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(54) Title: INFERRING USER INTERESTS

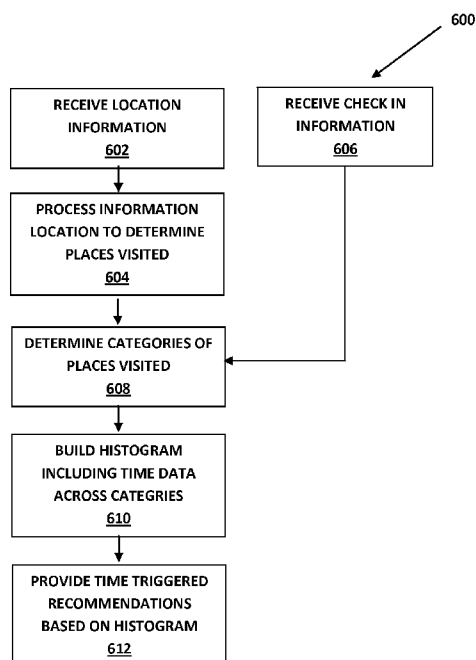


FIG. 6

(57) Abstract: Techniques are disclosed herein for inferring user interests and serving recommendations to the user. An example for serving recommendations based on inferred user interests is described. The example includes receiving a plurality of location data points for a user, the location data points including a geographic position and a time, and storing the location data points in a data store. The location data points are processed using a processor in communication with the data store to generate visited place data for the user where the visited place data represents a location visited by the user, a category of the location visited, and a time. A histogram of the visited place data is built across categories of locations visited and the histogram is stored in the data store. Recommendations are then served to the user within a category represented on the histogram.



UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/047179**A. CLASSIFICATION OF SUBJECT MATTER****H04W 4/02(2009.01)i, G06Q 50/10(2012.01)i**

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)

H04W 4/02; H04W 8/20; G06F 17/30; G06Q 30/00; G08G 1/005; G01S 1/00; G06Q 50/00; G01C 21/00; G06Q 50/10

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: process, visit information, histogram, recommendation

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012-0143859 A1 (DIMITRIOS LYMPERPOULOS et al.) 7 June 2012 See paragraphs [0029]–[0042], [0053]; claims 1–5; and figures 1–2.	1,3–4,6–8,10,12,14,16,19
Y		2,5,9,13,15,17–18
A		11
Y	US 2010-0280920 A1 (SEAN M. SCOTT et al.) 4 November 2010 See paragraphs [0024], [0046] and figure 2.	2,5,9,13,15,17–18
A	JP 2010-019641 A (FUJIFILM CORP.) 28 January 2010 See paragraphs [0032]–[0040]; claim 1; and figure 2.	1–19
A	KR 10-2010-0122978 A (LEE WON SUK) 24 November 2010 See paragraphs [0030]–[0040]; claim 1; and figure 2.	1–19
A	KR 10-2008-0045331 A (SAMSUNG ELECTRONICS CO., LTD.) 23 May 2008 See paragraphs [0040]–[0048]; claim 1; and figure 4.	1–19



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2013/047179

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012-0143859 A1	07/06/2012	CN 102591911 A EP 2646973 A2 WO 2012-075273 A2 WO 2012-075273 A3	18/07/2012 09/10/2013 07/06/2012 02/08/2012
US 2010-0280920 A1	04/11/2010	CA 2760308 A1 CN 102414712 A EP 2425395 A1 JP 2012-525646 A KR 10-2012-0009501 A WO 2010-126973 A1	04/11/2010 11/04/2012 07/03/2012 22/10/2012 31/01/2012 04/11/2010
JP 2010-019641 A	28/01/2010	None	
KR 10-2010-0122978 A	24/11/2010	None	
KR 10-2008-0045331 A	23/05/2008	None	