

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 May 2010 (14.05.2010)

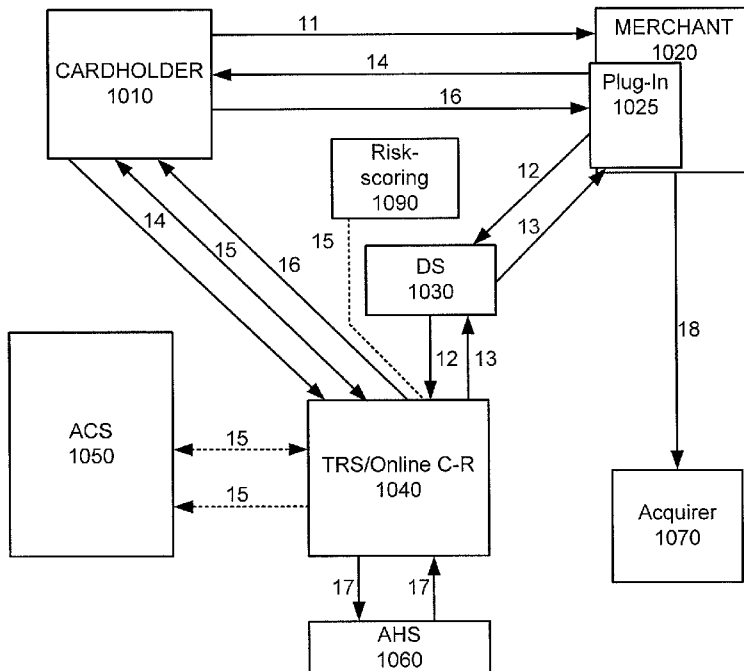
PCT

(10) International Publication Number
WO 2010/053899 A3

- (51) International Patent Classification:
G06Q 20/00 (2006.01) G06F 21/00 (2006.01)
- (21) International Application Number:
PCT/US2009/063067
- (22) International Filing Date:
3 November 2009 (03.11.2009)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/112,124 6 November 2008 (06.11.2008) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ONLINE CHALLENGE-RESPONSE



(57) Abstract: Embodiments of the invention enable cardholders conducting an online transaction to be authenticated in real-time using a challenge-response application. The challenge-response application can be administered by an issuer or by a third party on-behalf-of an issuer. A challenge question can be presented to the cardholder, and the cardholder's response can be verified. The challenge question presented can be selected based on an analysis of the risk of the transaction and potentially other factors. A variety of dynamic challenge questions can be used without the need for the cardholder to enroll into the program. Additionally, there are many flexible implementation options of the challenge-response application that can be adjusted based on factors such as the location of the merchant or the location of the consumer.

WO 2010/053899 A3

Published:

— *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:

12 August 2010

A. CLASSIFICATION OF SUBJECT MATTER*G06Q 20/00(2006.01)i, G06F 21/00(2006.01)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)

G06Q 20/00; G06F 17/00; G06F 21/00; G06F 21/20; G06Q 10/00

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

(Chinese Patents and application for patent)

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

eKOMPASS(KIPO internal) & Keywords: challenge, response, online transaction, risk, analyzer, authentication, OPT, card

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2007-0007044 A (VISA INTERNATIONAL SERVICE ASSOCIATION) 12 JANUARY 2007 See the abstract, page 2, line 32 - page 18, line 37 and figures 1-12.	1-21
Y	KR 10-2002-0007303 A (HICKS, MACK et al.) 26 JANUARY 2002 See the abstract, page 2, line 19 - page 37, line 35 and figures 1-11.	1-21
A	KR 10-2008-0083077 A (THINK AUTHORIZATION TECHNOLOGY) 16 SEPTEMBER 2008 See the abstract, page 7, paragraph [0023] - page 12, paragraph [0089] and figures 3-5.	1-21
A	EP 861461 B1 (INTERTRUST TECHNOLOGIES CORP.) 29 OCTOBER 2008 See the abstract, page 1, paragraph [0002] - page 204, paragraph [0601] and figures 1-3, 8, 12, 26.	1-21

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

26 MAY 2010 (26.05.2010)

Date of mailing of the international search report

26 MAY 2010 (26.05.2010)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

SON, HEE SOO

Telephone No. 82-42-481-5960



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/063067

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2007-0007044 A	12.01.2007	AU 2004-319618 A1	24.11.2005
		CA 2547604-A1	24.11.2005
		CN 1930591 A	14.03.2007
		EP 1745447 A1	24.01.2007
		JP 2007-536619 A	13.12.2007
		US 2005-0246278 A1	03.11.2005
		WO 2005-111957 A1	24.11.2005
		KR 10-2002-0007303 A	26.01.2002
AU 2000-28788 A1	29.08.2000		
CA 2371791-A1	17.08.2000		
EP 1203332 A1	08.05.2002		
JP 2002-536706 A	29.10.2002		
WO 00-48108 A1	17.08.2000		
WO 00-48360 A1	17.08.2000		
KR 10-2008-0083077 A	16.09.2008		
EP 861461 B1	29.10.2008	AT 412945 T	15.11.2008
		AT 419586 T	15.01.2009
		AT 441897 T	15.09.2009
		AU 1996-63266 B2	21.10.1999
		AU 1997-36816 B2	11.10.2001
		AU 1997-36840 B2	18.10.2001
		AU 6326696 A	18.09.1996
		CA 2212574 C	02.02.2010
		CA 2265473 C	22.10.2002
		CA 2373508 A1	05.03.1998
		CA 2373542 A1	05.03.1998
		CA 2619600 A1	05.03.1998
		CA 2619962 A1	05.03.1998
		CA 2683230 A1	06.09.1996
		CN 100365535 C	30.01.2008
		CN 100452071 C	14.01.2009
		CN 100452072 C	14.01.2009
		CN 100501713 C	17.06.2009
		CN 100501754 C	17.06.2009
		CN 101303717 A	12.11.2008
		CN 101359350 A	04.02.2009
		CN 101398871 A	01.04.2009
		CN 1139067 C	18.02.2004
		CN 1183841 A	03.06.1998
		CN 1225739 A	11.08.1999
		CN 1276321 C	20.09.2006
		CN 1312549 C	25.04.2007
		CN 1577205 A	09.02.2005
		CN 1601429 A	30.03.2005
		CN 1722049 A	18.01.2006
CN 1869997 A	29.11.2006		

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/063067

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		CN 1900942 A	24.01.2007
		CN 1900943 A	24.01.2007
		CN 1908921 A	07.02.2007
		CN 1908922 A	07.02.2007
		CN 1912885 A	14.02.2007
		CN 1916878 A	21.02.2007
		CN 1936912 A	28.03.2007
		DE 69637733 D1	11.12.2008
		DE 69637799 D1	12.02.2009
		DE 69638018 D1	15.10.2009
		EP 0861461 A2	02.09.1998
		EP 0898777 A2	01.06.2005
		EP 0898777 B1	11.04.2007
		EP 0922248 A1	13.07.2005
		EP 0974129 A1	26.01.2000
		EP 0974129 B1	16.08.2006
		EP 1431864 A2	23.06.2004
		EP 1431864 B1	31.12.2008
		EP 1515216 A2	16.03.2005
		EP 1526472 A2	27.04.2005
		EP 1531379 A2	18.05.2005
		EP 1531379 B1	02.09.2009
		EP 1555591 A2	20.07.2005
		EP 1621960 A2	01.02.2006
		EP 1621961 A2	01.02.2006
		EP 1640984 A2	29.03.2006
		EP 1643340 A2	05.04.2006
		EP 1662418 A2	31.05.2006
		EP 1796013 A2	13.06.2007
		EP 1796014 A2	13.06.2007
		EP 1798657 A2	20.06.2007
		EP 1914655 A2	23.04.2008
		EP 1923814 A2	21.05.2008
		EP 2015214 A2	14.01.2009
		EP 2110732 A2	21.10.2009
		HK 1073899 A1	07.12.2007
		HK 1085824 A1	28.11.2008
		HK 1099098 A1	18.09.2009
		HK 1102199 A1	18.09.2009
		JP 03905489 B2	18.04.2007
		JP 03950076 B2	25.07.2007
		JP 03996532 B2	24.10.2007
		JP 04005619 B2	07.11.2007
		JP 04008937 B2	14.11.2007
		JP 04008938 B2	14.11.2007
		JP 04084392 B2	30.04.2008
		JP 04128902 B2	30.07.2008
		JP 04191710 B2	03.12.2008
		JP 04237802 B2	11.03.2009
		JP 04272192 B2	06.03.2009

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/063067

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		JP 10-512074 A	17. 11. 1998
		JP 2000-516743 A	12. 12. 2000
		JP 2001-501763 A	06. 02. 2001
		JP 2004-005558 A	08. 01. 2004
		JP 2004-005601 A	08. 01. 2004
		JP 2004-005614 A	08. 01. 2004
		JP 2004-005625 A	08. 01. 2004
		JP 2004-005629 A	08. 01. 2004
		JP 2004-030600 A	29. 01. 2004
		JP 2004-139550 A	13. 05. 2004
		JP 2004-265358 A	24. 09. 2004
		JP 2005-222556 A	18. 08. 2005
		JP 2005-222557 A	18. 08. 2005
		JP 2005-243014 A	08. 09. 2005
		JP 2006-048716 A	16. 02. 2006
		JP 2006-053939 A	23. 02. 2006
		JP 2006-053940 A	23. 02. 2006
		JP 2006-073004 A	16. 03. 2006
		JP 2006-073005 A	16. 03. 2006
		JP 2006-079622 A	23. 03. 2006
		JP 2006-085691 A	30. 03. 2006
		JP 2006-085692 A	30. 03. 2006
		JP 2006-085693 A	30. 03. 2006
		JP 2006-209803 A	10. 08. 2006
		JP 2006-209804 A	10. 08. 2006
		JP 2006-260587 A	28. 09. 2006
		JP 2006-268867 A	05. 10. 2006
		JP 2007-183982 A	19. 07. 2007
		JP 2007-220131 A	30. 08. 2007
		JP 2008-065858 A	21. 03. 2008
		JP 2008-077679 A	03. 04. 2008
		JP 2008-090858 A	17. 04. 2008
		JP 2008-097645 A	24. 04. 2008
		JP 2008-123532 A	29. 05. 2008
		JP 2008-159072 A	10. 07. 2008
		JP 2008-243228 A	09. 10. 2008
		JP 2008-257743 A	23. 10. 2008
		JP 2008-287729 A	27. 11. 2008
		JP 2009-080830 A	16. 04. 2009
		JP 2009-080831 A	16. 04. 2009
		JP 2009-134726 A	18. 06. 2009
		JP 2009-157932 A	16. 07. 2009
		JP 2010-055624 A	11. 03. 2010
		JP 2010-061668 A	18. 03. 2010
		US 05910987 A	08. 06. 1999
		US 05915019 A	22. 06. 1999
		US 05917912 A	29. 06. 1999
		US 05949876 A	07. 09. 1999
		US 05982891 A	09. 11. 1999
		US 06157721 A	05. 12. 2000

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/063067

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 06185683 B1	06.02.2001
		US 06292569 B1	18.09.2001
		US 06427140 B1	30.07.2002
		US 06449367 B2	10.09.2002
		US 06618484 B2	09.09.2003
		US 07051212 B2	23.05.2006
		US 07095854 B1	22.08.2006
		US 07120802 B2	10.10.2006
		US 07124302 B2	17.10.2006
		US 07165174 B1	16.01.2007
		US 2001-042043 A1	15.11.2001
		US 2009-043652 A1	12.02.2009
		US 2009-132805 A1	21.05.2009