

(43) International Publication Date
9 October 2014 (09.10.2014)(51) International Patent Classification:
G06F 17/28 (2006.01)(21) International Application Number:
PCT/IB2014/001371(22) International Filing Date:
12 March 2014 (12.03.2014)

(25) Filing Language: English

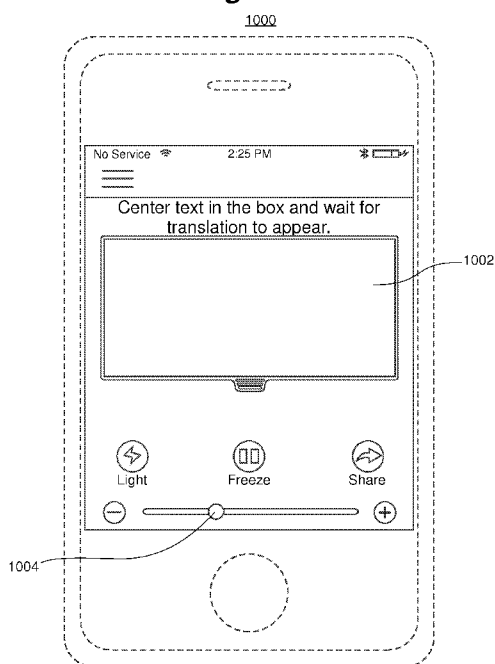
(26) Publication Language: English

(30) Priority Data:
61/791,584 15 March 2013 (15.03.2013) US(71) Applicant: TRANSLATE ABROAD, INC. [US/US]; 95
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Floor, New York, NY 10022 (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))

[Continued on next page]

(54) Title: DISPLAYING FOREIGN CHARACTER SETS AND THEIR TRANSLATIONS IN REAL TIME ON RE-
SOURCE-CONSTRAINED MOBILE DEVICES**Fig. 10**

(57) Abstract: The present invention is related to systems and methods for translating language text on a mobile camera device offline without access to the Internet. More specifically, the present invention relates to systems and methods for displaying text of a first language and a translation of the first language text into a second language text which is displayed in real time in augmented reality on the mobile device. The processing can use a single line or a multiline algorithm designed with a plurality of processing innovations to insure accurate real-time translations without motion jitter. The invention may be used to help travelers in a foreign country with difficulties in reading and understanding text written in the local language of that country. The present invention may be utilized with wearable computers or glasses, producing seamless augmented reality foreign language translations. Some embodiments are particularly useful in translations from Asian languages to English.



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

16 July 2015

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 14/01371

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 17/28 (2015.01)

CPC - G06F 17/289, G06F 17/2872, G06F 17/2836

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) - G06F 17/28 (2015.01)

CPC - G06F 17/289, G06F 17/2872, G06F 17/2836

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

IPC(8) - G06F 17/28 (2015.01) (text search); USPC - 704/3, 704/2 (text search)

CPC - G06F 17/289, G06F 17/2872, G06F 17/2836, G06F 17/2755, G06F 17/271 (text search)

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

PatBase, Google Patents, Google Scholar; Search terms used: translation camera language crop character recognition horizontal frame quality delete overlay

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2011/0123115 A1 (LEE et al.) 26 May 2011 (26.05.2011), entire document, especially Abstract; Fig. 1 - 6, 8A; para [0024] - [0026], [0029], [0030] - [0032], [0037], [0038], [0041], [0042], [0045], [0046], [0048], [0052], [0053], [0066], [0078]	1-4, 7, 11-15, 17-20, 22-26, 28, 30 ----- 5, 6, 8-10, 16, 21, 27, 29
Y	US 2005/0010392 A1 (CHEN et al.) 13 January 2005 (13.01.2005), entire document, especially Fig. 1; para [0022]	5, 6, 27
Y	US 8,175,388 B1 (FISHER) 08 May 2012 (08.05.2012), entire document, especially Fig. 2A; col 9, ln 15-36	8-10, 29
Y	US 5,782,640 A (SANDLIN) 21 July 1998 (21.07.1998), entire document, especially col 2, ln 46-55	16
Y	US 7,046,848 B1 (OLCOTT) 16 May 2006 (16.05.2006), entire document, especially Fig. 44; col 31, ln 42-55	21
A	US 2011/0090253 A1 (GOOD) 21 April 2011 (21.04.2011), entire document	1-30
A	US 2005/0114145 A1 (JANAKIRAMAN et al.) 26 May 2005 (26.05.2005), entire document	1-30

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Date of the actual completion of the international search

01 March 2015 (01.03.2015)

Date of mailing of the international search report

27 MAR 2015

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

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PCT OSP: 571-272-7774