with a cost estimation to insure the object from a photograph of said object, without having to consult the bank entity directly and while preserving the user's anonymity.

The objective technical problem underlying the invention is how to securely provide a user with bank loans to acquire an object and with a cost estimation to insure said object quickly after the user sees the desired object and takes a photograph of it, without having to consult directly with the bank entity and while his/her anonymity is preserved.

Regarding D1 in isolation and considering the objective technical problem, the skilled person would not find in such document any pointer to the solution according to the claimed invention.

As it has been mentioned before, in document D1 a user is provided with a maintenance plan. This maintenance plan is based on information including the damaged component, the damaged part, and the damage type. In other words, the maintenance plan relies on an *ad hoc* assessment of the damages caused to the photographed vehicle which undoubtedly must return to the owner.

On the other hand, according to the present invention, the actual photographed object is immaterial since it is only important to accurately identify its typology to obtain a bank loan and an estimation of the insurance costs to acquire and insure the object. In this way, the object must not belong to the user as in D1 but rather the user wants to acquire and insure said object in the future. This difference is of a great importance for the anonymization process as there is no link between the object and the user who is taken the photograph of the object.

With the claimed method, in the moment the user sees the desired object, for example a car in the street or an article in a shop window, the user takes a photograph of the object and is quickly provided with the required financial information in an anonymous way.

Thus, the identity of the users seeking to obtain the financial information is protected, preventing the leak of their personal data, and therefore increasing method security.

In the contrary, in document D1 there is a link between the damaged car and the owner, who is the person taking the photograph, and said connection must be taken into account when the maintenance plan is been generated; that is, the identity of the owner must be known during the execution of the method and, consequently, no anonymization process should be performed.

The bank entity in charge of the provision of the bank loan and the insurance costs does not require any data of the user taking the photograph. Thus, the anonymization process favours the user not having to contact the bank entity but rather directly obtaining the financial information in his/her device. Consequently, the experience of the user is highly improved as he/she does not feel the obligation of giving any personal data to a bank entity before knowing if the bank loan and/or the insurance is of his/her interest.

In the anonymization process, the role of the temporary storage server is essential. It receives the photographs of the desired objects form the user's portable device and allows their anonymization just for those fulfilling quality requirements. Thus, when a photograph received by the temporary storage server does not satisfy a minimum quality requirement, the temporary storage server will not waste resources on anonymizing and storing useless photographs and the identification module is prevented from receiving poor quality photographs that may lead to an erroneous typology identification of the photographed object. This actions speed up the method to quickly provide the user with the required financial information.

Referring back to the content of D1, said document is totally silent about an anonymization process and an element able to efficiently manage the anonymized photographs to speed up the provision of the information to a user (in this case, such information would be the maintenance plan, not the financial information of the claimed method).

Thus, when confronted with the objective technical problem, the skilled person would recognise that the method disclosed in document D1 should be altered to achieve the solution described in the method of claim 1. This is a first evidence that an inventive step is required.

Document D2

Document D2 is a web site directed to an anonymization process by the removal of personal data from image files; that is, this document is not confronted with the same technical problem as the invention and it is not even related with the same technical field.

In any event, even when the skilled person could select D2 to complete or modify the teachings of D1, the applicant notes that there is a hint in D1 against the combination of both documents. As mentioned before, the damage assessment described in D1 must be *ad hoc* with the damaged vehicle; thus, a process of anonymization as the one described in D2 is completely incompatible with the method of D1 since the identity of the vehicle's owner is essential.

According to the Guidelines G-VII, 5.3, in order to assess whether the claimed invention, the question to be answered is whether there is any teaching in the prior art as a whole that would (not simply could, but would) have prompted the skilled person, faced with the objective technical problem, to modify or adapt the closest prior art while taking account of that teaching, thereby arriving at something falling within the terms of the claims, and thus achieving what the invention achieves (see G-VII, 4).

In other words, the point is not whether the skilled person could have arrived at the invention by adapting or modifying the closest prior art, but whether he would have done so because the prior art incited him to do so in the expectation of some improvement or advantage (see T 2/83).

The applicant submits that not only there is no hint in D1 that would have prompted the skilled person to combine it with document D2 but also D1 would teach the skilled person away from the combination of both documents.

Additionally, the applicant notes that, even when the skilled person could combine the contradictory teachings of D1 and D2, he/she would not lead to the claimed solution because in said combination an element able to efficiently manage the anonymized photographs to speed up the provision of information to the user is not described.

In the light of the above mentioned arguments, the applicant considers that instant claim 1 is not obvious in view of the prior art and is inventive in the sense of Art. 33(3) PCT. The above argumentation applies *mutatis mutandis* to independent claim 14-16.

Claims 2 to 13 are also inventive by virtue, at least, of their dependency of claim 1.

It is therefore submitted that the application claims subject-matter which is new and involves an inventive step and hence, it is requested that a positive International Preliminary Examination Report is issued. In case the IPEA intends to depart from this request, a written opinion under R. 66.2 PCT is respectfully requested.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'T. Llamas', with a long horizontal flourish extending to the right.

Tomás Llamas González
European Patent Attorney
ABG Intellectual Property, S.L.

Encl.: - PCT demand
- Amendments

CLAIMS

1. A computer-implemented method (100) for a system (1) to assign quantitative characteristics (7) to an object based on at least one photograph (2) that a portable device (3) takes of the object, wherein the quantitative characteristics (7) are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object, said portable device (3) being configured for taking photographs (2) and storing them in an internal memory (4), wherein the system (1) comprises:

an identification module (10) configured for receiving the at least one photograph (2) that the portable device (3) takes, identifying a typology (8) of the photographed object, and providing said identified typology (8) together with a level of accuracy (5),
a valuing module (20) configured for obtaining a valuation (6) of a photographed object based on a typology (8) of the photographed object, and
a characterization module (30) which assigns quantitative characteristics (7) to an object depending on its valuation (6), and
a temporary storage server (70), with a database (71), configured for anonymizing (220) at least one photograph (2) that the portable device (3) has taken and further configured for storing (230) in the database (71), in a temporary manner, said at least one anonymized photograph (2) that the identification module (10) will receive, anonymizing (220) being an irreversible process in which any reference to the authorship of the photograph (2) is completely eliminated,

wherein the method (100) comprises the steps of:

a) the identification module (10) receiving (110) at

- least one photograph (2) of an object, wherein the photograph (2) was stored in an internal memory (4) of a portable device (3),
- b) the identification module (10) identifying (120) at least one typology (8) of the photographed object furthermore providing its level of accuracy (5), such that:
- in the event that said level of accuracy (5) is equal to or lower than a given threshold (U), the at least one photograph is rejected, and
- in the event that said level of accuracy (5) is greater than the given threshold (U), the at least one photograph (2) is assigned the "valid" state and the following step is carried out,
- c) the *valuing* module (20) receiving (130) the at least one typology (8) of the photographed object from the identification module (10),
- d) the *valuing* module (20) linking (140) the at least one typology (8) of the object with the valuation (6) of the photographed object,
- e) the characterization module (30) receiving (150) said valuation (6) linked with the at least one typology (8) by the *valuing* module (20) and the characterization module (30) assigning (145) quantitative characteristics (7) to the object depending on said valuation (6), and
- f) sending (160) said valuation (6) and quantitative characteristics (7) of the object to the portable device (3)
- wherein the method (100) additionally comprises the following steps performed by the temporary storage server (70) :
- g) receiving (210) at least one photograph (2) of an object stored in an internal memory (4) of the portable device (3),
- h) selecting (221) the photograph or photographs (2)

- complying with a pre-established quality requirement, preferably photographs (2) taken under conditions with good lighting, up to a pre-established maximum number (N) of photographs (2),
- 5 i) anonymizing (220) the at least one photograph (2) of an object,
- j) storing (230) in the database (71) the at least one anonymized photograph (2) of an object,
- k) sending (240) the at least one anonymized photograph (2) to the identification module (10);
- 10 wherein the steps of anonymizing (220), storing (230), and sending (240) are carried out on the photographs selected by the temporary storage server (70) in step h).
- 15 2. The method (100) according to claim 1, wherein the system (1) additionally comprises
- a cleaning module (40) configured for interacting with photographs (2) stored in the internal memory (4) of the portable device (3) and for processing (310) said
- 20 photographs (2),
- wherein the method (100) additionally comprises a prior step, i.e. prior to step a), of the cleaning module (40) processing (310) the at least one photograph (2) that the portable device (3) takes, the step of processing (310) comprising:
- 25 the elimination of at least one unwanted element, or the enhancement of edges, or lighting correction, or a combination of two or more of the above.
3. The method (100) according to any of the preceding
- 30 claims, wherein the step of identifying (120) at least one typology (8) of the photographed object is performed by means of a machine learning algorithm (A), preferably convolutional neural networks.
4. The method (100) according to claim 3, wherein the
- 35 identification module (10) additionally comprises:

a training sub-module (11) of the machine learning algorithm (A) configured for storing at least one set of training photographs (15), such that each set of training photographs (15) shows a different object that can be identified by the identification module (10), and said training sub-module (11) being additionally configured for training (400) the machine learning algorithm (A) by assigning at least one typology (8) to each photograph of the at least one set of training photographs (15);

wherein the method (100) additionally comprises the following steps performed by the training sub-module (11) of the machine learning algorithm (A):

- storing at least one set of training photographs (15),
- training (400) the machine learning algorithm (A) by assigning at least one typology (8) to each of the photographs of the at least one set of training photographs (15).

5. The method (100) according to the preceding claim, wherein the training sub-module (11) of the machine learning algorithm (A) is additionally configured for identifying a plurality of alternatives (8.1, 8.2) for one and the same typology (8) and for sending the plurality of typology alternatives (8.1, 8.2) to the portable device (3);

wherein the step of training (400) the machine learning algorithm (A) of the method (100) additionally comprises the following steps:

- the training sub-module (11) identifying (410) a plurality of typology alternatives (8.1, 8.2) for the object of a photograph (2) received by the identification module (10),
- the portable device (3) receiving (420) the plurality of typology alternatives (8.1, 8.2) for its

- selection, and selecting one alternative (8.1, 8.2),
- the training sub-module (11) receiving (430) the typology alternative (8.1, 8.2) selected in the portable device (3),
 - 5 - the training sub-module (11) storing (440) the photograph as part of the set of training photographs (15),
 - the training sub-module (11) training (400) the machine learning algorithm (A) by assigning to the
 - 10 training photograph (15) the typology alternative (8.1, 8.2) selected in the portable device.

6. The method (100) according to the preceding claim, wherein the photograph (2) in which the training sub-module (11) identifies a plurality of typology alternatives (8.1, 8.2) is a photograph (2) to be rejected in step (b) of the

15 method (100) and,

wherein the method (100) additionally comprises:

- the identification module (10) receiving the alternative or alternatives (8.1, 8.2) of typologies (8) selected by the
- 20 portable device (3),
- the identification module (10) providing a level of highest accuracy for the photograph (2) to be rejected and assigning to said photograph the "valid" state;
- continuing with step (c) of the method.

25 7. The method (100) according to any of claims 3 to 6, wherein the identification module (10) in turn comprises:

- a feedback sub-module (12) of the machine learning algorithm (A) configured for storing those photographs (2) which have been assigned the "valid" state, with the
- 30 level of accuracy (5) thereof furthermore preferably being complete, and for feeding back (450) the machine learning algorithm (A);

wherein the method (100) additionally comprises the following steps performed by the feedback sub-module (12) of the machine

learning algorithm (A):

- storing the photograph or photographs (2) which have been assigned the "valid" state, with the level of accuracy (5) thereof furthermore preferably being complete, and
- feeding back (450) the machine learning algorithm (A) of the identification module (10) with said photograph or photographs (2) to help obtain, in subsequent executions of the method (100), a higher level of accuracy (5) when identifying the at least one typology (8) of the same photographed object or of another photographed object with the same typology/typologies.

8. The method (100) according to any of claims 3 to 7, wherein the temporary storage server (70) is furthermore configured for identifying patterns in the at least one photograph (2) it receives, and wherein the method (100) further comprises the steps of:

- the temporary storage server (70) identifying patterns in the at least one photograph (2) it receives, preferably alphanumeric characters, and
- the identification module receiving (10) said patterns, such that the machine learning algorithm (A) of the identification module (10) uses them as additional information in the identification (120) of the at least one typology (8) of the photographed object.

9. The method according to claim 8, wherein pattern identification by the temporary storage server (70) is performed by means of computer vision techniques, preferably by means of a variant of the SURF (Speeded-Up Robust Features) algorithm.

10. The method (100) according to any of claims 1 to 9, wherein the cleaning module (40) is additionally configured for interacting with photographs (2) stored in the internal

memory (4) of the portable device (3) so as to recognize (320) at least one distinctive element (9) of the object from a photograph (2) of said object; a distinctive element being an element characterizing the object completely and unequivocally, i.e., an element which is inherently associated with all the typologies of the object, for instance the distinctive element may be a license plate or a barcode; wherein the system (1) further comprises

10 a correspondence module (60) configured for identifying (340) the typology (8) of the object based on the distinctive element (9),

and wherein the method (100) further comprises:

- the cleaning module (40) receiving at least one photograph (2) of an object stored in an internal memory (4) of the portable device (3),
- 15 - the cleaning module (40) recognizing (320) at least one distinctive element (9) of the object from the at least one photograph (2) of said object,
- the correspondence module (60) receiving (330) said at least one distinctive element (9),
- 20 - the correspondence module (60) identifying (340) the at least one typology (8) of the object based on the distinctive element (9), and
- the correspondence module (60) sending (350) said at least one typology (8) of the identified object to the *valuing* module (20).
- 25

11. The method (100) according to claim 10, wherein the cleaning module (40) is furthermore configured for segmenting the distinctive element (9) of the object, and wherein the temporary storage server (70) anonymizes (220) and stores (230) the at least one photograph (2) of the object and its segmented distinctive element (9), if any.

12. The method (100) according to any of claims 10 to 11, wherein the system (1) additionally comprises a text

recognition module (50) characterized in that it converts (600) the distinctive element (9) to text format, wherein the step of the method (100) of the correspondence module (60) receiving (330) the distinctive element (9) is preceded by the following additional steps:

- the text recognition module (50) receiving the distinctive element (9) of the object,
- the text recognition module (50) converting (600) the distinctive element (9) to text format.

13. The method (100) according to any of the preceding claims, wherein taking at least one photograph (2) of an object by the portable device (3) comprises an augmented reality (AR) algorithm assisting the user of the portable device (3), said augmented reality (AR) algorithm comprising at least one of the following types of help:

- help for centering the object to be photographed, or
- help for capturing the best lighting, or
- help for moving the camera of the portable device (3),

or

- help for clearly capturing the distinctive element (9) of the object, or
- a combination of at least two of the above.

14. A system (1) for assigning quantitative characteristics (7) to an object comprising means for carrying out the steps of the method (100) according to any of claims 1 to 13.

15. A computer program comprising instructions which, when the program is run by a computer, causes the computer to carry out the steps of the method according to any of claims 1 to 13.

16. A computer-readable medium comprising instructions which, when run by a computer, causes the computer to carry out the steps of the method according to claims 1 to 13.

precise, and therefore useful financial information, one must be familiarized with the large number of attributes of the object and enter same into the financial simulators through a series of forms. Due to the process being tedious and complex, the method for obtaining the financial information is often interrupted and even abandoned.

Document WO 2018/191435 A1 describes a picture-based vehicle loss assessment method and apparatus, and an electronic device, to quickly, accurately, and reliably identify specific information about a damaged part and a degree of a vehicle component.

Article "How to remove personal data from image files", which can be retrieved from the Internet (<https://www.cnet.com/how-to/how-to-remove-personal-data-from-image-files/>), describes a process to remove personal data from image files.

The following invention proposes a solution to the preceding problems by means of a method and system for obtaining financial information about an object based on a photograph thereof, in a quasi-immediate manner, without having to identify, familiarize oneself with, and provide the attributes characterizing said object.

Description of the Invention

The present invention proposes a solution to the preceding problems by means of a computer-implemented method for assigning quantitative characteristics to an object based on a photograph thereof according to claim 1, a system for assigning quantitative characteristics according to claim 17, a computer program product according to claim 18, and a computer-readable medium according to claim 19. Preferred embodiments of the invention are defined in the dependent claims.

A first inventive aspect provides a computer-implemented method for a system to assign quantitative characteristics to an object based on at least one photograph that a portable

2A

device takes of the object, said portable device being configured for taking photographs and storing them in an internal memory, wherein the system comprises:

- 5 - an identification module configured for receiving the at least one photograph that the portable device takes, identifying a typology of the photographed object, and providing said identified typology together with a level of accuracy,*
- 10 - a valuing module configured for linking a typology of an object with its valuation, and*

EUROPEAN PATENT OFFICE

D-80298 Munich

GERMANY

By Epoline

CHAPTER II

N/Ref.: **P16310PC00**

Application No.: **PCT/EP2020/063303**

Publication No.: **WO2020229527**

Madrid, 02 July 2021

Re.: International application No. PCT/EP2020/063303 for "METHOD AND SYSTEM FOR OBTAINING INFORMATION ABOUT AN OBJECT BASED ON A PHOTOGRAPH THEREOF", in the name of BANCO BILBAO VIZCAYA ARGENTARIA, S.A.

Reply to Written Opinion of the IPEA (Rule 66 PCT)

[JAB/IGB]

Dear Sirs,

In response to the Written Opinion communication under Rule 66 PCT, an amended set of claims is enclosed herein to replace the ones currently held on file.

A working copy is enclosed for the Examiner's convenience showing the amendments in the new claims as compared to the original claims. In this working copy additions are underlined and deletions are crossed out.

However, it should be taken into account that any deletion of subject matter or claims are done without prejudice to their ulterior reintroduction into the present application or their inclusion in a future national/regional phase of the present application.

AMENDMENTS AND BASIS FOR THEM

The set of claims have been amended as follows:

- Features of former claim 13 have been added to instant claim 1. Basis for this amendment can be found in claim 13 as originally filed.
- Former claim 13 has been deleted and a renumbering of the set of claims has been performed accordingly.
- The dependencies of instant claims 13, 14 and 15 have been also amended.

- For the sake of clarity, instant claim 1 has been amended to specify that “*the photographed object*” is always the same.

CLARITY (Art. 6 PCT)

As mentioned before, instant claim 1 now specifies that “*the photographed object*” is always the same. Thus, the applicant deems that the whole set of claims complies with the requirements of Art. 6 PCT.

INVENTIVE STEP (Art. 33(3) PCT)

The following prior art documents were cited by the IPEA:

- **D1:** International patent application WO 2018/191435 A1 published on 18 October 2018 in the name of ALIBABA GROUP HOLDING LTD.
- **D2:** “How to remove personal data from image files”, published on 20 June 2011 in the name of Rob Lightner:

(<https://web.archive.org/web/20170629160331/https://www.cnet.com/how-to/how-to-removepersonal-data-from-image-files/>).

The IPEA considered that none of the claims involved an inventive step over the combination of documents D1 and D2. The applicant respectfully submits that instant amended claim 1 involves an inventive step for the reasons set out below.

For assessing inventive step, the IPEA has identified document D1 as the Closest Prior Art. The applicant considers that said document D1 fails to disclose, at least, the following features of instant claim 1:

Feature 1 “*the quantitative characteristics are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object*”

Feature 2A “*a temporary storage server, with a database*”

Feature 2B “*configured for anonymizing at least one photograph that the portable device has taken, anonymizing being an irreversible process in which any reference to the authorship of the photograph is completely eliminated*”

- Feature 2C** *“further configured for storing in the database, in a temporary manner, said at least one anonymized photograph”*
- Feature 3** *“in the event that said level of accuracy is equal to or lower than a given threshold, the at least one photograph is rejected,”*
- Feature 4** *“h) selecting the photograph or photographs complying with a pre-established quality requirement, preferably photographs taken under conditions with good lighting, up to a pre-established maximum number of photographs,”*
- Feature 5** *“i) anonymizing the at least one photograph of an object”*
- Feature 6** *“j) storing in the database the at least one anonymized photograph of an object”*
- Feature 7** *“k) sending the at least one anonymized photograph to the identification module”*
- Feature 8** *“the steps of anonymizing, storing, and sending are carried out on the photographs selected by the temporary storage server in step h)”*
- Feature 9A** *“the method additionally comprises assisting the user of the portable device to take the at least one photograph with an augmented reality algorithm”*
- Feature 9B** *“said augmented reality algorithm comprising at least one of the following types of help”*
- Feature 9C** *“help for centering the object to be photographed, or help for capturing the best lighting, or help for moving the camera of the portable device, or help for clearly capturing a distinctive element of the object, or a combination of at least two of the above.”*

The distinguishing features previously set out give rise to the following technical effect: an improvement in the identification of an object from at least one photograph thereof.

The objective technical problem underlying the invention is how to improve the identification of an object from at least one photograph thereof.

In document D1 a user is provided with a maintenance plan of a damaged car from a photograph of the said car. The photograph is analysed with a neural network to identify the parts of the car that have been damaged. Next, from the identified damaged parts of the car, the insurance company manually establishes the maintenance plan.

Conversely, the present invention automatically estimates and provides bank loans and insurance costs to acquire and insure an object from at least one photograph of said object. In order the loan and costs are completely adapted to the object in question, the method of the invention needs to identify the object with a high precision from the at least one photograph thereof.

The method just analyses photographs that, on the one hand, fulfil a quality requirement and, on the other, that show characteristics of the object that allow a proper identification thereof. Thus, the bank loan and the insurance costs are estimated with high precision.

To achieve this, the method of the invention:

- by means of augmented reality, helps the user to take photographs with high quality (focused and with good illumination) and to show the parts of the objects needed for an accurate identification thereof; and
- even in case the user has not taken images with a proper quality, the method also makes use of a temporary storage server that selects just the photographs complying with pre-established quality requirements so that only the ones fulfilling said quality requirements are analysed.

For example, if the object is a car, firstly the user receives in the portable device help for taking the images: looking for the best lighting, focusing the car and specific parts thereof and moving the camera to acquire the images from different perspectives so that the car colour, its brand, its model, the car's plate (distinctive element), the car's upholstery, the car's technology items... can be properly photographed.

Then, the temporary storage server receives the photographs stored in the internal memory of the user's portable device and it just selects the ones that comply pre-established quality requirements. The selected photographs will be analysed later by the identification module, which will obtain a really precise description of the car; that is, it will be able to determine a certain car with some specific finishes (colour, brand, model, upholstery...).

This fact is really important in the context of the invention, as the bank loan to acquire the car and the insurance costs to insure it are completely linked to the specific features of the car. For example, several car branches offer a specific car colour cheaper than the rest of the car colours; cars provided with GPS, rear camera or position sensors are more expensive than cars without said extras; etc.

Regarding D1 in isolation and considering the objective technical problem, the skilled person would not find in such document not a single pointer to amend the method of D1 in order to arrive to the solution according to the claimed invention.

Referring back to the content of D1, and obviating that the purpose of D1 is completely different than the present invention's aim, said document is totally silent about specific solutions that would improve enormously the identification of the car part being damaged; that is, D1 does not contemplate to guide the user in the acquisition of the photographs nor provide a server that selects just the photographs fulfilling pre-established quality criteria.

Thus, when confronted with the objective technical problem, the skilled person would recognise that the method disclosed in document D1 should be altered to achieve the solution described in the method of claim 1. This is a clear evidence that an inventive step is required.

In the light of the above mentioned arguments, the applicant considers that instant claim 1 is not obvious in view of the prior art and is inventive in the sense of Art. 33(3) PCT. The above argumentation applies *mutatis mutandis* to independent claims 13-15.

Claims 2 to 12 are also inventive by virtue, at least, of their dependency of claim 1.

It is therefore submitted that the application claims subject-matter which is new and involves an inventive step and hence, it is requested that a positive International Preliminary Examination Report is issued.

Yours sincerely,



Tomás Llamas González
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ABG Intellectual Property

Encl.: Amended claims (clean and working copy)

CLAIMS

1. A computer-implemented method (100) for a system (1) to assign quantitative characteristics (7) to an object based on at least one photograph (2) that a portable device (3) takes of the object, wherein the quantitative characteristics (7) are the calculation of any type of bank loan which will allow the user to acquire the object and estimate the cost to insure said object, said portable device (3) being configured for taking photographs (2) and storing them in an internal memory (4), wherein the system (1) comprises:

an identification module (10) configured for receiving the at least one photograph (2) that the portable device (3) takes, identifying a typology (8) of the photographed object, and providing said identified typology (8) together with a level of accuracy (5),
a valuing module (20) configured for obtaining a valuation (6) of the photographed object based on a typology (8) of the photographed object, and
a characterization module (30) which assigns quantitative characteristics (7) to the photographed object depending on its valuation (6), and
a temporary storage server (70), with a database (71), configured for anonymizing (220) at least one photograph (2) that the portable device (3) has taken and further configured for storing (230) in the database (71), in a temporary manner, said at least one anonymized photograph (2) that the identification module (10) will receive, anonymizing (220) being an irreversible process in which any reference to the authorship of the photograph (2) is completely eliminated,

wherein the method (100) comprises the steps of:

a) the identification module (10) receiving (110) at

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least one photograph (2) of an object, wherein the photograph (2) was stored in an internal memory (4) of a portable device (3),

b) the identification module (10) identifying (120) at least one typology (8) of the photographed object furthermore providing its level of accuracy (5), such that:

in the event that said level of accuracy (5) is equal to or lower than a given threshold (U), the at least one photograph is rejected, and

in the event that said level of accuracy (5) is greater than the given threshold (U), the at least one photograph (2) is assigned the "valid" state and the following step is carried out,

c) the *valuing* module (20) receiving (130) the at least one typology (8) of the photographed object from the identification module (10),

d) the *valuing* module (20) linking (140) the at least one typology (8) of the object with the valuation (6) of the photographed object,

e) the characterization module (30) receiving (150) said valuation (6) linked with the at least one typology (8) by the *valuing* module (20) and the characterization module (30) assigning (145) quantitative characteristics (7) to the object depending on said valuation (6), and

f) sending (160) said valuation (6) and quantitative characteristics (7) of the object to the portable device (3)

wherein the method (100) additionally comprises the following steps performed by the temporary storage server (70) :

g) receiving (210) at least one photograph (2) of an object stored in an internal memory (4) of the portable device (3),

h) selecting (221) the photograph or photographs (2)

3 *Amended claims_clean copy*

complying with a pre-established quality requirement,
preferably photographs (2) taken under conditions
with good lighting, up to a pre-established maximum
number (N) of photographs (2),

5 i) anonymizing (220) the at least one photograph (2) of
an object,

j) storing (230) in the database (71) the at least one
anonymized photograph (2) of an object,

k) sending (240) the at least one anonymized photograph
10 (2) to the identification module (10);

wherein the steps of anonymizing (220), storing (230),
and sending (240) are carried out on the photographs
selected by the temporary storage server (70) in step
h);

15 wherein the method (100) additionally comprises assisting the
user of the portable device (3) to take the at least one
photograph (2) with an augmented reality (AR) algorithm, said
augmented reality (AR) algorithm comprising at least one of
the following types of help:

20 help for centering the object to be photographed, or
help for capturing the best lighting, or
help for moving the camera of the portable device (3),
or

help for clearly capturing a distinctive element (9) of
25 the object, or
a combination of at least two of the above.

2. The method (100) according to claim 1, wherein the
system (1) additionally comprises

30 a cleaning module (40) configured for interacting with
photographs (2) stored in the internal memory (4) of the
portable device (3) and for processing (310) said
photographs (2),

wherein the method (100) additionally comprises a prior step,
35 i.e. prior to step a), of the cleaning module (40) processing

(310) the at least one photograph (2) that the portable device (3) takes, the step of processing (310) comprising:

- the elimination of at least one unwanted element, or
- the enhancement of edges, or
- 5 lighting correction, or
- a combination of two or more of the above.

3. The method (100) according to any of the preceding claims, wherein the step of identifying (120) at least one
10 typology (8) of the photographed object is performed by means of a machine learning algorithm (A), preferably convolutional neural networks.

4. The method (100) according to claim 3, wherein the
15 identification module (10) additionally comprises:

- a training sub-module (11) of the machine learning algorithm (A) configured for storing at least one set of training photographs (15), such that each set of training photographs (15) shows a different object that
20 can be identified by the identification module (10), and said training sub-module (11) being additionally configured for training (400) the machine learning algorithm (A) by assigning at least one typology (8) to each photograph of the at least one set of training
25 photographs (15);

wherein the method (100) additionally comprises the following steps performed by the training sub-module (11) of the machine learning algorithm (A):

- storing at least one set of training photographs
30 (15),
- training (400) the machine learning algorithm (A) by assigning at least one typology (8) to each of the photographs of the at least one set of training photographs (15).

35

5. The method (100) according to the preceding claim, wherein the training sub-module (11) of the machine learning algorithm (A) is additionally configured for identifying a plurality of alternatives (8.1, 8.2) for one and the same typology (8) and for sending the plurality of typology alternatives (8.1, 8.2) to the portable device (3); wherein the step of training (400) the machine learning algorithm (A) of the method (100) additionally comprises the following steps:

- 10 - the training sub-module (11) identifying (410) a plurality of typology alternatives (8.1, 8.2) for the object of a photograph (2) received by the identification module (10),
- the portable device (3) receiving (420) the plurality of typology alternatives (8.1, 8.2) for its selection, and selecting one alternative (8.1, 8.2),
- 15 - the training sub-module (11) receiving (430) the typology alternative (8.1, 8.2) selected in the portable device (3),
- 20 - the training sub-module (11) storing (440) the photograph as part of the set of training photographs (15),
- the training sub-module (11) training (400) the machine learning algorithm (A) by assigning to the training photograph (15) the typology alternative
- 25 (8.1, 8.2) selected in the portable device.

6. The method (100) according to the preceding claim, wherein the photograph (2) in which the training sub-module (11) identifies a plurality of typology alternatives (8.1, 8.2) is a photograph (2) to be rejected in step (b) of the method (100) and,

wherein the method (100) additionally comprises:

- the identification module (10) receiving the alternative or

alternatives (8.1, 8.2) of typologies (8) selected by the portable device (3),

- the identification module (10) providing a level of highest accuracy for the photograph (2) to be rejected and
5 assigning to said photograph the "valid" state;
- continuing with step (c) of the method.

7. The method (100) according to any of claims 3 to 6, wherein the identification module (10) in turn comprises:

- 10 a feedback sub-module (12) of the machine learning algorithm (A) configured for storing those photographs (2) which have been assigned the "valid" state, with the level of accuracy (5) thereof furthermore preferably being complete, and for feeding back (450) the machine
15 learning algorithm (A);

wherein the method (100) additionally comprises the following steps performed by the feedback sub-module (12) of the machine learning algorithm (A):

- storing the photograph or photographs (2) which have
20 been assigned the "valid" state, with the level of accuracy (5) thereof furthermore preferably being complete, and
- feeding back (450) the machine learning algorithm (A) of the identification module (10) with said
25 photograph or photographs (2) to help obtain, in subsequent executions of the method (100), a higher level of accuracy (5) when identifying the at least one typology (8) of the same photographed object or of another photographed object with the same
30 typology/typologies.

8. The method (100) according to any of claims 3 to 7, wherein the temporary storage server (70) is furthermore configured for identifying patterns in the at least one

photograph (2) it receives, and wherein the method (100) further comprises the steps of:

- the temporary storage server (70) identifying patterns in the at least one photograph (2) it receives,
5 preferably alphanumeric characters, and
- the identification module receiving (10) said patterns, such that the machine learning algorithm (A) of the identification module (10) uses them as additional information in the identification (120) of the at least
10 one typology (8) of the photographed object.

9. The method according to claim 8, wherein pattern identification by the temporary storage server (70) is performed by means of computer vision techniques, preferably
15 by means of a variant of the SURF (Speeded-Up Robust Features) algorithm.

10. The method (100) according to any of claims 1 to 9, wherein the cleaning module (40) is additionally configured
20 for interacting with photographs (2) stored in the internal memory (4) of the portable device (3) so as to recognize (320) at least one distinctive element (9) of the object from a photograph (2) of said object; a distinctive element being an element characterizing the object completely and
25 unequivocally, i.e., an element which is inherently associated with all the typologies of the object, for instance the distinctive element may be a license plate or a barcode; wherein the system (1) further comprises

a correspondence module (60) configured for identifying
30 (340) the typology (8) of the object based on the distinctive element (9),

and wherein the method (100) further comprises:

- the cleaning module (40) receiving at least one photograph (2) of an object stored in an internal memory (4) of the
35 portable device (3),

8 *Amended claims_clean copy*

- the cleaning module (40) recognizing (320) at least one distinctive element (9) of the object from the at least one photograph (2) of said object,
- the correspondence module (60) receiving (330) said at
5 least one distinctive element (9),
- the correspondence module (60) identifying (340) the at least one typology (8) of the object based on the distinctive element (9), and
- the correspondence module (60) sending (350) said at least
10 one typology (8) of the identified object to the *valuing* module (20).

11. The method (100) according to claim 10, wherein the cleaning module (40) is furthermore configured for segmenting
15 the distinctive element (9) of the object, and wherein the temporary storage server (70) anonymizes (220) and stores (230) the at least one photograph (2) of the object and its segmented distinctive element (9), if any.

20 12. The method (100) according to any of claims 10 to 11, wherein the system (1) additionally comprises a text recognition module (50) characterized in that it converts (600) the distinctive element (9) to text format, wherein the step of the method (100) of the correspondence
25 module (60) receiving (330) the distinctive element (9) is preceded by the following additional steps:

- the text recognition module (50) receiving the distinctive element (9) of the object,
- the text recognition module (50) converting (600) the
30 distinctive element (9) to text format.

13. A system (1) for assigning quantitative characteristics (7) to an object comprising means for carrying out the steps of the method (100) according to any of claims 1

to 12.

14. A computer program comprising instructions which,
when the program is run by a computer, causes the computer to
5 carry out the steps of the method according to any of claims 1
to 12.

15. A computer-readable medium comprising instructions
which, when run by a computer, causes the computer to carry
10 out the steps of the method according to claims 1 to 12.

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