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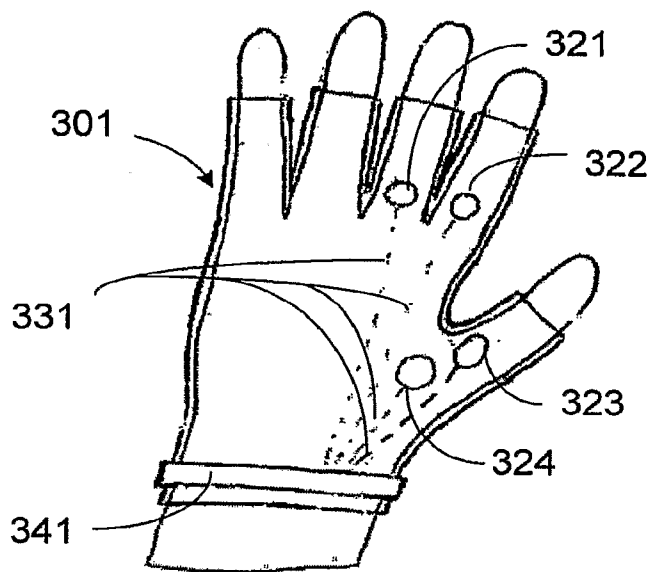
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(54) Title: RECORDATION OF HANDWRITING AND HAND MOVEMENT USING ELECTROMYOGRAPHY



(57) Abstract: Handwriting activity is recorded by use of electromyography (EMG) signals detected from muscles at several locations on the hand. The EMG signals are sensed and registered. The sensed signals are processed and stored, after which the signals are analyzed to reconstruct handwriting activity into a digital format. Machine edible text is generated and displayed along with a graphical depiction of the handwriting.

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**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US 06/48459

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC(8) - G06K9/00 (2007.01)  
USPC - 382/187  
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)  
USPC: 382/187

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
USPC: 382/181, 188, 189

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST(USPT,PGPB,EPO,JPO,DERWENT); DialogPRO(Engineering); Google Search terms: handwriting stroke EMG electromyography electrode potential hand muscle finger thumb glove generate recognition identify match compare pattern detect learning training Bayesian text word character type letter font alphanumeric band pass multiplexor

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,677,932 B1 (WESTERMAN) 13 January 2004 (13.01.2004), fig 1; col 4 ln 44-67; col 5 to 7, 12, 13.	1-4, 8-12, 14-16, 19, 20
Y	US 4,715,004 A (KABASAWA et al.) 22 December 1987 (22.12.1987), col 5 ln 35-48; col 6 ln 19-32; col 9 ln 56 to col 10 ln 6.	15, 16
A	US 2004/0042346 A1 (MIGNOT) 04 March 2004 (04.03.2004), para [0077], [0147], [0120].	1, 2, 8, 9, 19
A	US 4,771,268 A (SONE) 13 September 1998 (13.09.1998), col 6 ln 45 to col 7 ln 10; col 14 ln 1-20.	1, 2, 8, 9, 19
Y	US 2003/0083596 A1 (KRAMER et al.) 01 May 2003 (01.05.2003), para [0175], [0185].	1-4, 8-12, 14-16, 19, 20

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 09 September 2007 (09.09.2007)	Date of mailing of the international search report <b>20 MAR 2008</b>
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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: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US 06/48459

**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.: 5-7, 13, 17 and 18  
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:

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.:

**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.