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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, 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, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU,
RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
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kind of regional protection available): ARIPO (BW, GH,
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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,
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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: RECOGNIZING SPEECH IN MULTIPLE LANGUAGES

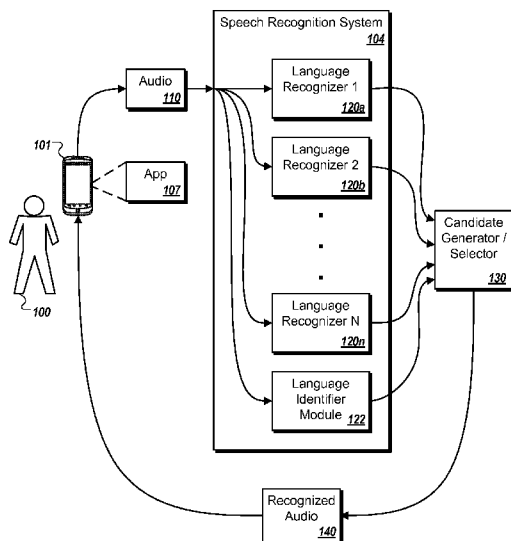
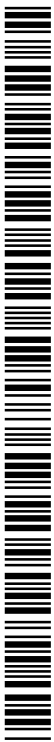


FIG. 1

(57) Abstract: Speech recognition systems may perform the following operations: receiving audio; recognizing the audio using language models for different languages to produce recognition candidates for the audio, where the recognition candidates are associated with corresponding recognition scores; identifying a candidate language for the audio; selecting a recognition candidate based on the recognition scores and the candidate language; and outputting data corresponding to the selected recognition candidate as a recognized version of the audio.





Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
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- *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/029877

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G10L15/00 G10L15/32 G10L15/183
 ADD.
 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)
 G10L

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 practioable, search terms used)
 EPO-Internal, COMPENDEX, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	J. NAVRÁTIL: "Spoken Language Recognition-A Step Toward Multilinguality in Speech Processing", IEEE TRANSACTIONS ON SPEECH AND AUDIO PROCESSING, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 9, no. 6, 1 September 2001 (2001-09-01), XP011054126, ISSN: 1063-6676	1-5,12, 13
Y	the whole document ----- -/--	6-9

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

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 3 June 2013	Date of mailing of the international search report 02/09/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Deltorn, Jean-Marc
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/029877

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ZISSMAN M A: "Comparison of four approaches to automatic language identification of telephone speech", IEEE TRANSACTIONS ON SPEECH AND AUDIO PROCESSING, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 4, no. 1, 1 January 1996 (1996-01-01), pages 31-44, XP002164875, ISSN: 1063-6676, DOI: 10.1109/TSA.1996.481450	1-5,12,13
Y	the whole document	6-9
X	HIERONYMUS J L ET AL: "ROBUST SPOKEN LANGUAGE IDENTIFICATION USING LARGE VOCABULARY SPEECH RECOGNITION", 1997 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING. SPEECH PROCESSING. MUNICH, APR. 21 - 24, 1997; [IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING (ICASSP)], LOS ALAMITOS, IEEE COMP. SOC. PRESS,, 21 April 1997 (1997-04-21), pages 1111-1114, XP000822646, DOI: 10.1109/ICASSP.1997.596136 ISBN: 978-0-8186-7920-9	1-5,12,13
Y	the whole document	6-9
X	US 2010/191530 A1 (NAKANO MIKIO [JP] ET AL) 29 July 2010 (2010-07-29)	1-5,12,13
Y	the whole document	6-9
X	YAN Y ET AL: "DEVELOPMENT OF AN APPROACH TO AUTOMATIC LANGUAGE IDENTIFICATION BASED ON PHONE RECOGNITION", COMPUTER SPEECH AND LANGUAGE, ELSEVIER, LONDON, GB, vol. 10, no. 1, 1 January 1996 (1996-01-01), pages 37-54, XP000735096, ISSN: 0885-2308, DOI: 10.1006/CSLA.1996.0003	1-5,12,13
Y	the whole document	6-9
Y	US 2012/010886 A1 (RAZAVILAR JAVAD [US]) 12 January 2012 (2012-01-12)	6-8
Y	US 2010/161337 A1 (PULZ GREGORY [US] ET AL) 24 June 2010 (2010-06-24)	6-8
	the whole document	

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/029877

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MUTHUSAMY Y K ET AL: "Reviewing automatic language identification", IEEE SIGNAL PROCESSING MAGAZINE, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 11, no. 4, 1 October 1994 (1994-10-01), pages 33-41, XP008085633, ISSN: 1053-5888, DOI: 10.1109/79.317925 the whole document -----</p>	1-9,12, 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/029877

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 additional 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 an 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.:

1-9, 12, 13

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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/029877

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010191530 A1	29-07-2010	JP 2010170137 A US 2010191530 A1	05-08-2010 29-07-2010

US 2012010886 A1	12-01-2012	NONE	

US 2010161337 A1	24-06-2010	NONE	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 12, 13

A method of facilitating the recognition of the language in speech data based on user input.

2. claims: 10, 11

A method of segmenting mixed language speech data into mono-lingual segments.
