

PATENT COOPERATION TREATY

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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2024/055032

International filing date (day/month/year)
08.11.2024

Priority date (day/month/year)
09.11.2023

International Patent Classification (IPC) or both national classification and IPC
INV. G06F16/22 G06F16/901 H04M3/493

Applicant
GENESYS CLOUD SERVICES, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed.
 - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13*ter*.1(a)),
 - ☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
4. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established to the extent that a meaningful opinion could be formed without a WIPO Standard ST.26 compliant sequence listing.
5. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-20</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-20</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-20</u>
	No: Claims	

2. Citations and explanations

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

Box V

1 Prior art

Reference is made to the following documents:

- D1 US 2017/109426 A1 (ARORA AKHIL [IN] ET AL)
20 April 2017 (2017-04-20)
- D2 CN 113 779 176 A (BEIJING WODONG TIANJUN INFORMATION
TECHNOLOGY CO LTD ET AL.)
10 December 2021 (2021-12-10)

2 Independent claims 1, 10, 19

The present application appears to meet the criteria of Art. 33(1) PCT, because the subject-matter of independent claims 1, 10, 19, once amended in order to overcome the lack of clarity issues raised in section 4 below, appears to be new in the sense of Art. 33(2) PCT, and it appears to involve an inventive step in the sense of Art. 33(3) PCT.

2.1 Document D1 is regarded as being the prior art closest to the subject-matter of claim 1 and discloses all parts not struck-through:

- a method for filtering a Trie data structure (the customer interaction module may receive and process a customer care request; navigating through the trie data-structure to provide a solution to the customer care request, in D1:[0056]) ~~for real-time bot flow visualization,~~

the method comprising:

- receiving, by a computing system, data associated with the Trie data structure (the aggregation module may then aggregate the patterns identified in each cluster of documents into a trie data-structure that is in machine readable form; the trie data-structure may be used by the KBPS to automatically provide a solution to customer care requests, in D1:[0048]), ~~wherein~~

~~the Trie data structure includes data for a plurality of contact center bot flows of an organization, and wherein each bot flow of the plurality of contact center bot flows includes at least one event;~~

~~- receiving, by the computing system, a user selection associated with filtering the Trie data structure (the customer interaction module may receive and process a customer care request, in D1:[0056]) for modified visualization of the Trie data structure;~~

~~- performing, by the computing system, a search of the Trie data structure (the KBPS may [...] search the plurality of different trie data-structures to find the trie data-structure from a cluster of documents that is associated with the same type of problem associated with the customer care request, in D1:[0054], [0066]) to identify events of the Trie data structure to be deleted;~~

~~- deleting, by the computing system, the identified events to generate an updated Trie data structure;~~

~~- updating, by the computing system, event attributes of remaining events of the updated Trie data structure in response to deleting the identified events;~~

~~- providing, by the computing system, the updated Trie data structure for real-time bot flow visualization.~~

2.2 The subject-matter of claim 1 differs from this known method in that:

f1) - the method performs real-time bot flow visualization;

f2) - the Trie data structure includes data for a plurality of contact center bot flows of an organization, wherein each bot flow of the plurality of contact center bot flows includes at least one event;

f3) - the user selection is done for modifying the visualization of the Trie data structure;

f4) - the search of the Trie data structure identifies events of the Trie data structure to be deleted;

f5) - it deletes the identified events to generate an updated Trie data structure;

f6) - it updates event attributes of remaining events of the updated Trie data structure in response to deleting the identified events;

f7) - it provides the updated Trie data structure for real-time bot flow visualization.

- 2.3 The technical effect of said differences is to visualise only a sub-section of the Trie data structure, namely the sub-section associated with a selected bot flow or the sub-section associated with a specific event attribute value.

The objective technical problem to be solved may therefore be regarded as: how to filter and visualise a specific sub-section of the Trie data structure.

- 2.4 Document D1 does not deal with the visualisation of a Trie data structure. It rather deals with the use of a Trie data structure for processing a customer care request with an interactive voice response (IVR) or a bot system. Starting from document D1 and applying common general knowledge, a skilled person would not arrive at the subject-matter of claim 1 because they would not have any incentive to implement exactly the distinguishing features.

Document D2 also deals with the use of a Trie data structure for processing a customer care request and it does not provide any useful hint for arriving at the subject-matter of claim 1.

No further prior art document disclosing the use of a Trie data structure for bot flow visualisation was found.

Consequently, it appears that the subject-matter of claim 1 involves an inventive step activity.

- 2.5 The subject-matter of claim 10 corresponds to a system configured to implement the method of claim 1. Consequently, it also appears to involve an inventive step activity.

- 2.6 Claim 19 defines a different inventive use of the invention. Specifically, in claim 19 the user selection requests that the Trie data structure be filtered to include only journeys that have a selected starting event. The Trie data structure is then accordingly processed.

Document D1 is still regarded as being the prior art closest to the subject-matter of claim 19 and discloses all parts not struck-through:

- one or more non-transitory machine-readable storage media comprising a plurality of instructions stored thereon that, in response to execution by a computing system (non-transitory computer readable medium and apparatus for transforming a knowledge base into a machine readable format for an automated system, in D1:[0003]), causes the computing system to:
- receive data associated with a Trie data structure (the aggregation module may then aggregate the patterns identified in each cluster of documents into a trie data-structure that is in machine readable form; the trie data-structure may be used by the KBPS to automatically provide a solution to customer care requests, in D1:[0048]), ~~wherein the Trie data structure includes data for a plurality of contact center bot flows of an organization, and wherein each bot flow of the plurality of contact center bot flows includes at least one event;~~
- receive a user selection associated with filtering the Trie data structure (the customer interaction module may receive and process a customer care request, in D1:[0056]) ~~for modified visualization of the Trie data structure, wherein the user selection requests that the Trie data structure be filtered to include only journeys that have a selected starting event;~~
- perform a search of the Trie data structure (the KBPS may [...] search the plurality of different trie data-structures to find the trie data-structure from a cluster of documents that is associated with the same type of problem associated with the customer care request, in D1:[0054],[0066]) ~~to identify each occurrence of the selected starting event in the Trie data structure;~~
- ~~- extract a sub-Trie data structure associated with each identified starting event;~~
- ~~merge the extracted sub-Trie data structures to generate an updated Trie data structure;~~
- ~~- provide the updated Trie data structure for real-time bot flow visualization.~~

2.7 The subject-matter of claim 1 differs from this known method in that:

- f1) - the Trie data structure includes data for a plurality of contact center bot flows of an organization, wherein each bot flow of the plurality of contact center bot flows includes at least one event;

- f2) - the user selection is done for modifying the visualization of the Trie data structure, wherein the user selection requests that the Trie data structure be filtered to include only journeys that have a selected starting event;
- f3) - the search identifies each occurrence of the selected starting event in the Trie data structure;
- f4) - it extracts a sub-Trie data structure associated with each identified starting event;
- f5) - it merges the extracted sub-Trie data structures to generate an updated Trie data structure;
- f6) - it provides the updated Trie data structure for real-time bot flow visualization.

- 2.8 The technical effect of said differences is to visualise only a sub-section of the Trie data structure, namely the sub-section associated with all journeys of the bot flows that have a selected starting event.

The objective technical problem to be solved may therefore be regarded as: how to filter and visualise a specific sub-section of the Trie data structure.

- 2.9 The solution presented in claim 19 involves an inventive step for the same reasons indicated in section 2.4 above.

3 Dependent claims 2 - 9, 11 - 18, 20

Dependent claims 2-9, 11-18, 20 appear to be new in the sense of Art. 33(2) PCT and to involve an inventive step in the sense of Art. 33(3) PCT in virtue of their dependency from claims 1, 10, 19.

Box VIII

4 Clarity

The present application does not meet the requirements of Article 6 PCT, because claims 1 and 10 are not clear.

4.1 In claims 1 and 10, the following passage is not clear:

- receiving, by the computing system, a user selection associated with filtering the Trie data structure for modified visualization of the Trie data structure.

Specifically, the underlined portion of the passage is not supported by the description, as its scope is broader than justified by the description and drawings. From the content of the description, it is evident that said user selection can only comprise the following three options:

- 1) - filter the Trie data structure to include only events associated with a selected bot flow;*
- 2) - filter the Trie data structure to include only events that include a selected event attribute value;*
- 3) - filter the Trie data structure to include only journeys that have a selected starting event.*

Option 3 is included in the subject-matter of claim 19. Consequently, claims 1 and 10 should be limited to include options 1 and/or 2.

The Applicant is therefore invited to restrict the formulation of claims 1 and 10, including in the above passage the content of options 1 and/or 2. This can be achieved, for example, including the subject-matter of claim 2 and/or claim 4 into the subject-matter of claims 1 and 10.