

(43) International Publication Date  
13 November 2014 (13.11.2014)(51) International Patent Classification:  
*H04L 9/32* (2006.01)(21) International Application Number:  
PCT/US2014/037106(22) International Filing Date:  
7 May 2014 (07.05.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/820,917	8 May 2013 (08.05.2013)	US
61/823,669	15 May 2013 (15.05.2013)	US
13/908,618	3 June 2013 (03.06.2013)	US
61/844,097	9 July 2013 (09.07.2013)	US
13/940,799	12 July 2013 (12.07.2013)	US
61/860,475	31 July 2013 (31.07.2013)	US
13/972,556	21 August 2013 (21.08.2013)	US

(71) Applicant: JPMORGAN CHASE BANK, N.A. [US/US];  
270 Park Avenue, New York, NY 10017 (US).(72) Inventor: KURSUN, Eren; 383 Madison Avenue, New  
York, NY 10179 (US).(74) Agents: KING, Robert, A. et al.; Intellectual Property De-  
partment, Hunton & Williams LLP, 2200 Pennsylvania  
Avenue, N.W., Washington, DC 20037 (US).

(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, BN, 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, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, 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).

Published:

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

(88) Date of publication of the international search report:  
26 February 2015

(54) Title: SYSTEMS AND METHODS FOR HIGH FIDELITY MULTI-MODAL OUT-OF-BAND BIOMETRIC AUTHENTICATION

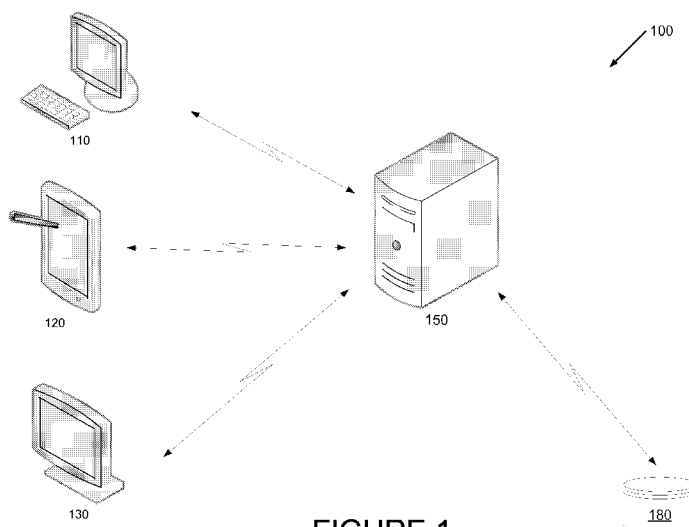


FIGURE 1

(57) Abstract: Systems and methods for high fidelity multi-modal out-of-band biometric authentication are disclosed. According to one embodiment, a method for multi-mode biometric authentication may include (1) receiving, at a computer application executed by an electronic device, a first input from a first input device on the electronic device; (2) receiving, at the computer application, a second data from a second input device on the electronic device; (3) receiving, at the computer application, a third input from a third input device on the electronic device; and (4) communicating, by the computer application and to a server, the first input, the second input, and the third input. The first input, second input and third input may be received within a predetermined time period, such as five seconds.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2014/037106

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - H04L 9/32 (2014.01) CPC - H04L 9/32 (2014.09) According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - G06F 3/01; G06F 21/00; H04L 9/32 (2014.01) USPC - 709/203; 715/700; 726/19 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched CPC - G06F 3/01; G06F 21/00; H04L 9/32 (2014.09) (keyword delimited) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Google, Orbit, Google Patents Search terms used: biometric authentication for securing data communication modes				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	US 2010/0251359 A1 (SHIRAI et al) 30 September 2010 (30.09.2010) entire document	1-10		
Y	US 2008/0077660 A1 (TOMIDA) 27 March 2008 (27.03.2008) entire document	1-10		
Y	WO 2012/173655 A1 (WEIK III) 20 December 2012 (20.12.2012) entire document	3-5		
Y	US 2012/0204035 A1 (CAMENISCH et al) 09 August 2012 (09.08.2012) entire document	8		
Y	US 5679940 A (TEMPLETON et al) 21 October 1997 (21.10.1997) entire document	9,10		
A	US 2007/0283142 A1 (MILSTEIN et al) 06 December 2007 (06.12.2007)	1-10		
<input type="checkbox"/> Further documents are listed in the continuation of Box C.				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">           * 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         </td> <td style="width: 50%; vertical-align: top;">           "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            "&amp;" document member of the same patent family         </td> </tr> </table>			* 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
* 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 20 November 2014		Date of mailing of the international search report <div style="font-size: 1.5em; font-weight: bold; text-align: center;">09 DEC 2014</div>		
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: <div style="text-align: center;">Blaine R. Copenheaver</div> PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774		

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2014/037106

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 1-10, drawn to a method for multi-mode biometric authentication comprising: receiving a first input.

Group II, claims 11-17 drawn to a method for multi-mode biometric authentication comprising: receiving an image.

Group III, claims 18-23, drawn to a method for biometric authentication.

Group IV, claims 24-27, drawn to a method for automatically generating a biometric profile for a user.

Group V, claims 28-32, drawn to a method for generating multiple biometric profiles for a user.

Group VI, claims 33-35, drawn to a method for authenticating a user.

Group VII, claims 36-40, drawn to a method for integrated biometric authentication.

Group VIII, claims 41-43, drawn to a method for multi-party authentication.

The inventions listed as Groups I-VIII 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: a first input from a first input device on the electronic device; receiving, at the computer application, a second data from a second input device on the electronic device; receiving, at the computer application, a third input from a third input device on the electronic device; and communicating, by the computer application and to a server, the first input, the second input, and the third input as claimed therein is not present in the invention of Groups II-VIII. The special technical feature of the Group II invention: displaying, on a touch screen of the electronic device, the image of at least a portion of the user; receiving, at the electronic application, touch data on the image of at least a portion of the user from the touch sensitive portion of the touch screen as claimed therein is not present in the invention of Groups I, III-VIII. The special technical feature of the Group III invention: capturing, at an electronic device, an image of an iris of a user; comparing, using at least one computer processor, biometrics data from the image of the iris to stored iris biometrics data for the user as claimed therein is not present in the invention of Groups I, II, IV-VIII. The special technical feature of the Group IV invention: at least one computer processor accessing stored biometric data for a user; at least one computer processor grouping the stored biometric data into a plurality of clusters as claimed therein is not present in the invention of Groups I, II, III or V-VIII. The special technical feature of the Group V invention: receiving data from a user, the data comprising biometric data for a user and device specifications for the electronic device; at least one computer processor retrieving at least one existing user profile as claimed therein is not present in the invention of Groups I-IV, VI-VIII. The special technical feature of the Group VI invention: the authentication data comprising at least one of a user biometric data, electronic device data, and environmental data; at least one computer processor comparing the authentication data to a plurality of existing user profiles as claimed therein is not present in the invention of Groups I-V, VII-VIII. The special technical feature of the Group VII invention: the at least one computer processor determining that human identity confirmation is necessary; the at least one computer processor processing the biometric data as claimed therein is not present in the invention of Groups I-VI or VIII. The special technical feature of the Group VIII invention: receiving, from a second party, a request for authentication and second party biometric data; the at least one computer processor machine authenticating the second party using the second party biometric data as claimed therein is not present in the invention of Groups I-VII.

Groups I, II, III, IV, V, VI, VII and VIII lack unity of invention because even though the inventions of these groups require the technical feature of a method for multi-mode biometric authentication comprising: receiving, at a computer application executed by an electronic device; received within a predetermined time period; authenticating the user; generating a biometric profile for a user; receiving, from a user, biometric data; confirmation information, this technical feature is not a special technical feature as it does not make a contribution over the prior art

Specifically, US 2007/0283142 A1 (MILSTEIN et al) 06 December 2007 (06.12.2007) teaches a method for multi-mode biometric authentication (a method for multimode authenticating to verify clients identities using biometric information, Paras. 4-5) comprising: receiving, at a computer application executed by an electronic device (the multimedia input/output component 302 of electronic device 300 may receive and transmit multimedia data via the network interface component 304, Para. 33); received within a predetermined time period (the authenticatee client may be authenticated numerous times whenever the authenticatee requests a secured service for which the authenticator has authority or delegation to grant access to the secured service, Para. 5); authenticating the user (the client authenticates another client, Para. 4); generating a biometric profile for a user (generating a data packet structure comprising a client's voice profile, Para. 44); receiving, from a user, biometric data (the authenticator client may request user biometrics information, Para. 66); confirmation information (the authenticator client may request a third-party authentication server for confirming authentication of the authenticatee's response, Para. 69).

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

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2014/037106

## 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.:  
1-10

### 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.