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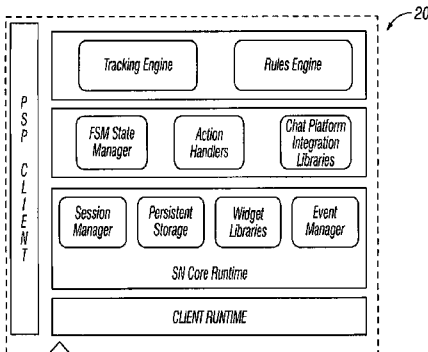
[IN/IN]; 594/1, 12th Cross, 1st Main, Mico Layout, BTM 2nd Stage, Bangalore 560 076 (IN). **GHANSHANI, Pankaj** [IN/IN]; 126, Swastik Kunj, Sector 13, Rohini, Delhi 110 085 (IN). **KUMAR, Sumit** [IN/IN]; C/304, Gem Regency, Nirguna Mandir Layout, Koramangala 4th Block, St Bed Layout, Bangalore 560 034 (IN). **VIJAYARAGHAVAN, Ravi** [US/IN]; 210 D Block, Raheja Residency, 7th Cross, 3rd Block, Koramangala, Bangalore 560 034 (IN). **RAMACHANDRAN, Mathangi, Sri** [IN/IN]; J501 Mantri Tranquil Apartments, Gubbalala Village Gate, Off Kanakapura Road, Bangalore 560 061 (IN).

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[Continued on next page]

(54) Title: PREDICTIVE CUSTOMER SERVICE ENVIRONMENT



(57) Abstract: A mechanism for facilitating customer interactions within a customer service environment provides prompt and accurate answers to customer questions. A smart chat facility for use in a customer service environment to predict a customer problem examines a customer chat transcript to identify customer statements that set forth a customer issue and, responsive to this, can route the customer to an agent, an appropriate FAQ, or can implement a problem specific widget in the customer UI. Customer queries are matched with most correct responses and accumulated knowledge is used to predict a best response to future customer queries. The iterative system thus learns from each customer interaction and can adapt to customer responses over time to improve the accuracy of problem prediction.

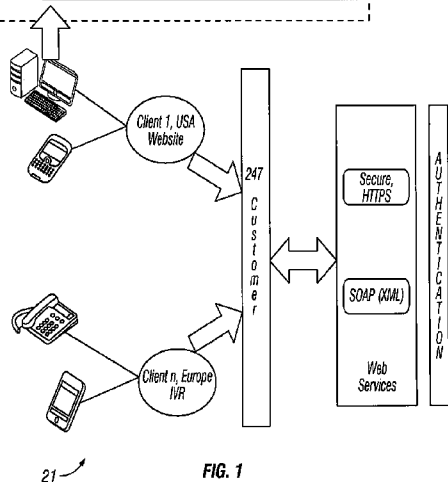


FIG. 1

WO 2012/040575 A3



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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - G06Q 30/02 (2012.01)
 USPC - 705/7.31
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 IPC(8) - G06Q 10/00, 30/02, 50/00 (2012.01)
 USPC - 705/7.29, 7.31; 707/E17.046

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0222313 A1 (KANNAN et al) 03 September 2009 (03.09.2009) entire document	1-4, 12-15
Y	US 2009/0249279 A1 (BOURDON) 01 October 2009 (01.10.2009) entire document	1-4, 12-15
A	US 2010/0191658 A1 (KANNAN et al) 29 July 2010 (29.07.2010) entire document	1-4, 12-15
A	US 2010/0138282 A1 (KANNAN et al) 03 June 2010 (03.06.2010) entire document	1-4, 12-15
A	US 7631007 B2 (MORRIS) 08 December 2009 (08.12.2009) entire document	1-4, 12-15

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:
 "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed
 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search 14 March 2012	Date of mailing of the international search report 23 MAR 2012
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/052977

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

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

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

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

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

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

This International Searching Authority found multiple inventions in this international application, as follows:

See extra sheet.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-4, 12-15

Remark on Protest

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

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

Group I, claims 1-4, 12-15, drawn to a computer implemented method and an apparatus comprising predicting a customer problem, examining customer chat transcript to identify customer statements that set forth a customer issue and responsive thereto, routing the customer to an agent or facility, and implementing a problem specific widget in a customer UI.

Group II, claims 5-9, 16-20, drawn to an apparatus and a computer implemented method comprising an agent console for interacting with a problem predictor comprising related articles with which a customer interacts, a smart chat routing module for routing customer chat to service center agents based upon an issue/agent mapping, generating real time triggers comprising any of agent alerts and supervisor alerts, wherein the triggers are based on inputs, wherein the inputs comprise any of an off line average hold time (AHT) reduction solution and values for customer pre-chat time, issue time, and post-chat time, and producing a dataset comprising any of customer 10, main issue, one or more sub-issues, agent/customer time for a main issue, agent/customer time for sub-issues, transfer type, transfer time, hold time, pre-chat time, post-chat time, number of customer lines, number of agent lines, number of lines of separation, and status concerning disconnections by customer chats.

Group III, claims 10-11, 21-22, drawn to a computer implemented method and an apparatus comprising extracting a question during a chat session using the chat session transcript, wherein if the position of the question in the transcript is greater than or equal to a predetermined value, then the issue is extracted; else, the transcript is analyzed to determine if a predetermined phrase is present, and wherein if said predetermined phrase is found, then a next sentence is deemed to be the primary question; else, the identifies as the primary question a first customer sentence in the transcript that has a predetermined number of words.

Group IV, claims 23-36, drawn to an apparatus comprising a processor configured as a predictive service platform for building and provisioning real time interaction management solutions over a network, capturing information representative of a user's journey across the network, modeling said journey as a finite state machine consisting of distinct states and conditional transitions between them, and a plurality of different event handlers configured to take specific actions in response to said distinct states and conditional transitions between them.

Group V, claims 37-43, drawn to an apparatus comprising a processor configured to execute a program that guides a user through a resolution path, capture information representative of said user's journey through said resolution path to track an exact state of the user and for storing said information in a persistent local storage medium, provide a synchronization construct for multiple browser tabs and/or windows to access said storage medium in a consistent manner, wherein said storage medium is enabled by said processor to allow a stateless connection to read from and write to said multiple browser tabs and/or windows.

The inventions listed as Groups I, II, III, IV and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: implementing a problem specific widget in a customer UI as claimed therein is not present in the invention of Groups II, III, IV or V. The special technical feature of the Group II invention: generating real time triggers comprising any of agent alerts and supervisor alerts, wherein the triggers are based on inputs, wherein the inputs comprise any of an off line average hold time (AHT) reduction solution and values for customer pre-chat time, issue time, and post-chat time, and producing a dataset comprising any of customer 10, main issue, one or more sub-issues, agent/customer time for a main issue, agent/customer time for sub-issues, transfer type, transfer time, hold time, pre-chat time, post-chat time, number of customer lines, number of agent lines, number of lines of separation, and status concerning disconnections by customer chats as claimed therein is not present in the invention of Groups I, III, IV or V. The special technical feature of the Group III invention: wherein if the position of the question in the transcript is greater than or equal to a predetermined value, then the issue is extracted; else, the transcript is analyzed to determine if a predetermined phrase is present, and wherein if said predetermined phrase is found, then a next sentence is deemed to be the primary question; else, the identifies as the primary question a first customer sentence in the transcript that has a predetermined number of words as claimed therein is not present in the invention of Groups I, II, IV or V. The special technical feature of the Group IV invention: modeling said journey as a finite state machine consisting of distinct states and conditional transitions between them, and a plurality of different event handlers configured to take specific actions in response to said distinct states and conditional transitions between them as claimed therein is not present in the invention of Groups I, II, III or V. The special technical feature of the Group V invention: provide a synchronization construct for multiple browser tabs and/or windows to access said storage medium in a consistent manner, wherein said storage medium is enabled by said processor to allow a stateless connection to read from and write to said multiple browser tabs and/or windows as claimed therein is not present in the invention of Groups I, II, III or IV.

Groups I, II, III, IV and V lack unity of invention because even though the inventions of these groups require the technical feature of predicting a customer problem, examining customer chat transcript to identify customer statements that set forth a customer issue, capturing information representative of a user's journey across the network, and responsive thereto, routing the customer to an agent or facility, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of (US 2010/0138282 A1 (KANNAN et al) 03 June 2010 (03.06.2010), para 0009, 0133, Fig. 8-9) and further in view of (US 7631007 B2 (MORRIS) 08 December 2009 (08.12.2009), col 2, lines 50-65, col 9, line 50 to col 10, line 18, Fig. 1).

Since none of the special technical features of the Group I, II, III, IV or V inventions are found in more than one of the inventions, unity of invention is lacking.