Doc Code: PET.POA.WDRW
Document Description: Petition to withdraw attorney or agent (SB83)

PTO/SB/83 (04-13)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
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REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	14/767606
Filing Date	
First Named Inventor	Benjamin Firooz Ghassabian
Art Unit	
Examiner Name	
Practitioner Docket Number	2104-052-US

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Please withdraw me as attorney or agent for the above-identified patent application, and

- [■] all the practitioners of record;
- [ ] the practitioners (with registration numbers) of record listed on the attached paper(s); or
- [ ] the practitioners of record associated with Customer Number: _____

NOTE: The immediately preceding box should only be marked when the practitioners were appointed using the listed Customer Number.

The reason(s) for this request are those described in 37 CFR:

- [ ] 11.116(a)(1)
- [ ] 11.116(a)(2)
- [■] 11.116(a)(3)
- [ ] 11.116(b)(1)
- [ ] 11.116(b)(2)
- [ ] 11.116(b)(3)
- [ ] 11.116(b)(4)
- [ ] 11.116(b)(5)
- [ ] 11.116(b)(6)
- [ ] 11. 116(b)(7) Please explain below:

Certifications

Check each box below that is factually correct. WARNING: If a box is left unchecked, the request will likely not be approved.

1. [■] I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment.
2. [■] I/We have delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled.
3. [■] I/We have notified the client of any responses that may be due and the time frame within which the client must respond.

Please provide an explanation, if necessary:

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Complete the following section only when the correspondence address will change. *Changes of address will only be accepted to the first named inventor or an assignee that has properly made itself of record pursuant to 37 CFR 3.71.*

Change the correspondence address and direct all future correspondence to:

A. ☐ The address of the first named inventor or assignee associated with Customer Number: _____

OR

B. ☒ First Named Inventor or Assignee Benjamin Ghassabian

Address 55 Rue Saint Ferreol

City Marseille	State	Zip 13001	Country France

Telephone | Email benjaming@snapkeys.com

I am authorized to sign on behalf of myself and all withdrawing practitioners.

Signature /David Klein/

Name David Klein | Registration No. 41118

Address 18 Menuha VeNahala Street

City Rehovot	State	Zip 7620921	Country Israel

Date 3 September 2017 | Telephone No.

NOTE: Withdrawal is effective when approved rather than when received.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	34931588
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	23-JAN-2019
Filing Date:	13-AUG-2015
Time Stamp:	10:58:38
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition to withdraw attorney or agent (SB83)	withdraw_sb0083_052.pdf	578900 b0f9a89e67bf7296bc87da90d744fac0300d74ce	no	3
Warnings:					

Information:	
Total Files Size (in bytes):	578900

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Document Description: Petition to withdraw attorney or agent (SB83)

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Application Number	14/767606
Filing Date	
First Named Inventor	Benjamin Firooz Ghassabian
Art Unit	
Examiner Name	
Practitioner Docket Number	2104-052-US

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Please withdraw me as attorney or agent for the above-identified patent application, and

- [■] all the practitioners of record;
- [ ] the practitioners (with registration numbers) of record listed on the attached paper(s); or
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- [ ] 11.116(a)(1)
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- [ ] 11.116(b)(4)
- [ ] 11.116(b)(5)
- [ ] 11.116(b)(6)
- [ ] 11. 116(b)(7) Please explain below:

Certifications

Check each box below that is factually correct. WARNING: If a box is left unchecked, the request will likely not be approved.

1. [■] I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment.
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A. ☒ The address of the first named inventor or assignee associated with Customer Number: _____

OR

B. ☐ First Named Inventor or Assignee

Address

City	State	Zip	Country

Telephone	Email

I am authorized to sign on behalf of myself and all withdrawing practitioners.

Signature /David Klein/

Name David Klein Registration No. 41118

Address 18 Menuha VeNahala Street

City Rehovot	State	Zip 7620921	Country Israel

Date 3 September 2017 Telephone No.

NOTE: Withdrawal is effective when approved rather than when received.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Electronic Acknowledgement Receipt	
EFS ID:	30260327
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	03-SEP-2017
Filing Date:	13-AUG-2015
Time Stamp:	11:57:39
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition to withdraw attorney or agent (SB83)	withdraw_sb0083_052.pdf	578239 c4f3a0c7d3fc3a9cc4396de384b030e65b0a0fef	no	3
Warnings:					

Information:	
Total Files Size (in bytes):	578239

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	14/767606
Filed	:	13 August 2015
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		2174
Examiner	:	Christopher J. Fibbi
Docket No.	:	2104-052-US
Confirmation No.:		7885

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF ABANDONMENT

Sir:

Please note that the Notice of Abandonment of March 30, 2017 is in error. The Notice states that the reply filed on December 14, 2016, was filed after the six-month period for answering the Office Action of May 27, 2016. However, please note that this is incorrect.

A request for continued examination (RCE) was timely filed July 10, 2016 in response to the Office Action of May 27, 2016. The communication filed on December 14, 2016, was a supplemental amendment to the claims filed in the RCE, not a response to the Office Action of May 27, 2016. A notice was mailed January 5, 2017, stating that extra fees were due for the supplemental amendment (not for the RCE). The applicant decided not to pay and therefore not enter the supplemental amendment at this time. However, the RCE was properly filed and the application is pending. Therefore, the notice of abandonment is in error and Applicant requests it be withdrawn and the application passed to the examiner for examination.

Respectfully submitted,

DEKEL PATENT LTD.

BY /David Klein/

David Klein, Patent Agent
Reg. No. 41,118
Tel +972-8-949-5334
Fax +972-8-949-5323
E-mail: dekelltd@netvision.net.il

Electronic Acknowledgement Receipt

EFS ID:	29002978
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	24-APR-2017
Filing Date:	13-AUG-2015
Time Stamp:	11:39:27
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	2104-52_apr17.pdf	18151 99801aa110ecae5aa57df855e65e271ea1851f8d	no	1
Warnings:					

Information:	
Total Files Size (in bytes):	18151

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New Applications Under 35 U.S.C. 111
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New International Application Filed with the USPTO as a Receiving Office
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

32964 e 2017-03-30

DEKEL PATENT LTD., DAVID KLEIN
BEIT HAROF'IM
18 MENUHA VENAHALA STREET, ROOM 27
REHOVOT, 76209 ISRAEL

Paper No.

Application No.:	**14/767,606**	**Date Mailed:**	**2017-03-30** **PAPER**
First Named Inventor:	Benjamin Firooz Ghassabian	Examiner:	FIBBI, CHRISTOPHER J
Attorney Docket No.:	2104-052-US	Art Unit:	2174
Confirmation No.:	7885	Filing Date:	08/13/2015

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

PTO-90c (Rev.08-06)

Notice of Abandonment	Application No.	Applicant(s)
	14/767,606	GHASSABIAN, BENJAMIN FIROOZ

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on *05/27/16*.
   (a) ☒ A reply was received on *12/14/16* (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) if this is utility or plant application, a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. Note that RCEs are not permitted in design applications.)
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☐ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record or other party authorized under 37 CFR 1.33(b). See 37 CFR 1.138(b).

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☒ The reason(s) below:

The amendment that includes excess claims was not paid.

ADRIENE SELLMAN

Petitions to revive under 37 CFR 1.137, or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

UNITED STATES PATENT AND TRADEMARK OFFICE

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32964 e 2017-01-05

DEKEL PATENT LTD., DAVID KLEIN
BEIT HAROF'IM
18 MENUHA VENAHALA STREET, ROOM 27
REHOVOT, 76209 ISRAEL

Paper No.

Application No.:	**14/767,606**	**Date Mailed:**	**2017-01-05** **PAPER**
First Named Inventor:	Benjamin Firooz Ghassabian	Examiner:	FIBBI, CHRISTOPHER J
Attorney Docket No.:	2104-052-US	Art Unit:	2174
Confirmation No.:	7885	Filing Date:	08/13/2015

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

PTO-90c (Rev.08-06)

NOTICE REQUIRING EXCESS CLAIMS FEES	Application No. 14/767,606	Applicant(s) GHASSABIAN, BENJAMIN FIROOZ

The excess claim(s) filed on 14 December, 2016 is/are not accompanied by the appropriate payment of excess claims fees set forth in 37 CFR 1.16(h)-(j) or 1.492(d)-(f). Excess claims fees are required for each claim in independent form in excess of three (§ 1.16(h)), each claim (whether dependent or independent) in excess of twenty (note that § 1.75(c) indicates how multiple dependent claims are considered for fee calculation purposes) (§ 1.16(i)), and each application that contains a multiple dependent claim (§ 1.16(j)).

Since the application is not under a final rejection, applicant is given a time period of **TWO (2) MONTHS** from the mailing date of this notice to submit either: (1) the fee payment of $, or (2) an amendment in compliance with 37 CFR 1.121 that cancels the excess claim(s), in order to avoid ABANDONMENT. Extensions of this time period may be granted under 37 CFR 1.136, unless the excess claim(s) was/were presented in a preliminary amendment.

☐ 1 The funds in Deposit Account No. are insufficient to cover the entire fee due. The balance is due within the time period set forth in this notice. See note below regarding the appropriate service charge.

☐ 2. The Credit Card payment to cover the entire fee due to Account (**Card type + last 4 digits ONLY**) was refused. The balance is due within the time period set forth in this notice. See note below regarding the appropriate service charge.

☒ 3. The amendment that includes the excess claim(s) has not been entered, since applicant has failed to remit (or authorize charge to a Deposit Account or Credit Card) the fee as indicated on the attached Patent Application Fee Determination Record (PTO/SB/06). Remittance or authorization is due within the time period set forth in this notice.

☐ 4. The fee submitted in this application is insufficient. A balance of $ is due for presentation of excess claims (37 CFR 1.16(h)-(j) or 1.492(d)-(f)).

☐ 5. Other.

Explanation (*Provide specific details of the required correction in order to assist the applicant. Indicate whether a service charge has been added to the fee due*): Claims in excess of 20 amount due $40.00

THE AMOUNT OF THE FEE(S) DUE IS SUBJECT TO CHANGE, GENERALLY ON OCTOBER 1 OF EACH YEAR (37 CFR 1.16, 1.21 & 1.492). THE **AMOUNT OF THE FEE(S) DUE IS DETERMINED AS OF THE DATE A COMPLETE REPLY WITH THE APPROPRIATE FEE(S) IS RECEIVED BY THE OFFICE** (37 CFR 1.8 & 1.10). BECAUSE THE AMOUNT DUE IS SUBJECT TO CHANGE, IT IS RECOMMENDED THAT APPLICANT CHECK THE CURRENT FEE SCHEDULE WHICH IS AVAILABLE ON THE USPTO'S WEBSITE AT: ***http://www.uspto.gov/web/offices/ac/qs/ope/fees.htm***

Service Charges: There is a $50 service charge for processing each payment refused (including a check returned "unpaid") or charged back by a financial institution (37 CFR 1.21(m)). There is a $25.00 service charge for each month when the balance of a deposit account is below $1000 at the end of the month (37 CFR 1.21(b)(2)).

Technical Support Staff (TSS): DANTE SMITH Phone Number: (571)272-6624

Note to TSS: Please do NOT use this notice if the application is under a final rejection.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	14/767606
Filed	:	13 August 2015
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		2174
Examiner	:	Christopher J. Fibbi
Docket No.	:	2104-052-US
Confirmation No.:		7885

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL AMENDMENT

Sir:

In response to the Office Action of May 27, 2016, please further amend the above-identified application as follows:

In the claims:

1-52. (Canceled)

53. (Previously amended) A data entry system comprising:

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein to at least one of said zones a plurality of said letters is assigned;

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are neighboring to the impact of said interaction, and

wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact, and

wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals.

54. (Previously presented) The system of claim 53, wherein the system gives priority to the letters of an interacted zone over the other letters.

55. (Previously amended) The system of claim 53, wherein the system, gives priority to the letters of an interacted zone that are adjacent to the interaction impact, over the other letters on said zone.

56. (Canceled)

57. (Previously amended) The system of claim 53, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

58. (Previously presented) The system of claim 53, wherein each row of the letters is divided into two or more zones.

59. (Previously presented) The system of claim 53, wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

60. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least five letters.

61. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters W, R, E.

62. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters T, U, I.

63. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones and wherein at least one of said horizontal zones has at least four letters.

64. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters A, S, D, F.

65. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters G, H, J, K.

66. (Previously amended) The system of claim 53, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

67. (Previously amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to a middle row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

68. (Previously amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter L is assigned to a top row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

69. (Previously amended) The system of claim 53, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a letter other than the letters which are neighboring the interaction impact or are on the interacted horizontal zone.

70. (Previously amended) A data entry system comprising:

a keyboard having a number of horizontal rows of letters, wherein each of the rows of letters is divided into one or more horizontal zones, and wherein to at least one of said horizontal zones a plurality of letters are assigned;

a processor, and

a word predictive system;

wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said input signal to any of the letters on said horizontal zone, and wherein the processor gives priority to the letters of the interacted zone over the other letters of the keyboard regardless of the distance from the interaction impact,

and wherein among said letters of the interacted horizontal zone, the processor gives priority to the letters that are near the interaction impact within said zone over the other letters of said zone, and

wherein upon receiving a sequence of said input signals, the system predicts one or more words from a database of words.

71-73. (Canceled)

74. (Previously amended) The system of claim 70, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

75. (Previously amended) The system of claim 70, wherein each row of the letters is divided into two or more horizontal zones.

76. (Previously amended) The system of claim 70, wherein said one or more horizontal zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

77. (Previously amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least five letters.

78. (Previously amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters W, R, E.

79. (Previously amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters T, U, I.

80. (Previously amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein each of said horizontal zones has at least four letters.

81. (Previously amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of said horizontal zones includes at least the letters A, S, D, F.

82. (Previously amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of said horizontal zones includes at least the letters G, H, J, K.

83. (Previously amended) The system of claim 70, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

84. (Previously amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to a middle row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

85. (Previously amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, wherein the letter L is assigned to a top row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

86. (Previously amended) The system of claim 70, wherein said keyboard has a number of horizontal zones of letters wherein each zone includes one of the rows of letters of the keyboard.

87. (Previously amended) The system of claim 86, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

88. (Previously amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a horizontal zone to a mistyping action and wherein the processor relates said mistyping action to a letter which is around the impact of said interaction from a neighboring row of letters.

89. (Previously amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters on the interacted zone.

90. (Previously presented) The system of claim 53, wherein the system relates at least one of said input signals to a letter around the corresponding interaction impact and at least one of said input signals to a letter assigned to the corresponding interacted zone.

91. (Previously presented) The system of claim 53 wherein, said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein said

keyboard is modified such that the letter O is assigned to the middle row of the keyboard and/or the letter L is assigned to the top row of the keyboard and wherein substantially all other letters of the keyboard are located at their original location.

92. (Previously presented) A data entry system comprising:

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein the letters R and T are in different zones and wherein a first zone of a first row of letters includes at least the letters WER and a second zone of said first row of letters includes at least the letters TYUIO or at least the letters TYUIL.

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to a sequence of interactions with said zones, said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals.

93. (Previously presented) The system of claim 92, wherein said first zone of letters includes the letters QWER and said second zone of letters includes the letters TYUIOP or the letters TYUILP.

94. (Previously presented) The system of claim 92, wherein the letters F and G are in different zones and wherein a first zone of a second row of letters includes the letters ASDF and a second zone of said second row of letters includes the letters GHJKL or the letters GHJKO.

95. (Previously presented) The system of claim 93, wherein the letters F and G are in different zones and wherein a first zone of a second row of said rows of letters includes the letters ASDF and a second zone of said second row of letters includes the letters GHJKL or the letters GHJKO.

96. (Previously presented) The system of any of the claims 92, wherein a first zone of a third row of letters includes the letters ZXCVBNM.

97. (Previously presented) The system of any of the claims 92, wherein a first zone of a third row of letters includes at least the letters XCV, and a second zone of said third row of letters includes the letters BNM.

98. (Previously presented) The system of any of the claims 92, wherein a first zone of a third row of letters includes the letters ZXCV, and a second zone of said third row of letters includes the letters BNM.

99. (Previously presented) The system of claim 92, wherein upon receiving a sequence of said input signals, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone and wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone over the other letters of the keyboard regardless of the distance from their corresponding interaction impact.

100. (Previously presented) The system of claim 92, wherein upon receiving a sequence of said input signals, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are neighboring to the impact of said interaction, and wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact.

101. (Previously presented) The system of claim 100, wherein the system further relates at least one of said input signals to one of the letters other letters of the keyboard and predicts one or more words from a database of words based on said sequence of input signals.

102. (Previously presented) The system of claim 92, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

103. (Previously presented) The system of claim 92, wherein said keyboard is a QWERTY keyboard, having three horizontal rows of letters, in which the letter O is assigned to the middle row of the keyboard.

104. (Previously presented) The system of claim 92, wherein said keyboard is a QWERTY keyboard, having three horizontal rows of letters, in which the location of the letters O and L are swapped.

105. (Currently amended) A data entry system comprising:

a modified QWERTY, QWERTZ, or AZERTY keyboard having three horizontal rows of letters wherein each of said rows of letters is divided into one or more zones~~, and wherein the letters~~;

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to a sequence of interactions with said zones, for each of said input signals the processor ambiguously relates said input signal to one of the letters of the corresponding interacted zone and

wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals, and

wherein said QWERTY keyboard is modified such that the letter O is assigned to the middle row of the keyboard and/or the letter L is assigned to the top row of the keyboard and wherein substantially all other letters of the QWERTY keyboard are located at their original location.

106. (Previously presented) The system of claim 105, wherein the letters R and T are in different zones and wherein a first zone of a first row of letters includes at least the letters WER and a second zone of said first row of letters includes at least the letters TYUIL.

107. (Previously presented) The system of claim 105, wherein the letters F and G are in different zones and wherein a first zone of a second row of letters includes at least the letters ASDF and a second zone of said second row of letters includes at least the letters GHJKO.

108. (New) The system of claim 53, wherein if an interaction with a zone is provided near a neighboring zone, in addition to the characters assigned to the interacted zone, the system considers at least one character near the interaction impact from said neighboring zone.

REMARKS

Applicant has further amended the claims to correct an error in claim 105 and to add Previously presented claim 108.

Accordingly, all claims of record are deemed to be allowable. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If any issue remains before allowance, the Examiner is earnestly requested to contact the undersigned for overcoming such an issue (email correspondence is approved as well).

Recognizing that Internet communications are not secure, the undersigned hereby authorizes the USPTO to communicate with the undersigned concerning any subject matter of this application by electronic mail. The undersigned understand that a copy of these communications will be made of record in the application file.

Respectfully submitted,

DEKEL PATENT LTD.

BY /David Klein/

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Electronic Acknowledgement Receipt	
EFS ID:	27789711
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	14-DEC-2016
Filing Date:	13-AUG-2015
Time Stamp:	12:36:21
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	2104-52_dec16_usr.pdf	47362 0d74beced1e15fa730a8337cfd29763518a4de45	no	9
Warnings:					

Information:	
Total Files Size (in bytes):	47362

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/767,606	Filing Date 08/13/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	12/14/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 52	Minus	** 51	= 1		x $40 =	40
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	40

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	HSLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	Merilyn S WATTS
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14767606	Filing Date	2015-08-13	Docket Number (if applicable)	2104-052-US	Art Unit	2174
First Named Inventor	Benjamin F. Ghassabian			Examiner Name	Christopher J. Fibbi		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/David Klein/	Date (YYYY-MM-DD)	2016-07-05
Name	David Klein	Registration Number	41118

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Electronic Patent Application Fee Transmittal	
Application Number:	14767606
Filing Date:	13-Aug-2015
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Filer:	David L. Klein
Attorney Docket Number:	2104-052-US
Filed as Small Entity	
Filing Fees for U.S. National Stage under 35 USC 371	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2615	14	40	560
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
		Total in USD ($)		**1160**

Electronic Acknowledgement Receipt	
EFS ID:	26303808
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	10-JUL-2016
Filing Date:	13-AUG-2015
Time Stamp:	12:47:35
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RAM confirmation Number	071116INTEFSW12493800
Deposit Account	1096
Authorized User	David Klein
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	2104-52_jul16_usr.pdf	298546 e462630ba0c4037ebd3383dc3103620fb2e6444f	no	14
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	2104-052_RCE_jul16.pdf	697597 bc6bc5ecee02d877279605b5606d818e446cebfa	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32379 9b0dd3b1f9aa2fdacc0c973dfb38fc5309008382	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1028522		

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<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	14/767606
Filed	:	13 August 2015
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		2174
Examiner	:	Christopher J. Fibbi
Docket No.	:	2104-052-US
Confirmation No.:		7885

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE

Sir:

In response to the Office Action of May 27, 2016, please amend the above-identified application as follows:

In the claims:

1-52. (Canceled)

53. (Currently amended) A data entry system comprising:

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein to at least one of said zones a plurality of said letters is assigned;

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are ~~around~~ neighboring to the impact of said interaction, and

wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact, and

wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals.

54. (Previously presented) The system of claim 53, wherein the system gives priority to the letters of an interacted zone over the other letters.

55. (Currently amended) The system of claim 53, wherein the system, gives priority to the letters of an interacted zone that are ~~near~~ adjacent to the interaction impact, over the other letters on said zone.

56. (Canceled)

57. (Previously amended) The system of claim 53, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

58. (Previously presented) The system of claim 53, wherein each row of the letters is divided into two or more zones.

59. (Previously presented) The system of claim 53, wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

60. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least ~~three~~ five letters.

61. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters W, R, E.

62. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters T, U, I.

63. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones and wherein at least one of said horizontal zones has at least four letters.

64. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters A, S, D, F.

65. (Previously amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters G, H, J, K.

66. (Previously amended) The system of claim 53, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

67. (Currently amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to ~~the~~ a middle row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

68. (Currently amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter L is assigned to ~~the~~ a top row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

69. (Currently amended) The system of claim 53, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a letter other than the letters which are ~~around~~ neighboring the interaction impact or are on the interacted horizontal zone.

70. (Currently amended) A data entry system comprising:

Samsung Exhibit 1005, Page 39 of 439

a keyboard having a number of horizontal rows of letters, wherein each of the rows of letters is divided into one or more horizontal zones, and wherein to at least one of said horizontal zones a plurality of letters are assigned;

a processor, and

a word predictive system;

wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said input signal to any of the letters on said horizontal zone, and wherein the processor gives priority to the letters of the interacted zone over the other letters of the keyboard regardless of the distance from the interaction impact,

and wherein among said letters of the interacted horizontal zone, the ~~system~~ processor gives priority to the letters that are near the interaction impact within said zone over the other letters of said zone, and

wherein upon receiving a sequence of said input signals, the system predicts one or more words from a database of words.

71-73. (Canceled)

74. (Previously amended) The system of claim 70, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

75. (Previously amended) The system of claim 70, wherein each row of the letters is divided into two or more horizontal zones.

76. (Previously amended) The system of claim 70, wherein said one or more horizontal zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

77. (Currently amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least ~~three~~ five letters.

78. (Previously amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters W, R, E.

79. (Currently amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of said horizontal zones includes at least the letters T, ~~Y,~~ U, I.

80. (Currently amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein each of said horizontal zones has at least ~~three~~ four letters.

81. (Previously amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of said horizontal zones includes at least the letters A, S, D, F.

82. (Previously amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of said horizontal zones includes at least the letters G, H, J, K.

83. (Previously amended) The system of claim 70, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

84. (Currently amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to ~~the~~ a middle row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

85. (Currently amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, wherein the letter L is assigned to ~~the~~ a top row of letters of the keyboard and wherein substantially all of the other letters of the keyboard are located in their original horizontal row.

86. (Previously amended) The system of claim 70, wherein said keyboard has a number of horizontal zones of letters wherein each zone includes one of the rows of letters of the keyboard.

87. (Previously amended) The system of claim 86, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

88. (Previously amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a horizontal zone to a mistyping action and wherein the processor relates said mistyping action to a letter which is around the impact of said interaction from a neighboring row of letters.

89. (Previously amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters on the interacted zone.

90. (Previously presented) The system of claim 53, wherein the system relates at least one of said input signals to a letter around the corresponding interaction impact and at least one of said input signals to a letter assigned to the corresponding interacted zone.

91. (New) The system of claim 53 wherein, said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein said keyboard is

modified such that the letter O is assigned to the middle row of the keyboard and/or the letter L is assigned to the top row of the keyboard and wherein substantially all other letters of the keyboard are located at their original location.

92. (New) A data entry system comprising:

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein the letters R and T are in different zones and wherein a first zone of a first row of letters includes at least the letters WER and a second zone of said first row of letters includes at least the letters TYUIO or at least the letters TYUIL.

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to a sequence of interactions with said zones, said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals.

93. (New) The system of claim 92, wherein said first zone of letters includes the letters QWER and said second zone of letters includes the letters TYUIOP or the letters TYUILP.

94. (New) The system of claim 92, wherein the letters F and G are in different zones and wherein a first zone of a second row of letters includes the letters ASDF and a second zone of said second row of letters includes the letters GHJKL or the letters GHJKO.

95. (New) The system of claim 93, wherein the letters F and G are in different zones and wherein a first zone of a second row of said rows of letters includes the letters ASDF and a second zone of said second row of letters includes the letters GHJKL or the letters GHJKO.

96. (New) The system of any of the claims 92, wherein a first zone of a third row of letters includes the letters ZXCVBNM.

97. (New) The system of any of the claims 92, wherein a first zone of a third row of letters includes at least the letters XCV, and a second zone of said third row of letters includes the letters BNM.

98. (New) The system of any of the claims 92, wherein a first zone of a third row of letters includes the letters ZXCV, and a second zone of said third row of letters includes the letters BNM.

99. (New) The system of claim 92, wherein upon receiving a sequence of said input signals, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone and wherein said processor gives priority to the letters which are assigned to the interacted

horizontal zone over the other letters of the keyboard regardless of the distance from their corresponding interaction impact.

100. (New) The system of claim 92, wherein upon receiving a sequence of said input signals, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are neighboring to the impact of said interaction, and wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact.

101. (New) The system of claim 100, wherein the system further relates at least one of said input signals to one of the letters other letters of the keyboard and predicts one or more words from a database of words based on said sequence of input signals.

102. (New) The system of claim 92, wherein within the predicted words the system considers the word with the highest frequency of use as the best choice.

103. (New) The system of claim 92, wherein said keyboard is a QWERTY keyboard, having three horizontal rows of letters, in which the letter O is assigned to the middle row of the keyboard.

104. (New) The system of claim 92, wherein said keyboard is a QWERTY keyboard, having three horizontal rows of letters, in which the location of the letters O and L are swapped.

105. (New) A data entry system comprising:

a modified QWERTY, QWERTZ, or AZERTY keyboard having three horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein the letters;

a processor, and

a word predictive system;

wherein upon receiving a sequence of said input signals corresponding to a sequence of interactions with said zones, for each of said input signals the processor ambiguously relates said input signal to one of the letters of the corresponding interacted zone and

wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals, and

wherein said QWERTY keyboard is modified such that the letter O is assigned to the middle row of the keyboard and/or the letter L is assigned to the top row of the keyboard and

wherein substantially all other letters of the QWERTY keyboard are located at their original location.

106. (New) The system of claim 105, wherein the letters R and T are in different zones and wherein a first zone of a first row of letters includes at least the letters WER and a second zone of said first row of letters includes at least the letters TYUIL.

107. (New) The system of claim 105, wherein the letters F and G are in different zones and wherein a first zone of a second row of letters includes at least the letters ASDF and a second zone of said second row of letters includes at least the letters GHJKO.

REMARKS

Applicant has carefully studied the outstanding Official Action mailed on May 27, 2016. This response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claims 67, 68, 84 and 85 stand rejected under 35 USC §112, second paragraph, for indefiniteness, for lacking antecedent basis. The claims have been appropriately amended.

Claim 53 stands provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of copending application 14/378977. This rejection is respectfully traversed as being moot: claim 53 has been amended, the instant application is considered in a condition for allowance, and 14/378977 is still pending.

Claims 53-55, 57-59, 63-66, 70, 74-76, 78, 80-83, 86, 87 and 90 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian (US 2007/0079239) in view of Archer (US 2011/0078563).

Claims 60-62, 77 and 79 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian (US 2007/0079239) in view of Archer (US 2011/0078563), further in view of Suess (US 2005/0244208).

Claims 67, 68, 84 and 85 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian (US 2007/0079239) in view of Archer (US 2011/0078563), further in view of Ng et al. (US 7202853).

Claims 69, 88 and 89 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian (US 2007/0079239) in view of Archer (US 2011/0078563), further in view of Baird (US 2011/0018812).

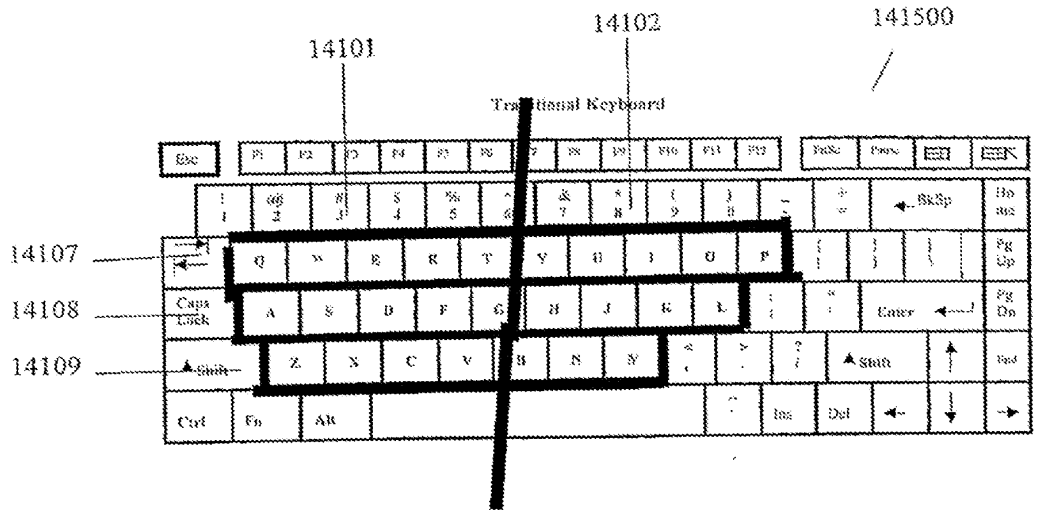
The rejections are respectfully traversed as is explained below.

Examiner states that Ghassabian '239 has the feature of predicting one or more words from a database of words based on a sequence of input signals from a zone, the zone including a horizontal row of letters. Examiner correctly notes that Ghassabian '239 lacks the feature of predicting one or more words from a database of words based on letters which are around the impact of the interaction. Examiner attempts to make up for this deficiency by combining Ghassabian '239 with Archer. Archer only teaches predicting one or more words based on letters which are around the impact of the interaction; however, Archer never teaches predicting one or more words based on a sequence of input signals from a zone, the zone including a horizontal row of letters.

First, Examiner has failed to show where there is incentive in either of the references to combine Ghassabian '239 with Archer.

Second, as is now carefully explained, the instant invention is not obvious in view of Ghassabian '239 combined with Archer, because the instant invention provides an unexpected result that cannot be obtained with Ghassabian '239 with Archer.

To facilitate the explanation, here is a QWERTY keyboard from Ghassabian '239, Fig. 17:



Let us take the example of typing the word CAN. The system of the invention uses word prediction to understand ambiguous input. Let us see what happens when a person, instead of carefully typing CAN, instead sloppily types FFM.

In Ghassabian '239, the word prediction system will look for letters in the same zone as the first letter F, again in the same zone as the second letter F, and once again in the same zone as the third letter M, in an effort to predict the word. Since the only vowel in the same zone as F is A, Ghassabian '239 will predict either FAN, DAB or GAB.

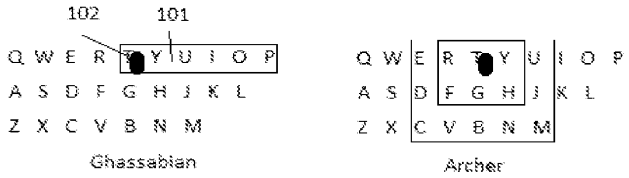
In Archer, the word prediction system will look for letters which are around the impact of the interaction. The input letter F will make the letters around F candidates for word prediction (i.e., letters ERTDGCVB – but not the letter A); the candidate letters for the input M are HJKN and the comma. Thus, the only vowel available for word prediction is E and Archer will predict DEN or TEN.

Accordingly, the combination of Ghassabian '239 and Archer will predict FAN, DAB, GAB, DEN or TEN. In contrast, the instant invention will also predict CAN, the crucial word missing from the combination of cited references.

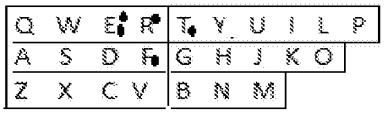
ANOTHER EXAMPLE:

In Ghassabian '239, ALL of the letters of an interacted horizontal zone are given priority over all of other letters of the keyboard regardless of their distance from the

interaction impact. As an example, by referring to the drawing below and by considering the zone 101 and the interaction impact 102 on said zone, in Ghassabian '239 the letter P has priority over the letter M or even over the letter H, while in Archer the letter M and specially the letter H have priority over the letter P. Accordingly, Ghassabian '239 and Archer teach away from each other and cannot be combined.



Even for argument sake, combining Ghassabian '239 and Archer results in word prediction different than the instant invention. For example, by considering the exemplary keyboard above, upon tapping on the letters EFTER, the combined system of Ghassabian '239 and Archer will give priority to the word "water", "after", "eager", with probably the word "after" as being the preferred word because of its very high frequency of use. On the other hand, the instant invention will give priority to the words, "water", "eater" and "eager" because ALL of their letters are either in the interacted zone or are neighboring their corresponding interaction impact. The instant invention does not give priority to the word "after", because one of its letters, the letter "a", IS NOT in the interacted zone (tapped on E) and IS NOT neighboring the corresponding interaction impact.



Claims 54-55, 57-59, 66 and 69: Neither Ghassabian nor Archer describes a word predictive system which "Wherein upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are neighboring to the impact of said interaction, and wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring to the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact."

Claim 56: (Deleted)

Claim 59: Neither Ghassabian '239 nor Archer describes a word predictive system which "Wherein upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are neighboring to the impact of said interaction, and wherein said processor gives priority to the letters which are assigned to the interacted horizontal zone and to the letters which are neighboring to the interaction impact over other letters of the keyboard regardless of the distance from their corresponding interaction impact."

Claims 60: In Ghassabian '239, Figs. 17 and 18 do NOT show that the letters R and T are in different horizontal zones. In Fig. 18 Ghassabian '239's split regular keyboard is used for precise letter by letter text entry only. Suess describes a precise letter by letter text entry system by dividing each of the horizontal rows of letters of a standard keyboard into two rows of letters one above the other so that to augment the distance between the letters of each row. Suess is neither describing nor showing "A keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones" "and wherein the letters R and T are in different horizontal zones". In Suess none of the horizontal rows of letters of Figs. 11-13 includes the letters T and R, or the letters F and G. In Figs. 11-13, Suess has arranged the letters of each of the rows of a QWERTY keyboard in two horizontal rows to augment the distance between the letters of a horizontal row and to permit precise letter by letter text entry. Suess even describes the advantages of its precise letter by letter text entry keyboard over a word predictive system (i.e. T9), therefore teaching away from word predictive systems.

Claim 63: In Ghassabian '239, Figs. 17 and 18 do NOT show that the letters F and G are in different horizontal zones. In Fig. 18, the split regular keyboard is used for precise letter by letter text entry. Regarding Suess, please refer to the explanation of claims 60 to 62.

Claim 64: In Ghassabian '239, Figs. 17 and 18 do NOT show that the letters letters A, S, D, F are in different horizontal zones. In Fig. 18, Ghassabian '239's qwerty is used for precise letter by letter text entry. Regarding Suess, please refer to the explanation of 60 to 62.

Claim 65: In Ghassabian '239, Figs. 17 and 18 do NOT show that the letters G, H, J, K are in different horizontal zones. In Fig. 18, Ghassabian '239's qwerty is used for precise letter by letter text entry. Regarding Suess, please refer to the explanation of 60 to 62.

Claim 67 and 68: In Ng, when a keyboard has more than three lines it is not a QWERTY keyboard because the letters are arranged in an arbitrary manner. On the other hands, in all of drawings of Ng, when a keyboard is a QWERTY keyboard that has three rows of letters, ALL of the letters of the keyboard are at their original locations.

Claim 70: Neither Ghassabian '239 nor Archer discloses a system "Wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said input signal to any of the letters on said horizontal zone and wherein the processor gives priority to the letters of the interacted zone over the other letters of the keyboard regardless of the distance from the interaction impact, and wherein among said letters of the interacted horizontal zone, the processor gives priority to the letters that are near the interaction impact within said zone over the other letters of said zone"

Claims 71-73: Deleted

Claims 74-75, 83, 87-89: Neither Ghassabian '239 nor Archer discloses a system "Wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said input signal to any of the letters on said horizontal zone and wherein the processor gives priority to the letters of the interacted zone over the other letters of the keyboard regardless of the distance from the interaction impact, and wherein among said letters of the interacted horizontal zone, the processor gives priority to the letters that are near the interaction impact within said zone over the other letters of said zone

Claim 76: Neither Ghassabian '239 nor Archer discloses a system "Wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said input signal to any of the letters on said horizontal zone and wherein the processor gives priority to the letters of the interacted zone over the other letters of the keyboard regardless of the distance from the interaction impact, and wherein among said letters of the interacted horizontal zone, the processor gives priority to the letters that are near the interaction impact within said zone over the other letters of said zone."

Claims 77: Please refer to arguments of claim 60.

Claims 84 and 85: Please refer to arguments of claims 67 and 68.

Claim 86: Neither Ghassabian '239 nor Archer describe that "wherein said keyboard has a number of horizontal zones of letters wherein each zone includes one of the rows of letters of the keyboard."

Accordingly, all claims of record are deemed to be allowable. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If any issue remains before allowance, the Examiner is earnestly requested to contact the undersigned for overcoming such an issue (email correspondence is approved as well).

Recognizing that Internet communications are not secure, the undersigned hereby authorizes the USPTO to communicate with the undersigned concerning any subject matter of this application by electronic mail. The undersigned understand that a copy of these communications will be made of record in the application file.

Respectfully submitted,

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/767,606	Filing Date 08/13/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 07/10/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 4	Minus	***3	= 1	X $210 =	210
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**210**

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

SLIE
TAMIE JARRETT

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/767,606	08/13/2015	Benjamin Firooz Ghassabian	2104-052-US	7885

32964 7590 05/27/2016

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EXAMINER	
FIBBI, CHRISTOPHER J	

ART UNIT	PAPER NUMBER
2174	

MAIL DATE	DELIVERY MODE
05/27/2016	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 14/767,606	Applicant(s) GHASSABIAN, BENJAMIN FIROOZ	
	Examiner CHRISTOPHER J. FIBBI	Art Unit 2174	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2016*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *53-55,57-70 and 74-90* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *53-55,57-70 and 74-90* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

This action is in response to the Amendment dated 21 April 2016. Claims 53, 55, 57, 60-70 and 74-89 are amended. Claims 56 and 71-73 have been cancelled. Claim 90 has been added. Claims 53-55, 57-70 and 74-90 remain pending and have been considered below.

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

2. Based on applicant's amendment, the objections to claims 67 and 86 are withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 67, 68, 84 and 85 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

5. Claims 67 and 84 recite the limitation "the middle row of letters." There is insufficient antecedent basis for this limitation in the claim.

6. Claims 68 and 85 recite the limitation "the top row of letters." There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/forms/. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

8. Claim 53 is provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of copending Application No. 14/378977 (reference application). Although the claims at issue are not identical, they are not patentably distinct from each other because:

Current Application	Application '977	Motivation
(Claim 1)	(Claim 1)	Application '977 recites a

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein to at least one of said zones a plurality of said letters is assigned; a processor, **and a word predictive system**; **wherein upon receiving a sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system,**	**a plurality of first input signals to which one to a few characters are assigned**, and **an input signal, separate from said plurality of input signals, to which a significantly larger number of characters are ambiguously assigned**; **and a word predictive system using a database of words**; **wherein upon receiving a sequence of said input signals the system predicts one or more words from the database**	plurality of input signals to which one to a few characters are assigned and input signals to a larger number of characters, whereas the current application recites a keyboard and letters in zones. However, one of ordinary skill in the art would recognize that the keyboard and zones are equivalent to a plurality of input signals as a keyboard and input zones apply input signals to a system.

whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction, and **wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals**.	**of words.**	

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 103

9. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 53-55, 57-59, 63-66, 70, 74-76, 78, 80-83, 86, 87 and 90 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Archer** (US 2011/0078563 A1).

As for independent **claim 53**, **Ghassabian** teaches a system comprising:

a) a keyboard having a number of horizontal rows of letters wherein each of said rows of letters divided into one or more zones [(e.g. see Ghassabian paragraph 0377 and Fig. 17, Fig. 2 numeral 12609) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows split into two zones.

b) a processor, and a word predictive system [(e.g. see Ghassabian paragraphs 0047, 0103) "The system may also require small amount of

memory and processing power/speed … The data entry systems (e.g. providing precise characters) may be combined with the principles of a word predictive system (e.g. based on pressing actions on ambiguous keys corresponding to the characters/letters of a word and using a database of, words and corresponding key presses information of each word”].

c) wherein upon receiving a sequence of said input signals corresponding to the sequence of interactions with said zones, for each of said input signals the processor determines, using the word predictive system, whether said input is related to one of the letters of the corresponding interacted zone [(e.g. see Ghassabian paragraph 0062, 0063, 0067 and Fig. 2) ”According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608, 12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the system … by using the word predictive system of the invention for entering a word, after a user provides the key presses information … The system may be predefined to present (e.g. highlight) to the user the word that has the highest priority relating to other words within the selection”]. The priority words selected by the

system (numeral 12604) are based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

d) wherein said word predictive system is operative to predict one or more words from a database of words based on said sequence of input signals [(e.g. see Ghassabian paragraphs 0047, 0062, 0064) "The data entry systems (e.g. providing precise characters) may be combined with the principles of a word predictive system (e.g. based on pressing actions on ambiguous keys corresponding to the characters/letters of a word and using a database of, words and corresponding key presses information of each word. The principals of word predictive systems is known be people skilled in the art) to provide a highly accurate data/text entry system using (e.g. very) few keys (e.g. wherein obviously at least some of the keys are ambiguous keys … by using the word predictive system of the invention for entering a word, after a user provides the key presses information … the system may relate a selection of at least two words to the user's provided information. The system may be predefined to present (e.g. highlight) to the user the word that has the highest priority relating to other words within the selection"]. The priority words selected by the system

(numeral 12604) are based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

Ghassabian does not specifically teach or whether said input signal is instead related to one of the letters which are around the input of said interaction. However, in the same field of invention, **Archer teaches:**

e) or whether said input signal is instead related to one of the letters which are around the input of said interaction [(e.g. see Archer paragraphs 0026, 0033, 0036, 0039) "portable device 100 may attempt to predict words or phrases entered by the user. The prediction may be based, at least partially, on proximity of the keys to a key entered by a user on a soft keyboard presented on touch-screen display 125 … The prediction may be based on a proximity weighting for the most recently entered character (block 420) … In general, the distance factor may be a value that represents how far "off" the user's key press action was to the potential characters associated with keys that are in the vicinity of the key press or touch … A prediction rank may be calculated for each candidate word determined in block 530 (block 540). The prediction rank may correspond to a value calculated as an estimate of the likelihood that the candidate word is the intended word.

> The prediction rank may be based on the distance factor for the prefix. In one implementation, the prediction rank may also be based on the word frequency of the candidate word. For example, the prediction rank may be calculated as: wf*distance_factor, where wf is the word frequency"].

Therefore, considering the teachings of Ghassabian and Archer, it would have been obvious to one having ordinary skill in the art at the time of the invention to add or whether said input signal is instead related to one of the letters which are around the input of said interaction, as taught by Archer, to the teachings of Ghassabian because by using proximate characters the device may be able to correctly predict the word intended by the user, even when the user mis-keys a letter in the word (e.g. see Archer paragraph 0011).

As for dependent **claim 54**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein the system gives priority to the letters of an interacted zone over the other letters [(e.g. see Ghassabian paragraph 0067 and Fig. 2) "According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608, 12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the

system"]. The priority words selected by the system (numeral 12604) is based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

As for dependent **claim 55**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein the system, gives priority to the letters of an interacted zone that are near the interaction impact over the other letters on said zone [(e.g. see Archer paragraphs 0011, 0026, 0033, 0036, 0039) "The predictions may be based on, in addition to the characters entered by the user, characters that are in proximity (i.e., physically near) … portable device 100 may attempt to predict words or phrases entered by the user. The prediction may be based, at least partially, on proximity of the keys to a key entered by a user on a soft keyboard presented on touch-screen display 125 … The prediction may be based on a proximity weighting for the most recently entered character (block 420) … In general, the distance factor may be a value that represents how far "off" the user's key press action was to the potential characters associated with keys that are in the vicinity of the key press or touch … A prediction rank may be calculated for each candidate word

> determined in block 530 (block 540). The prediction rank may correspond to a value calculated as an estimate of the likelihood that the candidate word is the intended word. The prediction rank may be based on the distance factor for the prefix. In one implementation, the prediction rank may also be based on the word frequency of the candidate word. For example, the prediction rank may be calculated as: wf*distance_factor, where wf is the word frequency"]. Examiner notes that the word prediction system uses a weighted proximity to rank based on a distance factor, therefore, closer to the input/higher the priority that character receives.

The motivation to combine is the same as that used for claim 53.

As for dependent **claim 57**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein within the predicted words the system considers the word with the highest frequency of use as the best choice [(e.g. see Ghassabian paragraphs 0066, 0179) "Priorities (e.g. based on the frequency of use) given/assigned to the words of a dictionary may be an important issue for better acceptance of the combined data entry systems of the invention by the user … The frequency of use values may be predefined to be considered as the

priority values assigned to the words … wherein usually the word having the highest frequency of use is proposed as a first choice to the user"].

As for dependent **claim 58**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein each row of the letters is divided into two or more zones [(e.g. see Ghassabian paragraph 0377 and Fig. 17) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows split into two zones.

As for dependent **claim 59**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters [(e.g. see Ghassabian paragraphs 0099, 0377) "the upper left key 14113 may contain the letters "QWERT", corresponding to the letters situated on the keys of the left side 14101 of the

upper row 14107 of the PC keyboard 14100. The Other keys of the group of six keys follow the same principles and contain the corresponding letters situated on the keys of the corresponding row-and-side … Some of predefined single letters (e.g. "a", "e", "i", of English language) may be assigned to different keys"].

As for dependent **claim 63**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein said rows of letters are horizontal and wherein the letters F and G are in different zones horizontal zones and wherein at least one of said horizontal zones has at least four letters [(e.g. see Ghassabian paragraphs 0385 and Figs. 2 and 18) "FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs 18 depicts F and G in different zones and Fig. 2 depicts F and G in different horizontal zones of more than 4 letters.

As for dependent **claim 64**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters A, S, D, F [(e.g. see Ghassabian paragraphs 0385 and Fig. 18) "FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that in Fig. 18, of the two zones present (14207 and 14208), ASDF is found in one zone (14207) while F and G are in different zones.

As for dependent **claim 65**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of the zones includes at least the letters G, H, J, K [(e.g. see Ghassabian paragraphs 0385 and Fig. 18) "FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that in Fig. 18, of the two zones present (14207 and 14208), GHJK is found in one zone (14207) while F and G are in different zones.

As for dependent **claim 66**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters [(e.g. see Ghassabian paragraphs 0163, 0377 and Figs. 7 and 17) "As mentioned before, the data entry systems of the invention may user a keyboard such as an on-screen (e.g. QWERTY) keyboard … The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard"].

As for independent **claim 70**, Ghassabian and Archer teach a system. Claim 70 discloses substantially the same limitations as claim 53. Therefore, it is rejected with the same rational as claim 53. Further, **Archer teaches** the system gives priority to the letters that are near the interaction input with said zone over the other letters of said zone [(.g. see Archer paragraphs 0011, 0026, 0033, 0036, 0039) "The predictions may be based on, in addition to the characters entered by the user, characters that are in proximity (i.e., physically near) … portable device 100 may attempt to predict words or phrases entered by the user. The prediction may be based, at least partially, on proximity of the keys to a key entered by a user on a soft keyboard presented on touch-screen display 125 … The prediction may be based on a proximity weighting for the most

recently entered character (block 420) … In general, the distance factor may be a value that represents how far "off" the user's key press action was to the potential characters associated with keys that are in the vicinity of the key press or touch … A prediction rank may be calculated for each candidate word determined in block 530 (block 540). The prediction rank may correspond to a value calculated as an estimate of the likelihood that the candidate word is the intended word. The prediction rank may be based on the distance factor for the prefix. In one implementation, the prediction rank may also be based on the word frequency of the candidate word. For example, the prediction rank may be calculated as: wf*distance_factor, where wf is the word frequency"]. Examiner notes that the word prediction system uses a weighted proximity to rank based on a distance factor, therefore, closer to the input/higher the priority that character receives. The motivation to combine is the same as that used for claim 53.

As for dependent **claims 74-76, 78, and 80-83**, Ghassabian and Archer teach the system as described in claim 70; further, claims 74-76, 78, and 80-83 discloses substantially the same limitations as claims 57-59, 61 and 63-66, respectively. Therefore, it is rejected with the same rational as claims 57-59, 61 and 63-66, respectively.

As for dependent **claim 86**, Ghassabian and Archer teach the system as described in claim 70 and **Ghassabian further teaches:**

a) wherein said keyboard has a number of horizontal zones of letters wherein each zone includes one of the rows of letters of the keyboard [(e.g. see Ghassabian paragraph 0377 and Fig. 17) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows of the keyboard as zones.

As for dependent **claim 87**, Ghassabian and Archer teach the system as described in claim 86; further, claim 87 discloses substantially the same limitations as both claims 66 and 83. Therefore, it is rejected with the same rational as claims 66 and 83.

As for dependent **claim 90**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) wherein the system related at least one of said input signals to a letter around the corresponding interaction impact and at least one of said input signals to a letter assigned to the corresponding interacted zone [(e.g. see Archer paragraph 0011,

0036) "As the user inputs text to the portable device, the device may form predictions of the word or phase being entered by the user. The predictions may be based on, in addition to the characters entered by the user, characters that are in proximity (i.e., physically near), on the input device, to the characters entered by the user … prediction component 320 may next obtain a distance factor corresponding to each of the potential characters (i.e., each adjacent character key) (block 520). A distance factor may also be obtained for the touched key (e.g., C in FIG. 6). In general, the distance factor may be a value that represents how far "off" the user's key press action was to the potential characters associated with keys that are in the vicinity of the key press or touch"].

11. Claims 60-62, 77, and 79 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Archer** (US 2011/0078563 A1), as applied to claims 53 and 70 above, and further in view of **Suess** (US 2005/0244208 A1).

As for dependent **claim 60**, Ghassabian and Archer teach the system as described in claim 53, **but do not specifically teach** wherein said rows of letters are horizontal and

wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least three letters. However, in the same field of invention,

Suess teaches:

a) wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least three letters [(e.g. see Suess paragraphs 0040, 0060, 0066 and Figs. 11 and 12) "The concept of selecting letters in a given row of the standard QWERTY arrangement and repositioning them substantially below the remaining (unselected) letters is extended as much as possible to the placement of punctuation and control characters as seen in FIG. 11, keeping these characters physically close to where they existed on the standard QWERTY keyboard … FIG. 12 is a schematic view of an embodiment of the invention that features a plurality of characters disposed upon a single button … As would be readily apparent to one skilled in the art, minor variations in character location or presentation (e.g., lower case and/or uppercase, color, etc.) can be utilized"]. Examiner notes that Figs. 11 and 12 depict the letters R and T in different horizontal zones, each having more than three letters.

Therefore, considering the teachings of Ghassabian, Archer and Suess, it would have been obvious to one having ordinary skill in the art at the time of the invention to add

wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least three letters, as taught by Suess, to the teachings of Ghassabian and Archer because it expedites physically locating and pressing the desired letter because each letter is physically near where the finger or thumb would normally head toward on a standard QWERTY layout which facilitates rapid typing for a user by its layout of characters (e.g. see Suess paragraphs 0059, 0060).

As for dependent **claim 61**, Ghassabian and Archer teach the system as described in claim 53 and **Ghassabian further teaches:**

a) and wherein one of said horizontal zones includes at least the letters W, R, E [(e.g. see Ghassabian paragraphs 0377, 0385 and Figs. 17-18) "For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs. 17 and 18 depict WRE in one zone.

Ghassabian and Archer do not specifically teach wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones. However, **Suess teaches:**

b) wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones [(e.g. see Suess paragraphs 0040, 0060, 0066 and Figs. 11 and 12) "The concept of selecting letters in a given row of the standard QWERTY arrangement and repositioning them substantially below the remaining (unselected) letters is extended as much as possible to the placement of punctuation and control characters as seen in FIG. 11, keeping these characters physically close to where they existed on the standard QWERTY keyboard … FIG. 12 is a schematic view of an embodiment of the invention that features a plurality of characters disposed upon a single button … As would be readily apparent to one skilled in the art, minor variations in character location or presentation (e.g., lower case and/or uppercase, color, etc.) can be utilized"]. Examiner notes that Figs. 11 and 12 depict the letters R and T in different horizontal zones, each having more than three letters.

The motivation to combine is the same as that used for claim 60.

As for dependent **claim 62**, Ghassabian and Archer teach the system as described in claim 53, **but do not specifically teach** wherein one of the zones includes at least the letters T, U, I. However, **Suess teaches:**

a) wherein one of the zones includes at least the letters T, U, I [(e.g. see Suess paragraphs 0040, 0060, 0066 and Figs. 11 and 12) "The concept of selecting letters in a given row of the standard QWERTY arrangement and repositioning them substantially below the remaining (unselected) letters is extended as much as possible to the placement of punctuation and control characters as seen in FIG. 11, keeping these characters physically close to where they existed on the standard QWERTY keyboard … FIG. 12 is a schematic view of an embodiment of the invention that features a plurality of characters disposed upon a single button … As would be readily apparent to one skilled in the art, minor variations in character location or presentation (e.g., lower case and/or uppercase, color, etc.) can be utilized"].

Examiner notes that Figs. 11 and 12 depict the letters T-U-I in the same zone.

The motivation to combine is the same as that used for claim 60.

As for dependent **claims 77 and 79**, Ghassabian and Archer teach the system as described in claim 70; further, claims 77 and 79 discloses substantially the same

limitations as claims 60 and 62, respectively. Therefore, it is rejected with the same rational as claims 60 and 62, respectively.

12. Claims 67, 68, 84 and 85 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1), in view of **Archer** (US 2011/0078563 A1), as applied to claims 53 and 70 above, and further in view of **Ng** et al. (US 7,202,853 B2).

As for dependent **claim 67**, Ghassabian and Archer teach the system as described in claim 53, **but do not specifically teach** wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, having three rows of letters, and wherein the letter O is assigned to the middle row of letters the keyboard. However, in the same field of invention, **Ng teaches:**

a) wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, having three rows of letters, and wherein the letter O is assigned to the middle row of letters the keyboard [(e.g. see Ng col 9 lines 52-59 and Fig. 4) "For the FM reduced keyboard system, the layout or arrangement of the multi-character keys is similar to the placement of the fingers, when at rest, on a conventional keyboard. FIG. 4 shows how the multi-character keys 51,52,53,54,55,56,57,58 for the FM reduced keyboard system could be arranged in the same finger resting arrangement (eight columns and one row)

as the QWERTY or QWERTY-type keyboard"]. Examiner notes that Fig. 4 depicts the letter O in a middle row. As Ng shows anywhere from three to five rows of letters, Ng inherently has three rows of letters.

Therefore, considering the teachings of Ghassabian, Archer and Ng, it would have been obvious to one having ordinary skill in the art at the time of the invention to add wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, having three rows of letters, and wherein the letter O is assigned to the middle row of letters the keyboard, as taught by Ng, to the teachings of Ghassabian and Archer because providing a reduced sized and re-arranged keyboard allows for efficient and fast double-handed and/or double-thumbed typing on small form factor devices (e.g. see Ng col 9 lines 64-67).

As for dependent **claim 68**, Ghassabian and Archer teach the system as described in claim 53, **but do not specifically teach** wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, having three rows of letters, and wherein the letter L is assigned to the top row of letters of the keyboard. However, **Ng teaches:**

a) wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, having three rows of letters, and wherein the letter L is assigned to the top row of letters of the keyboard [(e.g. see Ng col and Fig. 9) "showing an example of how the reduced keyboard system using the visual mapping (ten keys) could be implemented … the essence of an embodiment of the present invention is to utilise the

> similar mapping used for typing on the conventional keyboard, be it visual mapping or finger mapping, while recreating the typing feel and speed of conventional keyboard typing, by facilitating double-handed or double-thumbed typing. Although the reference for the reduced keyboard system is mainly to QWERTY and QWERTY-type keyboards"]. Examiner notes that Fig. 9 depicts the letter L in the top row. As Ng shows anywhere from three to five rows of letters, Ng inherently has three rows of letters.

The motivation to combine is the same as that used for claim 67.

As for dependent **claims 84 and 85**, Ghassabian and Archer teach the system as described in claim 70; further, claims 84 and 85 discloses substantially the same limitations as claims 67 and 68, respectively. Therefore, it is rejected with the same rational as claims 67 and 68, respectively.

13. Claims 69, 88 and 89 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Archer** (US 2011/0078563 A1), as applied to claims 53 and 70 above, and further in view of **Baird** (US 2011/0018812 A1).

As for dependent **claim 69**, Ghassabian and Archer teach the system as described in claim 53, **but do not specifically teach** wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a letter other than the letters which are around the interaction impact or on the interacted horizontal zone. However, in the same field of invention, **Baird teaches:**

a) wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a letter other than the letters which are around the interaction impact or on the interacted horizontal zone [(e.g. see Baird paragraphs 0013, 0014, 0029 and Figs. 2 and 32-37) "set of N selected keys corresponding to text within the overlay 230 is also displayed within the error correction area 245 of the touchscreen 110 such that there is one-to-one correspondence between text and cursor in the overlay 230, and the text and cursor displayed in the error correction area 245 … Each key group consists of a corresponding user-selected or tapped key and associated error correction keys … Although only two adjacent keys are shown, any of the keys adjacent to the selected key may be displayed in a key group and form a set of adjacent keys shown in the error correction area 245 … FIGS. 32-37 illustrate alternative examples of key groups … FIG. 34

> shows set of error correction keys 3420(1) and 3420(2) placed above and diagonal to the tapped key 3415 along with an enlarged delete key 3430 … FIG. 37 shows a set of error correction keys 3720(1)-3720(6) surrounding the tapped key 3715. The keys in FIG. 37 are designed for an error correction key area with a large amount of horizontal and vertical space in which all keys adjacent to the tapped key on the touchscreen keyboard are displayed as error correction keys"].

Therefore, considering the teachings of Ghassabian, Archer and Baird, it would have been obvious to one having ordinary skill in the art at the time of the invention to add wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a letter other than the letters which are around the interaction impact or on the interacted horizontal zone, as taught by Baird, to the teachings of Ghassabian and Archer because anticipating the letters necessary to correct and complete the interface request results in an increase in user efficiency (e.g. see Baird abstract).

As for dependent **claim 88**, Ghassabian and Archer teach the system as described in claim 70, **but do not specifically teach** wherein the system includes a correction procedure to further relate an interaction with a horizontal zone to a mistyping action

and wherein the processor relates said mistyping action to a letter which is around the impact of said interaction, from a neighboring row of letters. However, **Baird teaches:**

a) wherein the system includes a correction procedure to further relate an interaction with a horizontal zone to a mistyping action and wherein the processor relates said mistyping action to a letter which is around the impact of said interaction, from a neighboring row of letters [(e.g. see Baird paragraphs 0013, 0014, 0029 and Figs. 2 and 32-37) "set of N selected keys corresponding to text within the overlay 230 is also displayed within the error correction area 245 of the touchscreen 110 such that there is one-to-one correspondence between text and cursor in the overlay 230, and the text and cursor displayed in the error correction area 245 … Each key group consists of a corresponding user-selected or tapped key and associated error correction keys … Although only two adjacent keys are shown, any of the keys adjacent to the selected key may be displayed in a key group and form a set of adjacent keys shown in the error correction area 245 … FIGS. 32-37 illustrate alternative examples of key groups … FIG. 37 shows a set of error correction keys 3720(1)-3720(6) surrounding the tapped key 3715. The keys in FIG. 37 are designed for an error correction key area with a large amount of horizontal and vertical space in which all keys adjacent to the tapped key

on the touchscreen keyboard are displayed as error correction keys"].

The motivation to combine is the same as that used for claim 69.

As for dependent **claim 89**, Ghassabian and Archer teach the system as described in claim 70; further, claim 89 discloses substantially the same limitations as claim 69. Therefore, it is rejected with the same rational as claims 69.

Response to Arguments

14. Applicant's arguments, filed 21 April 2016, have been fully considered but they are not persuasive.

15. Applicant argues that ["[In independent claim 53], Ghassabian '239 does not disclose the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction" (Page 6).].

The argument described above, in paragraph number 15, with respect to the newly added limitations to the independent claims has been considered, but is moot in view of the new grounds of rejection.

16. Applicant argues that ["For dependent claims 54-55, 57-59, 66 and 69, [Ghassabian '239 remains deficient for the same reason as presented for the independent claim 53]" (Page 7).].

The argument described above, in paragraph number 16, with respect to the newly added limitations to the independent claims has been considered, but is moot in view of the new grounds of rejection.

17. Applicant argues that ["In dependent claims 60 and 62, Do does not disclose that the letters T, U and I are assigned to a single zone" (Page 7).].

The argument described above, in paragraph number 17, with respect to the newly added limitations to the claims has been considered, but is moot in view of the new grounds of rejection.

18. Applicant argues that ["Ghassabian '239 does not show that the letter F and G are located on different zones and wherein at least one of said zones has at least four letters" (Page 7)].

Examiner respectfully disagrees. Ghassabian teaches wherein said rows of letters are horizontal and wherein the letters F and G are in different zones horizontal zones and wherein at least one of said horizontal zones has at least four letters in paragraph 0385

and Figs. 2 and 18 of Ghassabian's disclosure ["FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. One of ordinary skill in the art would recognize that Fig. 18 depicts F and G in different zones and Fig. 2 depicts F and G in different horizontal zones of more than 4 letters. Moreover, newly cited Suess also teaches this limitation (see Figs. 11 and 12). Thus, the combination adequately teaches applicant's claimed limitation.

19. Applicant argues that ["Ghassabian '239 does not show that the letters A, S, D, F are assigned to a horizontal zone." (Page 8).].

Examiner respectfully disagrees. Ghassabian teaches wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of said horizontal zones includes at least the letters A, S, D, F in paragraph 0385 and Fig. 18 of Ghassabian's disclosure ["FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. One of ordinary skill in the art would recognize that in Fig. 18, of the two zones present (14207 and 14208), ASDF is found in one zone (14207) while F and G are in different zones. Moreover, newly cited Suess also teaches this limitation

(see Figs. 11 and 12). Thus, the combination adequately teaches applicant's claimed limitation.

20. Applicant argues that ["Ghassabian '239 does not show that the G, H, J, K are assigned to a horizontal zone" (Page 8).].

Examiner respectfully disagrees. Ghassabian teaches wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of the zones includes at least the letters G, H, J, K in paragraph 0385 and Fig. 18 of Ghassabian's disclosure ["FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. One of ordinary skill in the art would recognize that in Fig. 18, of the two zones present (14207 and 14208), GHJK is found in one zone (14207) while F and G are in different zones. Moreover, newly cited Suess also teaches this limitation (see Figs. 11 and 12). Thus, the combination adequately teaches applicant's claimed limitation.

21. Applicant argues that ["[In independent claim 70], Ghassabian '239 does not disclose the system gives priority to the letters of an interacted horizontal zone over other letters of the keyboard, and wherein among the letters of the interacted horizontal

zone, the system gives priority to the letters of said horizontal zone that are near the interaction impact with said zone" (Page 8).].

The argument described above, in paragraph number 21, with respect to the newly added limitations to the independent claims has been considered, but is moot in view of the new grounds of rejection.

22. Applicant argues that ["For dependent claims 74-76, 83, 86-89, [Ghassabian '239 remains deficient for the same reason as presented for the independent claim 53]" (Page 8)."].

The argument described above, in paragraph number 22, with respect to the newly added limitations to the independent claims has been considered, but is moot in view of the new grounds of rejection.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER J. FIBBI whose telephone number is (571)-270-3358. The examiner can normally be reached on Monday - Thursday (8am-6pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Chow can be reached on (571)-272-7767. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. J. F./

Examiner, Art Unit 2174

/STEVEN SAX/
Primary Examiner, Art Unit 2174

Notice of References Cited	Application/Control No. 14/767,606	Applicant(s)/Patent Under Reexamination GHASSABIAN, BENJAMIN FIR	
	Examiner CHRISTOPHER J. FIBBI	Art Unit 2174	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2011/0078563 A1	03-2011	ARCHER; Donald Gene	G06F3/0237	715/261
*	B	US-2005/0244208 A1	11-2005	Suess, Dana	G06F3/0202	400/486
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016	05/23/2016							
	1	-	-							
	2	-	-							
	3	-	-							
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	5	-	-							
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=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016	05/23/2016							
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	67	✓	✓							
	68	✓	✓							
	69	✓	✓							
	70	✓	✓							

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	Examiner	**Art Unit**
	CHRISTOPHER J FIBBI	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016	05/23/2016							
	71	✓	-							
	72	✓	-							
	73	✓	-							
	74	✓	✓							
	75	✓	✓							
	76	✓	✓							
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	80	✓	✓							
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	82	✓	✓							
	83	✓	✓							
	84	✓	✓							
	85	✓	✓							
	86	✓	✓							
	87	✓	✓							
	88	✓	✓							
	89	✓	✓							
	90		✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	(14/767606).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/03/14 09:56
S2	23	(Benjamin WITH Ghassabian).IN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 09:56
S3	17	(Keyless WITH Systems).AS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:07
S4	1696	715/773.CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:08
S5	3268	715/773,708,812,816.CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:10
S6	233	715/773,708,812,816.CCLS. AND ((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:10
S7	3	715/773,708,812,816.CCLS. AND (((predict$6 OR suggest$6) WITH keyboard) SAME zone)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:18
S8	13372	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S9	937	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND ((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S10	90	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND (((predict$6 OR suggest$6) WITH keyboard) SAME (group$4 OR zone))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S11	2	"20130002556"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:41
S12	4103	((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:43
S13	23	(((predict$6 OR suggest$6) WITH	US-PGPUB;	OR	OFF	2016/03/14

		keyboard) SAME zone)	USPAT; EPO; JPO; DERWENT			11:43
S14	204	(((predict$6 OR suggest$6) WITH keyboard) SAME (zone OR group$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:44
S15	8	(((predict$6 OR suggest$6) WITH keyboard) SAME (zone OR group$4)) SAME frequency	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:44
S17	568	(((predict$6 OR suggest$6) WITH keyboard) SAME letter)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:46
S19	42	(((predict$6 OR suggest$6) WITH keyboard) SAME letter SAME (group$4 OR zon$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:47
S20	1167	(keyboard) SAME letter SAME (group$4 OR zon$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:51
S21	96	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME (predict$5 OR suggest$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:51
S23	4	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME (predict$5 OR suggest$4) SAME priority	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:52
S24	28	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME priority	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:52
S25	2	"20130346904"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:42
S26	2	"7,443,316".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:47
S27	2	"8,669,941".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:49
S28	2	"7,202,853".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:49
S29	235	(correction) SAME keyboard SAME letter	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:34
S30	38	(correction) SAME keyboard SAME letter SAME (adjacent OR proxim$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:34

S31	18	(correction OR error) SAME keyboard SAME letter SAME suggest$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:41
S32	74	(correct$5 OR error OR incorrect) SAME keyboard SAME letter SAME probab$8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:04
S33	2	("20100171700").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:07
S34	20	(letter WITH siz$4) SAME keyboard SAME correct$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:08
S35	3	"20140015753"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:11
S36	2	"8,521,927".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 08:34
S37	2	"20130057475"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 09:07
S38	3	"20050244208"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 10:31
S39	3	"20110078563"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 11:19
S40	1247	(predict$8 SAME (letter OR character) SAME keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:16
S41	127	(predict$8 SAME (letter OR character) SAME keyboard SAME (touch OR contact OR input) SAME (close$4 OR proxim$7 OR distance))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:17
S42	10	(predict$8 SAME (letter OR character) SAME keyboard SAME (touch OR contact OR input) SAME (close$4 OR proxim$7 OR distance) SAME (rank$4 OR priority))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:17
S43	33	(predict$8 SAME (letter OR character) SAME keyboard SAME (touch OR contact OR input) SAME (close$4 OR proxim$7 OR distance) SAME (group$4 OR zon$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:18
S44	127	(predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:19
S45	37	(predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4) SAME (adjacent OR around OR	US-PGPUB; USPAT; EPO; JPO;	OR	OFF	2016/05/23 16:20

		close$3 OR proxim$7))	DERWENT			
S46	13	(predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4) SAME (adjacent OR around OR close$3 OR proxim$7) AND QWERTY)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:20
S47	16	(predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4 OR together) SAME (adjacent OR around OR close$3 OR proxim$7) AND QWERTY)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:21
S48	263	((letter OR character) SAME keyboard SAME (group$4 OR zon$4 OR together) SAME (adjacent OR around OR close$3 OR proxim$7) AND QWERTY)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:21
S49	4	715/773,708,812,816.CCLS. AND (((predict$6 OR suggest$6) WITH keyboard) SAME zone)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:22
S50	26	715/773,708,812,816.CCLS. AND (predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:22
S51	44	715/773,708,812,816.CCLS. AND (predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4 OR layout))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:24
S52	162	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND (predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4 OR layout))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:24
S53	19	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND (predict$8 SAME (letter OR character) SAME keyboard SAME (group$4 OR zon$4 OR layout) SAME (adjacent OR around OR close$3 OR proxim$7 OR distanc$5))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/05/23 16:25

5/23/2016 4:26:21 PM
C:\Users\cfibbi\Documents\EAST\Workspaces\14767606(predictive keyboard with letter zones).wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

CPC- SEARCHED		
Symbol	Date	Examiner
G06F3/04886, G06F3/0237, G06F17/276	03/18/2016	CJF
Updated Search	05/23/2016	CJF

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
715	733, 708, 812, 816	03/18/2016	CJF
	Updated Search	05/23/2016	CJF

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor and Assignee search	03/18/2016	CJF
NPL search	03/18/2016	CJF
EAST text search (see attached)	03/18/2016	CJF
EAST text search (updated, see attached)	05/23/2016	CJF

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/767,606	08/13/2015	Benjamin Firooz Ghassabian	2104-052-US

CONFIRMATION NO. 7885

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PUBLICATION NOTICE

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Publication Date:05/12/2016

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The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	14/767606
Filed	:	13 August 2015
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		2174
Examiner	:	Christopher J. Fibbi
Docket No.	:	2104-052-US
Confirmation No.:		7885

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

In response to the Office Action of March 22, 2016, please amend the above-identified application as follows:

In the claims:

1-52. (Canceled)

53. (Currently Amended) A data entry system comprising:

a keyboard having a number of horizontal rows of letters wherein each of said rows of letters is divided into one or more zones, and wherein to at least one of said zones a plurality of said letters is assigned;

a processor, and

a word predictive system;

~~Wherein upon receiving an interaction with a zone, the processor relates said interaction to either any of the letters around the interaction impact or to any of the letters on said zone, and~~

wherein upon ~~providing~~ receiving a sequence of said input signals corresponding to sequence of interactions with said zones~~of said interactions~~, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction, and

wherein ~~the~~ said word predictive system is operative to predict~~s~~ one or more words from a database of words based on said sequence of input signals.

54. (Previously presented) The system of claim 53, wherein the system gives priority to the letters of an interacted zone over the other letters.

55. (Currently amended) The system of claim 53, wherein the system, gives priority to the letters of ~~said~~ an interacted zone that are near the interaction impact, over the other letters on said zone.

56. (Canceled)

57. (Currently amended) The system of claim 53, wherein within the ~~selected~~ predicted words the system considers the word with the highest frequency of use as the best choice.

58. (Previously presented) The system of claim 53, wherein each row of the letters is divided into two or more zones.

59. (Previously presented) The system of claim 53, wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

60. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least three letters.

61. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters W, R, E.

62. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters R and T are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters T, ~~Y,~~ U, I.

63. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones and wherein at least one of said horizontal zones has at least four letters.

64. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of ~~the~~ said horizontal zones includes at least the letters A, S, D, F.

65. (Currently amended) The system of claim 53, wherein said rows of letters are horizontal and wherein the letters F and G are in different horizontal zones, and wherein one of ~~the~~ said horizontal zones includes at least the letters G, H, J, K.

66. (Currently amended) The system of claim 53, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

67. (Currently amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to the middle row of letters of the keyboard.

68. (Currently amended) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter L is assigned to the top row of letters of the keyboard.

69. (Currently amended) The system of claim 53, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a ~~character~~ letter other than the ~~characters~~ letters which are around the interaction impact or on the interacted horizontal zone.

70. (Currently amended) A data entry system comprising:

a keyboard having a number of horizontal rows of letters~~-~~, wherein each of the rows of letters is divided into one or more horizontal zones, and wherein to at least one of said horizontal zones a plurality of letters are assigned;

a processor, and

a word predictive system;

wherein upon receiving an input signal corresponding to an interaction with a horizontal zone, the processor relates said ~~interaction~~ input signal to any of the letters on said horizontal zone, ~~,~~ and wherein among ~~said~~ letters of the interacted horizontal zone, the system gives priority to the letters ~~of said zone~~ that are near the interaction impact with said zone over the other letters of said zone, and

wherein upon ~~providing~~ receiving a sequence of said ~~interactions~~ input signals, the system predicts one or more words from a database of words.

~~The system of claim 18, wherein the system gives priority to the letters of an interacted zone over the letters of other zones.~~

71-73. (Canceled)

74. (Currently amended) The system of claim 70, wherein within the ~~selected~~ predicted words the system considers the word with the highest frequency of use as the best choice.

75. (Currently amended) The system of claim 70, wherein each row of the letters is divided into two or more horizontal zones.

76. (Currently amended) The system of claim 70, wherein said one or more horizontal zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

77. (Currently amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein each of said horizontal zones has at least three letters.

78. (Currently amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters W, R, E.

79. (Currently amended) The system of claim 70, wherein the letters R and T are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters T, Y, U, I.

80. (Currently amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein each of said horizontal zones has at least three letters.

81. (Currently amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters A, S, D, F.

82. (Currently amended) The system of claim 70, wherein the letters F and G are in different horizontal zones and wherein one of ~~the~~ said horizontal zones includes at least the letters G, H, J, K.

83. (Currently amended) The system of claim 70, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

84. (Currently amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, and wherein the letter O is assigned to the middle row of letters of the keyboard.

85. (Currently amended) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters, wherein the letter L is assigned to the top row of letters of the keyboard.

86. (Currently amended) The system of claim 70, wherein said keyboard has a number of horizontal zones of letters wherein each zone includes~~ing~~ one of the rows of letters of the keyboard.

87. (Currently amended) The system of claim 86, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard having three rows of letters.

88. (Currently amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a horizontal zone to a mistyping action and wherein the processor relates said mistyping action to a ~~character~~ letter which is around the impact of said interaction~~,~~ from ~~another~~ a neighboring row of letters.

89. (Currently amended) The system of claim 70, wherein the system includes a correction procedure to further relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters on the interacted zone.

90. (New) The system of claim 53, wherein the system relates at least one of said input signals to a letter around the corresponding interaction impact and at least one of said input signals to a letter assigned to the corresponding interacted zone.

REMARKS

Applicant has carefully studied the outstanding Official Action mailed on March 22, 2016. This response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Claims 7, 9-11 and 14 stand rejected under 35 USC §112, second paragraph, for indefiniteness.

Claims 53-59. 61, 63-66, 70-76, 78, 80-83, 86, 87 and 89 stand rejected under 35 USC §102(b) as being anticipated by Ghassabian (US 2007/0079239).

Claims 60, 62, 77 and 79 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian in view of Do et al. (US 2013/0346904).

Claims 67, 68, 84 and 85 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian in view of Ng et al. (US 7202853).

Claims 69 and 88 stand rejected under 35 USC §103(a) as being unpatentable over Ghassabian in view of Baird (US 2011/0018812).

Although the rejections are respectfully traversed as is explained below, merely for the sake of clarity some claims have been amended as is explained below.

Claim 53 has been modified for clarity. Ghassabian '239 discloses a QWERTY keyboard in which each of its horizontal rows of letters is divided into two zones and wherein an interaction with any of said zones is related to any of the characters of the interacted zone. However, Ghassabian '239 does not disclose the claimed feature of "upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction. Ghassabian '239 cannot and does not teach determining to what the input signal is related.

Please note that on a traditional (e.g. QWERTY) keyboard relating an interaction to any of the letters of a horizontal zone significantly reduces the necessity of long movements back and forth over the keyboard and provides a decent degree of accuracy of prediction. The current invention enables a user to enter any or some of the letters of a word by interacting anywhere on a desired horizontal zone and any or some of the letters by interacting near the desired letter. This permits a significantly more accurate prediction over

Ghassabian '239 while still enabling a very comfortable typing experience by reducing the necessity of long finger movements over the keyboard.

Regarding objection of section 11: Ghassabian '239 does not disclose that upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction. Therefore no terminal disclaimer is deemed necessary.

Claims 54-55, 57-59, 66 and 69 have been modified for clarity: Ghassabian '239 does not disclose that upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction.

Claim 56: (Canceled)

Claim 59: Ghassabian '239 discloses that one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters. However, Ghassabian '239 does not disclose that upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction.

Claims 60 to 62: Do does not disclose that the letters T, U, I are assigned to a single zone. Please note that, in Do an area 150 is assigned to each single UI element. There is a 1 to 1 correspondence between a UI element and an area which Do refers to it as '150'. The subject matter of Do is to (dynamically) modify the area of a SINGLE UI element based on number of interactions with that area. Note that, any of the areas T, Y, U, like others, can be modified only by considering the direct interaction with the respective UI element.

Claim 63: Ghassabian '239 does not show that the letter F and G are located on different zones and wherein at least one of said zones has at least four letters.

Claim 64: Ghassabian '239 does not show that the letters A, S, D, F are assigned to a horizontal zone.

Claim 65: Ghassabian '239 does not show that the G, H, J, K are assigned to a horizontal zone.

Claim 70: Ghassabian '239 discloses a system wherein an interaction with a horizontal zone is related to any of the characters of said zone only. However, Ghassabian '239 does not disclose that the system gives priority to the letters of an interacted horizontal zone over other letters of the keyboard, and wherein among the letters of the interacted horizontal zone, the system gives priority to the letters of said horizontal zone that are near the interaction impact with said zone.

Claims 71-73: Canceled

Claims 74-75, 83, 86-89: Ghassabian '239 does not disclose that the system gives priority to the letters of an interacted horizontal zone over other letters of the keyboard, and wherein among the letters of the interacted horizontal zone, the system gives priority to the letters of said horizontal zone that are near the interaction impact with said zone.

Claim 76: Ghassabian '239 discloses that one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters. However, Ghassabian '239 does not disclose that the system gives priority to the letters of an interacted horizontal zone over other letters of the keyboard, and wherein among the letters of the interacted horizontal zone, the system gives priority to the letters of said horizontal zone that are near the interaction impact with said zone.

Regarding US 2014/0181721 A1 and US 8,521,927: Applicant carefully reviewed these patents:

Neither Buck nor Hirshberg discloses that upon receiving a sequence of said input signals corresponding to sequence of interactions with said zones, for each of said input signals the processor determines, using said word predictive system, whether said input signal is related to one of the letters of the corresponding interacted zone or whether said input signal is instead related to one of the letters which are around the impact of said interaction.

Accordingly, all claims of record are deemed to be allowable. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If any issue remains before allowance, the Examiner is earnestly requested to contact the undersigned for overcoming such an issue (email correspondence is approved as well).

Recognizing that Internet communications are not secure, the undersigned hereby authorizes the USPTO to communicate with the undersigned concerning any subject matter of this application by electronic mail. The undersigned understand that a copy of these communications will be made of record in the application file.

Respectfully submitted,

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Electronic Acknowledgement Receipt

EFS ID:	25554869
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
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Attorney Docket Number:	2104-052-US
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	2104-52_apr16_usr.pdf	54886 f08005e23083006dbb082a9d1dc7dda72a461567	no	9
Warnings:					
Information:					

Total Files Size (in bytes):	54886

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/767,606	Filing Date 08/13/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/21/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 34	Minus	** 37	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/ERIC V. BURNS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/767,606	08/13/2015	Benjamin Firooz Ghassabian	2104-052-US	7885

32964 7590 03/22/2016

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EXAMINER
FIBBI, CHRISTOPHER J

ART UNIT	PAPER NUMBER
2174	

MAIL DATE	DELIVERY MODE
03/22/2016	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary for Applications Under Accelerated Examination	**Application No.** 14/767,606	**Applicant(s)** GHASSABIAN, BENJAMIN FIROOZ	
	Examiner CHRISTOPHER J. FIBBI	**Art Unit** 2174	**AIA (First Inventor to File) Status** Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

This application has been granted special status under the accelerated examination program.
A SHORTENED STATUTORY PERIOD FOR REPLY to this non-final action or Quayle action IS SET TO EXPIRE: **TWO MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of time are available under 37 CFR 1.136(a). In no event, however, may a reply be filed after SIX (6) MONTHS from the mailing date of this communication. Filing a petition for extension of time will result in the application being taken out of the Accelerated Examination program.**

(Examiner: For **FINAL** actions, please use PTOL-326.)

The objective of the accelerated examination program is to complete the examination of an application within twelve months from the filing date of the application. Any reply must be filed electronically via EFS-Web so that the papers will be expeditiously processed and considered. If the reply is not filed electronically via EFS-Web, the final disposition of the application may occur later than twelve months from the filing of the application.

Status

1)☒ Responsive to communication(s) filed on *13 August 2015 and Prelim. Amdt. 25 February 2016*.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

Disposition of Claims*

4)☒ Claim(s) *53-89* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *53-89* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 August 2015* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

11)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some *c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

**See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *08/13/2015*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Priority

This action is in response to the U.S. filing dated 13 August 2015 which is a national stage entry of PCT/US2014/016777, dated 18 February 2014, which claims priority to a plurality U.S. provisional applications, under 35 U.S.C. 119(e), the latest of which that contains support for the claims is 61/765751, dated 17 February 2013. A preliminary amendment was submitted on 25 February 2016. No claims are amended. Claims 1-52 have been cancelled. Claims 53-89 have been added. Claims 53-89 remain pending and have been considered below.

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 13 August 2015 has been received, entered into the record, and considered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

3. Applicant is advised that should claim 83 be found allowable, claim 87 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

4. Claim 67 objected to because of the following informalities: the claim limitation seems to be missing a word. Appropriate correction is required. Examiner suggests "assigned to the middle row of letters ***of*** the keyboard."

5. Claim 86 objected to because of the following informalities: the claim limitation seems to be missing an "and" or another "wherein" identifier. Appropriate correction is required. Examiner suggests "wherein said keyboard has a number of horizontal rows of letters ***and*** each zone ***includes*** one of the rows of letters of the keyboard."

Claim Rejections - 35 USC § 112

6. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 67, 68, 84 and 85 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

8. Claims 67 and 84 recite the limitation "the middle row of letters." There is insufficient antecedent basis for this limitation in the claim.

9. Claims 68 and 85 recite the limitation "the top row of letters." There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/forms/. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

11. Claim 53 is provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of copending Application No. 14/378977 (reference application). Although the claims at issue are not identical, they are not patentably distinct from each other because:

Current Application	Application '977	Motivation
(Claim 1) **a keyboard having a number of horizontal rows of letters divided into one or more zones**; a processor, **and a word predictive system**; **wherein upon receiving an interaction with a zone, the processor relates said interaction to** either any of the letters around the interaction impact or to **any of the letters on said zone**, and **wherein upon providing a**	(Claim 1) **a plurality of first input signals to which one to a few characters are assigned**, and **an input signal, separate from said plurality of input signals, to which a significantly larger number of characters are ambiguously assigned**; **and a word predictive system using a database of words**; **wherein upon receiving a sequence of said input signals the system**	Application '977 recites a plurality of input signals to which one to a few characters are assigned and input signals to a larger number of characters, whereas the current application recites a keyboard and letters in zones. However, one of ordinary skill in the art would recognize that the keyboard and zones are equivalent to a plurality of input signals as a keyboard and input zones apply input signals to a system.

sequence of said interactions, the system predicts one or more words from a database of words.	**predicts one or more words from the database of words.**	

This is a provisional nonstatutory double patenting rejection because the patentably indistinct claims have not in fact been patented.

Claim Rejections - 35 USC § 102

12. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

13. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 53-59, 61, 63-66, 70-76, 78, 80-83, 86, 87 and 89 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by **Ghassabian** (US 2007/0079239 A1).

As for independent **claim 53**, **Ghassabian** discloses a system comprising:

a) a keyboard having a number of horizontal rows of letters divided into one or more zones [(e.g. see Ghassabian paragraph 0377 and Fig. 17, Fig. 2 numeral 12609) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows split into two zones.

b) a processor, and a word predictive system [(e.g. see Ghassabian paragraphs 0047, 0103) "The system may also require small amount of memory and processing power/speed … The data entry systems (e.g. providing precise characters) may be combined with the principles of a word predictive system (e.g. based on pressing actions on ambiguous keys corresponding to the characters/letters of a word and using a database of, words and corresponding key presses information of each word"].

c) wherein upon receiving an interaction with a zone, the processor relates said interaction to either any of the letters around the interaction impact or to any of the letters on said zone [(e.g. see Ghassabian paragraph 0067 and Fig. 2) "According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608,

12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the system"]. The priority words selected by the system (numeral 12604) is based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

d) wherein upon providing a sequence of said interactions, the system predicts one or more words from a database of words [(e.g. see Ghassabian paragraph 0062, 0063, 0067 and Fig. 2) "According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608, 12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the system … by using the word predictive system of the invention for entering a word, after a user provides the key presses information … The system may be predefined to present (e.g. highlight) to the user the word that has the highest priority relating to other words within the selection"]. The priority words selected by the system (numeral 12604) is based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

As for dependent **claim 54**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein the system gives priority to the letters of an interacted zone over the other letters [(e.g. see Ghassabian paragraph 0067 and Fig. 2) "According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608, 12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the system"]. The priority words selected by the system (numeral 12604) is based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

As for dependent **claim 55**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein the system, gives priority to the letters of said zone that are near the interaction impact over the other letters on said zone [(e.g. see Ghassabian paragraph 0163 and Fig. 7) "as shown in FIG. 7, by using an on-screen keyboard 13100, in order to enter the word "have", the user may press on the zones near 13101-13104 near the corresponding keys of the word. For each of the impact zones, the system may consider the letters on for example

the keys surrounding the zone. As an example, in this example, the system may consider at least some of at least the letters "h, j, y, u") for the impact zone 13101, the system may consider at least some of at least the letters "a, s, z") for the impact zone 13102, the system may consider at least some of at least the letters "f, g, v, c, b") for the impact zone 13103, the system may consider at least some of at least the letters "e, r, s, d, v") for the impact zone 13104. It is understood that the characters corresponding to the pressing actions as described, may be used with the data entry systems of the invention"].

As for dependent **claim 56**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein among the predicted words the system considers the word that best matches the interaction as the best choice [(e.g. see Ghassabian paragraphs 0062, 0063) "by using the word predictive system of the invention for entering a word, after a user provides the key presses information … The system may be predefined to present (e.g. highlight) to the user the word that has the highest priority relating to other words within the selection"].

As for dependent **claim 57**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein within the selected words the system considers the word with the highest frequency of use as the best choice [(e.g. see Ghassabian paragraphs 0066, 0179) "Priorities (e.g. based on the frequency of use) given/assigned to the words of a dictionary may be an important issue for better acceptance of the combined data entry systems of the invention by the user … The frequency of use values may be predefined to be considered as the priority values assigned to the words … wherein usually the word having the highest frequency of use is proposed as a first choice to the user"].

As for dependent **claim 58**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein each row of the letters is divided into two or more zones [(e.g. see Ghassabian paragraph 0377 and Fig. 17) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to

duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows split into two zones.

As for dependent **claim 59**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters [(e.g. see Ghassabian paragraphs 0099, 0377) "the upper left key 14113 may contain the letters "QWERT", corresponding to the letters situated on the keys of the left side 14101 of the upper row 14107 of the PC keyboard 14100. The Other keys of the group of six keys follow the same principles and contain the corresponding letters situated on the keys of the corresponding row-and-side … Some of predefined single letters (e.g. "a", "e", "i", of English language) may be assigned to different keys"].

As for dependent **claim 61**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein one of the zones includes at least the letters W, R,E [(e.g. see Ghassabian paragraphs 0377, 0385 and Figs. 17-18) "For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-

14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs. 17 and 18 depict WRE in one zone.

As for dependent **claim 63**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein the letters F and G are in different zones [(e.g. see Ghassabian paragraphs 0385 and Fig. 18) "FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs 18 depicts F and G in different zones.

As for dependent **claim 64**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein one of the zones includes at least the letters A, S, D,F [(e.g. see Ghassabian paragraphs 0377, 0385 and Figs. 17-18) "For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-

14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs. 17 and 18 depict ASDF in one zone.

As for dependent **claim 65**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein one of the zones includes at least the letters G, H, J, K [(e.g. see Ghassabian paragraphs 0385 and Fig. 18) "FIG. 18, shows an electronic device 14200 such a Tablet PC having a touch screen display … A predictive data entry system of the invention using few keys (e.g. in this example, mechanical keys split into two groups 14205 and 14206)"]. Examiner notes that Figs 18 depicts GHJK in one zone.

As for dependent **claim 66**, Ghassabian discloses the system as described in claim 53 and **Ghassabian further discloses:**

a) wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard [(e.g. see Ghassabian paragraphs 0163, 0377 and Figs. 7 and 17) "As mentioned before, the data entry systems of the invention may user a

keyboard such as an on-screen (e.g. QWERTY) keyboard … The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard”].

As for independent **claim 70**, Ghassabian discloses a system. Claim 70 discloses substantially the same limitations as claim 53. Therefore, it is rejected with the same rational as claim 53. Further, **Ghassabian discloses** the system gives priority to the letters of said zone that are near the interaction input with said zone [(e.g. see Ghassabian paragraph 0163 and Fig. 7) ”as shown in FIG. 7, by using an on-screen keyboard 13100, in order to enter the word "have", the user may press on the zones near 13101-13104 near the corresponding keys of the word. For each of the impact zones, the system may consider the letters on for example the keys surrounding the zone. As an example, in this example, the system may consider at least some of at least the letters "h, j, y, u") for the impact zone 13101, the system may consider at least some of at least the letters "a, s, z") for the impact zone 13102, the system may consider at least some of at least the letters "f, g, v, c, b") for the impact zone 13103, the system may consider at least some of at least the letters "e, r, s, d, v") for the impact zone 13104. It is understood that the characters

corresponding to the pressing actions as described, may be used with the data entry systems of the invention"].

As for dependent **claims 71, 73-76, 78, 80-83 and 89**, Ghassabian discloses the system as described in claim 70; further, claims 71, 73-76, 78, 80-83 and 89 discloses substantially the same limitations as claims 54, 56-59, 61, 63-66 and 69, respectively. Therefore, it is rejected with the same rational as claims 54, 56-59, 61, 63-66 and 69, respectively.

As for dependent **claim 72**, Ghassabian discloses the system as described in claim 70 and **Ghassabian further discloses:**

a) wherein the system, gives priority to the letters of said interacted zone over the letters on another zone that are near the interaction impact [(e.g. see Ghassabian paragraph 0067 and Fig. 2) "According to one method, for example, in order to enter the word "doing", the user may press the keys 12606, 12608, 12606, 12606, 12608, (e.g. key press value 24224) without speaking. In this example, a group of four words 12604 corresponding to the key presses may be selected by the system"]. The priority words selected by the system (numeral 12604) is based on zone input sequence 2-4-2-2-4, these words only contain the letters found in zones 2 and 4.

As for dependent **claim 86**, Ghassabian discloses the system as described in claim 70 and **Ghassabian further discloses:**

a) wherein said keyboard has a number of horizontal zones of letters each zone including one of the rows of letters of the keyboard [(e.g. see Ghassabian paragraph 0377 and Fig. 17) "The assignment of the letters to the keys may be such that to duplicate the order of a QWERTY keyboard. For example, as shown in FIG. 17, a group of six keys (e.g. 3 rows 14117-14119 by 2 columns 14111-14112) of a reduced keyboard 14110 may be used to duplicate the QWERTY arrangement"]. Examiner notes that Fig. 17 depicts the rows of the keyboard as zones.

As for dependent **claim 87**, Ghassabian discloses the system as described in claim 70; further, claim 87 discloses substantially the same limitations as both claims 66 and 83. Therefore, it is rejected with the same rational as claims 66 and 83.

Claim Rejections - 35 USC § 103

15. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 60, 62, 77, and 79 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Do** et al. (US 2013/0346904 A1).

As for dependent **claim 60**, Ghassabian teaches the system as described in claim 53, **but does not specifically teach** wherein the letters R and T are in different zones. However, in the same field of invention, **Do teaches:**

a) wherein the letters R and T are in different zones [(e.g. see Do paragraph 0023 and Fig. 1) "As shown, the virtual keys corresponding to the letters "T," "Y," and "U" are each enclosed by a dotted line, representing an input area 150"]. Examiner notes that Fig. 1 depicts the letter R outside of the input area.

Therefore, considering the teachings of Ghassabian and Do, it would have been obvious to one having ordinary skill in the art at the time of the invention to add wherein the letters R and T are in different zones, as taught by Do, to the teachings of Ghassabian because using different zones improves the accuracy of touches on a touchscreen in a non-intrusive manner (e.g. see Do paragraph 0039).

As for dependent **claim 62**, Ghassabian teaches the system as described in claim 53, **but does not specifically teach** wherein one of the zones includes at least the letters T, Y, U. However, **Do teaches:**

a) wherein one of the zones includes at least the letters T, Y, U [(e.g. see Do paragraph 0023 and Fig. 1) "As shown, the virtual keys corresponding to the letters "T," "Y," and "U" are each enclosed by a dotted line, representing an input area 150"]. Examiner notes that Fig. 1 depicts the letters TYU inside of the input area.

The motivation to combine is the same as that used for claim 60.

As for dependent **claims 77 and 79**, Ghassabian teaches the system as described in claim 70; further, claims 77 and 79 discloses substantially the same limitations as claims 60 and 62, respectively. Therefore, it is rejected with the same rational as claims 60 and 62, respectively.

17. Claims 67, 68, 84 and 85 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Ng** et al. (US 7,202,853 B2).

As for dependent **claim 67**, Ghassabian teaches the system as described in claim 53, **but does not specifically teach** wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter O is assigned to the middle row of letters the keyboard. However, in the same field of invention, **Ng teaches:**

a) wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter O is assigned to the middle row of letters the keyboard [(e.g.

see Ng col 9 lines 52-59 and Fig. 4) "For the FM reduced keyboard system, the layout or arrangement of the multi-character keys is similar to the placement of the fingers, when at rest, on a conventional keyboard. FIG. 4 shows how the multi-character keys 51,52,53,54,55,56,57,58 for the FM reduced keyboard system could be arranged in the same finger resting arrangement (eight columns and one row) as the QWERTY or QWERTY-type keyboard"]. Examiner notes that Fig. 4 depicts the letter O in a middle row.

Therefore, considering the teachings of Ghassabian and Ng, it would have been obvious to one having ordinary skill in the art at the time of the invention to add wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter O is assigned to the middle row of letters the keyboard, as taught by Ng, to the teachings of Ghassabian because providing a reduced sized and re-arranged keyboard allows for efficient and fast double-handed and/or double-thumbed typing on small form factor devices (e.g. see Ng col 9 lines 64-67).

As for dependent **claim 68**, Ghassabian teaches the system as described in claim 53, **but does not specifically teach** wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter L is assigned to the top row of letters of the keyboard. However, **Ng teaches:**

a) wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter L is assigned to the top row of letters of the keyboard [(e.g. see Ng col and Fig. 9) "showing an example of how the reduced keyboard system using the visual mapping (ten keys) could be implemented … the essence of an embodiment of the present invention is to utilise the similar mapping used for typing on the conventional keyboard, be it visual mapping or finger mapping, while recreating the typing feel and speed of conventional keyboard typing, by facilitating double-handed or double-thumbed typing. Although the reference for the reduced keyboard system is mainly to QWERTY and QWERTY-type keyboards"]. Examiner notes that Fig. 9 depicts the letter L in the top row.

The motivation to combine is the same as that used for claim 67.

As for dependent **claims 84 and 85**, Ghassabian teaches the system as described in claim 70; further, claims 84 and 85 discloses substantially the same limitations as claims 67 and 68, respectively. Therefore, it is rejected with the same rational as claims 67 and 68, respectively.

18. Claims 69 and 88 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ghassabian** (US 2007/0079239 A1) in view of **Baird** (US 2011/0018812 A1).

As for dependent **claim 69**, Ghassabian teaches the system as described in claim 53, **but does not specifically teach** wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters which are around the interaction impact or on the interacted zone. However, in the same field of invention, **Baird teaches:**

a) wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters which are around the interaction impact or on the interacted zone [(e.g. see Baird paragraphs 0013, 0014, 0029 and Figs. 2 and 32-37) "set of N selected keys corresponding to text within the overlay 230 is also displayed within the error correction area 245 of the touchscreen 110 such that there is one-to-one correspondence between text and cursor in the overlay 230, and the text and cursor displayed in the error correction area 245 … Each key group consists of a corresponding user-selected or tapped key and associated error correction keys … Although only two adjacent keys are

> shown, any of the keys adjacent to the selected key may be displayed in a key group and form a set of adjacent keys shown in the error correction area 245 … FIGS. 32-37 illustrate alternative examples of key groups … FIG. 34 shows set of error correction keys 3420(1) and 3420(2) placed above and diagonal to the tapped key 3415 along with an enlarged delete key 3430 … FIG. 37 shows a set of error correction keys 3720(1)-3720(6) surrounding the tapped key 3715. The keys in FIG. 37 are designed for an error correction key area with a large amount of horizontal and vertical space in which all keys adjacent to the tapped key on the touchscreen keyboard are displayed as error correction keys"].

Therefore, considering the teachings of Ghassabian and Baird, it would have been obvious to one having ordinary skill in the art at the time of the invention to add wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters which are around the interaction impact or on the interacted zone, as taught by Baird, to the teachings of Ghassabian because anticipating the letters necessary to correct and complete the interface request results in an increase in user efficiency (e.g. see Baird abstract).

As for dependent **claim 88**, Ghassabian teaches the system as described in claim 70, **but does not specifically teach** wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character which is around the impact of said interaction, from another row. However, **Baird teaches:**

a) wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character which is around the impact of said interaction, from another row [(e.g. see Baird paragraphs 0013, 0014, 0029 and Figs. 2 and 32-37) "set of N selected keys corresponding to text within the overlay 230 is also displayed within the error correction area 245 of the touchscreen 110 such that there is one-to-one correspondence between text and cursor in the overlay 230, and the text and cursor displayed in the error correction area 245 … Each key group consists of a corresponding user-selected or tapped key and associated error correction keys … Although only two adjacent keys are shown, any of the keys adjacent to the selected key may be displayed in a key group and form a set of adjacent keys shown in the error correction area 245 … FIGS. 32-37 illustrate alternative examples of key groups … FIG. 37 shows a set of error correction keys 3720(1)-3720(6) surrounding the tapped key

> 3715. The keys in FIG. 37 are designed for an error correction key area with a large amount of horizontal and vertical space in which all keys adjacent to the tapped key on the touchscreen keyboard are displayed as error correction keys"].

The motivation to combine is the same as that used for claim 69.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 8,521,927 B2 issued to Hirshberg on 27 August 2013. The subject matter disclosed therein is pertinent to that of claims 53-89 (e.g. zones of a virtual keyboard interface with predictive text).

U.S. PGPub 2014/0181721 A1 issued to Buck on 26 June 2014. The subject matter disclosed therein is pertinent to that of claims 53-89 (e.g. zones of a virtual keyboard interface with predictive text).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER J. FIBBI whose telephone number is (571)-270-3358. The examiner can normally be reached on Monday - Thursday (8am-6pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Chow can be reached on (571)-272-7767. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/CHRISTOPHER J FIBBI/

Examiner, Art Unit 2174

/STEVEN SAX/
Primary Examiner, Art Unit 2174

Notice of References Cited	Application/Control No. 14/767,606	Applicant(s)/Patent Under Reexamination GHASSABIAN, BENJAMIN FIR	
	Examiner CHRISTOPHER J. FIBBI	Art Unit 2174	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2007/0079239 A1	04-2007	Ghassabian; Firooz	G06F3/014	715/707
*	B	US-2013/0346904 A1	12-2013	Do; Lydia M.	G06F17/276	715/773
*	C	US-7,202,853 B2	04-2007	Ng; Edwin	G06F1/1616	341/22
*	D	US-2011/0018812 A1	01-2011	Baird; Randall B.	G06F3/04886	345/173
*	E	US-8,521,927 B2	08-2013	Hirshberg; David	G06F3/0237	400/100
*	F	US-2014/0181721 A1	06-2014	Buck; Brian James	G06F3/0233	715/773
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
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	M	US-				

FOREIGN PATENT DOCUMENTS

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	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

CPC- SEARCHED		
Symbol	Date	Examiner
G06F3/04886, G06F3/0237, G06F17/276	03/18/2016	CJF

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
715	733, 708, 812, 816	03/18/2016	CJF

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor and Assignee search	03/18/2016	CJF
NPL search	03/18/2016	CJF
EAST text search (see attached)	03/18/2016	CJF

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (07-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	14/767606
	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	/Christopher Fibbi/
	Attorney Docket Number	2104-052-US

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	1	20100171700		2010-07-08	Sharan Santosh	

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	1	1906297	EP		2008-04-02	Research in Motion		☐
	2	2012/101636	WO		2012-08-02	Keyless Systems		☐
	3	03/085505	WO		2003-10-16	Edwin Ng		☐

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.F./

Examiner Initials

Receipt date: 08/13/2015	Application Number	14767606 - GAU: 2174
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2104-052-US

	4	2011/158064	WO		2011-12-22	Nokia		☐

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	1	PCT Search Report PCT/US2014/016777, 24 July 2014 mailing date	☐

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EXAMINER SIGNATURE

Examiner Signature	/Christopher Fibbi/	Date Considered	03/18/2016

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Receipt date: 08/13/2015	Application Number	14767606 - GAU: 2174
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2104-052-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David Klein/	Date (YYYY-MM-DD)	2015-08-13
Name/Print	David Klein	Registration Number	41118

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Eric Waitz 1-10

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	(14/767606).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/03/14 09:56
S2	23	(Benjamin WITH Ghassabian).IN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 09:56
S3	17	(Keyless WITH Systems).AS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:07
S4	1696	715/773.CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:08
S5	3268	715/773,708,812,816.CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:10
S6	233	715/773,708,812,816.CCLS. AND ((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:10
S7	3	715/773,708,812,816.CCLS. AND (((predict$6 OR suggest$6) WITH keyboard) SAME zone)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:18
S8	13372	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S9	937	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND ((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S10	90	(G06F3/04886 OR G06F3/0237 OR G06F17/276).CPC. AND (((predict$6 OR suggest$6) WITH keyboard) SAME (group$4 OR zone))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 10:24
S11	2	"20130002556"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:41
S12	4103	((predict$6 OR suggest$6) WITH keyboard)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:43
S13	23	(((predict$6 OR suggest$6) WITH	US-PGPUB;	OR	OFF	2016/03/14

		keyboard) SAME zone)	USPAT; EPO; JPO; DERWENT			11:43
S14	204	(((predict$6 OR suggest$6) WITH keyboard) SAME (zone OR group$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:44
S15	8	(((predict$6 OR suggest$6) WITH keyboard) SAME (zone OR group$4)) SAME frequency	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:44
S17	568	(((predict$6 OR suggest$6) WITH keyboard) SAME letter)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:46
S19	42	(((predict$6 OR suggest$6) WITH keyboard) SAME letter SAME (group$4 OR zon$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:47
S20	1167	(keyboard) SAME letter SAME (group$4 OR zon$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:51
S21	96	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME (predict$5 OR suggest$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:51
S23	4	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME (predict$5 OR suggest$4) SAME priority	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:52
S24	28	(keyboard) SAME letter SAME (group$4 OR zon$6) SAME priority	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/14 11:52
S25	2	"20130346904"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:42
S26	2	"7,443,316".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:47
S27	2	"8,669,941".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:49
S28	2	"7,202,853".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 13:49
S29	235	(correction) SAME keyboard SAME letter	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:34
S30	38	(correction) SAME keyboard SAME letter SAME (adjacent OR proxim$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:34

S31	18	(correction OR error) SAME keyboard SAME letter SAME suggest$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/17 18:41
S32	74	(correct$5 OR error OR incorrect) SAME keyboard SAME letter SAME probab$8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:04
S33	2	("20100171700").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:07
S34	20	(letter WITH siz$4) SAME keyboard SAME correct$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:08
S35	3	"20140015753"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 07:11
S36	2	"8,521,927".PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/03/18 08:34

3/18/2016 9:44:12 AM
C:\Users\cfibbi\Documents\EAST\Workspaces\14767606(predictive keyboard with letter zones).wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

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BIB DATA SHEET

CONFIRMATION NO. 7885

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/767,606	08/13/2015	715	2174	2104-052-US
	RULE			

APPLICANTS
KEYLESS SYSTEMS LTD., Jerusalem, ISRAEL

INVENTORS
Benjamin Firooz Ghassabian, Jerusalem, ISRAEL;

**** CONTINUING DATA ***************************

This application is a 371 of PCT/US2014/016777 02/18/2014
which claims benefit of 61/765,751 02/17/2013
and claims benefit of 61/766,747 02/20/2013
and claims benefit of 61/769,285 02/26/2013
and claims benefit of 61/772,066 03/04/2013
and claims benefit of 61/774,605 03/08/2013
and claims benefit of 61/777,102 03/12/2013
and claims benefit of 61/778,888 03/13/2013
and claims benefit of 61/802,690 03/17/2013
and claims benefit of 61/803,456 03/20/2013
and claims benefit of 61/804,681 03/24/2013
and claims benefit of 61/810,805 04/11/2013
and claims benefit of 61/811,756 04/14/2013
and claims benefit of 61/813,271 04/18/2013
and claims benefit of 61/814,290 04/21/2013
and claims benefit of 61/819,598 05/05/2013
and claims benefit of 61/821,331 05/09/2013
and claims benefit of 61/822,934 05/14/2013
and claims benefit of 61/823,971 05/16/2013
and claims benefit of 61/825,049 05/19/2013
and claims benefit of 61/827,020 05/24/2013
and claims benefit of 61/830,114 06/02/2013
and claims benefit of 61/833,512 06/11/2013
and claims benefit of 61/833,991 06/12/2013
and claims benefit of 61/834,889 06/14/2013
and claims benefit of 61/835,704 06/17/2013
and claims benefit of 61/837,662 06/21/2013
and claims benefit of 61/838,288 06/23/2013
and claims benefit of 61/838,403 06/24/2013
and claims benefit of 61/841,360 06/30/2013 ABN
and claims benefit of 61/843,391 07/07/2013
and claims benefit of 61/846,030 07/14/2013
and claims benefit of 61/858,210 07/25/2013
and claims benefit of 61/860,396 07/31/2013
and claims benefit of 61/865,254 08/13/2013
and claims benefit of 61/866,119 08/15/2013
and claims benefit of 61/868,172 08/21/2013
and claims benefit of 61/869,722 08/25/2013
and claims benefit of 61/875,192 09/09/2013

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016								
	1	-								
	2	-								
	3	-								
	4	-								
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	6	-								
	7	-								
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	31	-								
	32	-								
	33	-								
	34	-								
	35	-								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016								
	36	-								
	37	-								
	38	-								
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	66	✓								
	67	✓								
	68	✓								
	69	✓								
	70	✓								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14767606	GHASSABIAN, BENJAMIN FIROOZ
	Examiner	Art Unit
	CHRISTOPHER J FIBBI	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/18/2016								
	71	✓								
	72	✓								
	73	✓								
	74	✓								
	75	✓								
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	77	✓								
	78	✓								
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	80	✓								
	81	✓								
	82	✓								
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	84	✓								
	85	✓								
	86	✓								
	87	✓								
	88	✓								
	89	✓								

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	14/767606
Filed	:	13 August 2015
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		
Examiner	:	
Docket No.	:	2104-052-US
Confirmation No.:		7885

Honorable Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Kindly amend the above-identified application as follows:

In the claims:

1-52. (Canceled)

53. (New) A data entry system comprising:

a keyboard having a number of horizontal rows of letters divided into one or more zones;

a processor, and

a word predictive system;

wherein upon receiving an interaction with a zone, the processor relates said interaction to either any of the letters around the interaction impact or to any of the letters on said zone, and

wherein upon providing a sequence of said interactions, the system predicts one or more words from a database of words.

54. (New) The system of claim 53, wherein the system gives priority to the letters of an interacted zone over the other letters.

55. (New) The system of claim 53, wherein the system, gives priority to the letters of said zone that are near the interaction impact over the other letters on said zone.

56. (New) The system of claim 53, wherein among the predicted words the system considers the word that best matches the interaction as the best choice.

57. (New) The system of claim 53, wherein within the selected words the system considers the word with the highest frequency of use as the best choice.

58. (New) The system of claim 53, wherein each row of the letters is divided into two or more zones.

59. (New) The system of claim 53, wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

60. (New) The system of claim 53, wherein the letters R and T are in different zones.

61. (New) The system of claim 53, wherein one of the zones includes at least the letters W, R, E.

62. (New) The system of claim 53, wherein one of the zones includes at least the letters T, Y, U.

63. (New) The system of claim 53, wherein the letters F and G are in different zones.

64. (New) The system of claim 53, wherein one of the zones includes at least the letters A, S, D, F.

65. (New) The system of claim 53, wherein one of the zones includes at least the letters G, H, J, K.

66. (New) The system of claim 53, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard.

67. (New) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter O is assigned to the middle row of letters the keyboard.

68. (New) The system of claim 53, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter L is assigned to the top row of letters of the keyboard.

69. (New) The system of claim 53, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters which are around the interaction impact or on the interacted zone.

70. (New) A data entry system comprising:

a keyboard having a number of horizontal rows of letters divided into one or more zones;

a processor, and

a word predictive system;

wherein upon receiving an interaction with a zone, the processor relates said interaction to any of the letters on said zone, and wherein among said letters the system gives priority to the letters of said zone that are near the interaction impact with said zone, and

wherein upon providing a sequence of said interactions the system predicts one or more words from a database of words.

71. (New) The system of claim 70, wherein the system gives priority to the letters of an interacted zone over the letters of other zones.

72. (New) The system of claim 70, wherein the system, gives priority to the letters of said interacted zone over the letters on another zone that are near the interaction impact.

73. (New) The system of claim 70, wherein among the predicted words the system considers the word that best matches said interaction as the best choice.

74. (New) The system of claim 70, wherein within the selected words the system considers the word with the highest frequency of use as the best choice.

75. (New) The system of claim 70, wherein each row of the letters is divided into two or more zones.

76. (New) The system of claim 70, wherein said one or more zones are predefined zones, or zones that are dynamically defined based on the location of an interaction impact with a row of letters.

77. (New) The system of claim 70, wherein the letters R and T are in different zones.

78. (New) The system of claim 70, wherein one of the zones includes at least the letters W, R, E.

79. (New) The system of claim 70, wherein one of the zones includes at least the letters T, Y, U.

80. (New) The system of claim 70, wherein the letters F and G are in different zones.

81. (New) The system of claim 70, wherein one of the zones includes at least the letters A, S, D, F.

82. (New) The system of claim 70, wherein one of the zones includes at least the letters G, H, J, K.

83. (New) The system of claim 70, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard.

84. (New) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter O is assigned to the middle row of letters of the keyboard.

85. (New) The system of claim 70, wherein said keyboard is a modified QWERTY, AZERTY, or QWERTZ keyboard, wherein the letter L is assigned to the top row of letters of the keyboard.

86. (New) The system of claim 70, wherein said keyboard has a number of horizontal zones of letters each zone including one of the rows of letters of the keyboard.

87. (New) The system of claim 70, wherein said keyboard is a QWERTY, AZERTY, or QWERTZ keyboard.

88. (New) The system of claim 70, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character which is around the impact of said interaction, from another row.

89. (New) The system of claim 70, wherein the system includes a correction procedure to relate an interaction with a zone to a mistyping action and wherein the processor relates said mistyping action to a character other than the characters on the interacted zone.

REMARKS

The present amendment is intended to place the application in better condition for examination. No new matter has been added.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

DEKEL PATENT LTD.

BY /David Klein/

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Fax +972-8-949-5323
E-mail: dekelltd@netvision.net.il

Electronic Patent Application Fee Transmittal	
Application Number:	14767606
Filing Date:	13-Aug-2015
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Filer:	David L. Klein
Attorney Docket Number:	2104-052-US
Filed as Small Entity	
Filing Fees for U.S. National Stage under 35 USC 371	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2615	17	40	680
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**680**

Electronic Acknowledgement Receipt	
EFS ID:	25018062
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	25-FEB-2016
Filing Date:	13-AUG-2015
Time Stamp:	11:56:01
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Preliminary Amendment	2104-52_prelim_usr_feb16.pdf	29752 eba2885f6eec11bbe8891d297ea27da4f4f6db9e	no	5
Warnings:					
Information:					

2	Fee Worksheet (SB06)	fee-info.pdf	30807 f1cb3833aa9740bebb0c22c45bbf27fbf8025be8	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	60559	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal	
Application Number:	14767606
Filing Date:	13-Aug-2015
Title of Invention:	DATA ENTRY SYSTEMS
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Filer:	David L. Klein
Attorney Docket Number:	2104-052-US
Filed as Small Entity	
Filing Fees for U.S. National Stage under 35 USC 371	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
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Claims:				
Claims in excess of 20	2615	17	40	680
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**680**

Electronic Acknowledgement Receipt	
EFS ID:	25018166
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	25-FEB-2016
Filing Date:	13-AUG-2015
Time Stamp:	12:01:55
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$680
RAM confirmation Number	14808
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	30808 8dcbc6d01222e3d98867efd2250af1498f2a7288	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	30808

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/767,606	Filing Date 08/13/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/25/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 37	Minus	** 20	= 17	X $40 =	680
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**680**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LDRC
/LYNN NELSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/767,606	08/13/2015		1340	2104-052-US	20	2

CONFIRMATION NO. 7885

32964
DEKEL PATENT LTD., DAVID KLEIN
BEIT HAROF'IM
18 MENUHA VENAHALA STREET, ROOM 27
REHOVOT, 76209
ISRAEL

FILING RECEIPT

Date Mailed: 02/02/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Benjamin Firooz Ghassabian, Jerusalem, ISRAEL;

Applicant(s)

KEYLESS SYSTEMS LTD., Jerusalem, ISRAEL

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/US2014/016777 02/18/2014
which claims benefit of 61/765,751 02/17/2013
and claims benefit of 61/766,747 02/20/2013
and claims benefit of 61/769,285 02/26/2013
and claims benefit of 61/772,066 03/04/2013
and claims benefit of 61/774,605 03/08/2013
and claims benefit of 61/777,102 03/12/2013
and claims benefit of 61/778,888 03/13/2013
and claims benefit of 61/802,690 03/17/2013
and claims benefit of 61/803,456 03/20/2013
and claims benefit of 61/804,681 03/24/2013
and claims benefit of 61/810,805 04/11/2013
and claims benefit of 61/811,756 04/14/2013
and claims benefit of 61/813,271 04/18/2013
and claims benefit of 61/814,290 04/21/2013
and claims benefit of 61/819,598 05/05/2013
and claims benefit of 61/821,331 05/09/2013
and claims benefit of 61/822,934 05/14/2013
and claims benefit of 61/823,971 05/16/2013

and claims benefit of 61/825,049 05/19/2013
and claims benefit of 61/827,020 05/24/2013
and claims benefit of 61/830,114 06/02/2013
and claims benefit of 61/833,512 06/11/2013
and claims benefit of 61/833,991 06/12/2013
and claims benefit of 61/834,889 06/14/2013
and claims benefit of 61/835,704 06/17/2013
and claims benefit of 61/837,662 06/21/2013
and claims benefit of 61/838,288 06/23/2013
and claims benefit of 61/838,403 06/24/2013
and claims benefit of 61/841,360 06/30/2013 ABN
and claims benefit of 61/843,391 07/07/2013
and claims benefit of 61/846,030 07/14/2013
and claims benefit of 61/858,210 07/25/2013
and claims benefit of 61/860,396 07/31/2013
and claims benefit of 61/865,254 08/13/2013
and claims benefit of 61/866,119 08/15/2013
and claims benefit of 61/868,172 08/21/2013
and claims benefit of 61/869,722 08/25/2013
and claims benefit of 61/875,192 09/09/2013
and claims benefit of 61/878,695 09/17/2013
and claims benefit of 61/879,152 09/18/2013
and claims benefit of 61/882,160 09/25/2013
and claims benefit of 61/893,291 10/21/2013
and claims benefit of 61/899,240 11/03/2013
and claims benefit of 61/902,242 11/10/2013
and claims benefit of 61/908,122 11/24/2013
and claims benefit of 61/908,248 11/25/2013
and claims benefit of 61/913,472 12/09/2013
and claims benefit of 61/920,572 12/24/2013
and claims benefit of 61/926,474 01/13/2014
and said PCT/US2014/016777
claims benefit of 61/927,039 01/14/2014
and claims benefit of 61/929,187 01/20/2014
and claims benefit of 61/931,633 01/26/2014
and claims benefit of 61/937,545 02/09/2014

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 02/01/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/767,606**

Projected Publication Date: 05/12/2016

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

DATA ENTRY SYSTEMS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: Yes

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/767,606

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	140		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	240		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			600			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1340		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED INVENTOR	ATTY. DOCKET NO.
14/767,606	Benjamin Firooz Ghassabian	2104-052-US

32964
DEKEL PATENT LTD., DAVID KLEIN
BEIT HAROF'IM
18 MENUHA VENAHALA STREET, ROOM 27
REHOVOT, 76209
ISRAEL

INTERNATIONAL APPLICATION NO.	
PCT/US2014/016777	
I.A. FILING DATE	PRIORITY DATE
02/18/2014	02/17/2013

CONFIRMATION NO. 7885
371 ACCEPTANCE LETTER

OC000000080260093

Date Mailed: 02/02/2016

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office, in its capacity as a Designated / Elected Office (37 CFR 1.495), has ACCEPTED the above identified international application for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above. A Filing Receipt will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE or 371(c) DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1) and (c)(2) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN BELOW.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363)

08/13/2015
DATE OF RECEIPT OF 35 U.S.C.
371(c)(1) and (c)(2) REQUIREMENTS

The following items have been received:

- Indication of Small Entity Status
- Copy of the International Application filed on 08/13/2015
- Copy of the International Search Report filed on 08/13/2015
- Preliminary Amendments filed on 08/13/2015
- Information Disclosure Statements filed on 08/13/2015
- Inventor's Oath or Declaration filed on 08/13/2015
- Request for Immediate Examination filed on 08/13/2015
- U.S. Basic National Fees filed on 08/13/2015
- Priority Documents filed on 08/13/2015
- Specification filed on 08/13/2015
- Claims filed on 08/13/2015
- Abstracts filed on 08/13/2015
- Drawings filed on 08/13/2015

FORM PCT/DO/EO/903 (371 Acceptance Notice)

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

KAREN R MCLEAN

Telephone: (571) 272-9093

FORM PCT/DO/EO/903 (371 Acceptance Notice)

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

Substitute for Form PTO-1360
(For use with Form PTO/SB/06)

Application Number	Filing Date
14767606	

Applicant(s) Benjamin Ghassabian

* May be used for additional claims or amendments

CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT	
	Indep	Depend	Indep	Depend	Indep	Depend
1	1		---	---		
2		1	---	---		
3		1	---	---		
4		1	---	---		
5		1	---	---		
6		5	---	---		
7		1	---	---		
8		1	---	---		
9		1	---	---		
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17		1	---	---		
18		(1)	---	---		
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Total Indep	3		2		0	
Total Depend	33	↵	18	↵	0	↵
Total Claims	36		20		0	

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Commissioner for Patents
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Alexandria, VA 22313-1450
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MAILED
JAN 15 2016
OFFICE OF PETITIONS

DEKEL PATENT LTD., DAVID KLEIN
BEIT HAROF'IM
18 MENUHA VENAHALA STREET, ROOM 27
REHOVOT 76209 IL ISRAEL

In re Application of	:	
Ghassabian, Benjamin Firooz	:	DECISION ON PETITION
Application No. 14/767,606	:	TO MAKE SPECIAL UNDER
Filed: August 13, 2015	:	37 CFR 1.102(c)(1)
Attorney Docket No. 2104-052GHA-US	:	

This is a decision on the petition under 37 CFR 1.102(c)(1), filed November 09, 2015 to make the above-identified application special based on applicant's age as set forth in M.P.E.P. § 708.02, Section II.

The petition is **GRANTED**.

A grantable petition to make an application special under 37 CFR 1.102(c)(1) and MPEP § 708.02, Section II: Applicant's Age must be accompanied by evidence showing that at least one of the applicants is 65 years of age, or more, such as a birth certificate or a statement by applicant. No fee is required

The instant petition includes a statement from the attorney of record declaring that he is in possession of such evidence that proves the applicant, Benjamin Firooz Ghassabian, is 65 years of age or older. Accordingly, the above-identified application has been accorded "special" status.

Telephone inquiries concerning this decision should be directed to the undersigned at 571-272-0593. All other inquiries concerning either the examination or status of the application should be directed to the Technology Center.

This application is being referred to the Office of Patent Application Processing for further pre-examination processing. Thereafter, the application will be referred to a Technology Center for action on the merits commensurate with the decision.

/DeTya Flowers/
DeTya Flowers
Petitions Paralegal Specialist
Office of Petitions

Doc code : PET.OP.AGE
Description : Petition to make special based on Age/Health

PTO/SB/130 (07-09)
Approved for use through 07/31/2012. OMB 0651- 0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

PETITION TO MAKE SPECIAL BASED ON AGE FOR ADVANCEMENT OF EXAMINATION UNDER 37 CFR 1.102(c)(1)

Application Information

Application Number	14767606	Confirmation Number	7885	Filing Date	2015-08-13
Attorney Docket Number (optional)	2104-052-US	Art Unit		Examiner	
First Named Inventor	Benjamin Firooz Ghassabian				
Title of Invention	IMPROVED DATA ENTRY SYSTEMS				

Attention: Office of Petitions

An application may be made special for advancement of examination upon filing of a petition showing that the applicant is 65 years of age, or more. No fee is required with such a petition. See 37 CFR 1.102(c)(1) and MPEP 708.02 (IV).

APPLICANT HEREBY PETITIONS TO MAKE SPECIAL FOR ADVANCEMENT OF EXAMINATION IN THIS APPLICATION UNDER 37 CFR 1.102(c)(1) and MPEP 708.02 (IV) ON THE BASIS OF THE APPLICANT'S AGE.

A grantable petition requires one of the following items:
(1) Statement by one named inventor in the application that he/she is 65 years of age, or more; or
(2) Certification by a registered attorney/agent having evidence such as a birth certificate, passport, driver's license, etc. showing one named inventor in the application is 65 years of age, or more.

Name of Inventor who is 65 years of age, or older

Given Name	Middle Name	Family Name	Suffix
Benjamin	Firooz	Ghassabian	

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18.
Please see 37 CFR 1.4(d) for the format of the signature.

Select (1) or (2) :

○ (1) I am an inventor in this application and I am 65 years of age, or more.

◉ (2) I am an attorney or agent registered to practice before the Patent and Trademark Office, and I certify that I am in possession of evidence, and will retain such in the application file record, showing that the inventor listed above is 65 years of age, or more.

Signature	/David Klein/	Date (YYYY-MM-DD)	2015-11-09
Name	David Klein	Registration Number	41118

PTO/SB/130 (07-09)
Approved for use through 07/31/2012. OMB 0651- 0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Fr eedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about indivi duals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

NOM GHASSABIAN

Prénoms FLORENCE

Né le 02-12-1950
à MECHAD
IRAN

NATIONALITÉ FRANÇAISE

Taille 1m61
Signes particuliers Néant

Signature du titulaire

Domicile 3 bis RUE KACHANI
69100 TEL-AVIV
EL

Fait le 15 avril 1992
par TEL AVIV

Le Vice-Consul
Chef de Chancellerie
S. [illegible]

Electronic Acknowledgement Receipt	
EFS ID:	24020903
Application Number:	14767606
International Application Number:	
Confirmation Number:	7885
Title of Invention:	IMPROVED DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052GHA-US
Receipt Date:	09-NOV-2015
Filing Date:	
Time Stamp:	11:51:41
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition to make special based on Age/ Health	2104-052_petitionagesb130.pdf	67482 bc0943338980f6001ab79415482c65ae65ba501c	no	2
Warnings:					
Information:					

2	Miscellaneous Incoming Letter	2104-052_passport.pdf	452620 aa5af0291136de52264e8a44f04bc779e14f34e1	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	520102	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO-1390 (06-13)
Approved for use through 6/30/2013. OMB 0651-0021
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371

Attorney Docket No.	
2104-052-US	
U.S. Application No. (if known, see 37 CFR 1.5)	

International Application No.	International Filing Date	Priority Date Claimed
PCT/US2014/016777	18 February 2014	17 February 2013

Title of Invention
IMPROVED DATA ENTRY SYSTEMS

First Named Inventor
Benjamin Firooz Ghassabian

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☑ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). NOTE: The express request under 35 U.S.C. 371(f) will not be effective unless the requirements under 35 U.S.C. 371(c)(1), (2), and (4) for payment of the basic national fee, copy of the International Application and English translation thereof (if required), and the oath or declaration of the inventor(s) have been received.
2. ☐ A copy of the International Application (35 U.S.C. 371(c)(2)) is attached hereto (not required if the International Application was previously communicated by the International Bureau or was filed in the United States Receiving Office (RO/US)).
3. An English language translation of the International Application (35 U.S.C. 371(c)(2))
   a. ☐ is attached hereto.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
4. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4))
   a. ☑ is attached.
   b. ☐ was previously filed in the international phase under PCT Rule 4.17(iv).

Items 5 to 8 below concern amendments made in the international phase.

PCT Article 19 and 34 amendments

5. ☐ Amendments to the claims under PCT Article 19 are attached (not required if communicated by the International Bureau) (35 U.S.C. 371(c)(3)).
6. ☐ English translation of the PCT Article 19 amendment is attached (35 U.S.C. 371(c)(3)).
7. ☐ English translation of annexes (Article 19 and/or 34 amendments only) of the International Preliminary Examination Report is attached (35 U.S.C. 371(c)(5)).

Cancellation of amendments made in the international phase

8a. ☐ Do not enter the amendment made in the international phase under PCT Article 19.

8b. ☐ Do not enter the amendment made in the international phase under PCT Article 34.

NOTE: A proper amendment made in English under Article 19 or 34 will be entered in the U.S. national phase application absent a clear instruction from applicant not to enter the amendment(s).

The following items 9 to 17 concern a document(s) or information included.

9. ☑ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
10. ☑ A preliminary amendment.
11. ☐ An Application Data Sheet under 37 CFR 1.76.
12. ☐ A substitute specification. NOTE: A substitute specification cannot include claims. See 37 CFR 1.125(b).
13. ☑ A power of attorney and/or change of address letter.
14. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13*ter*.3 and 37 CFR 1.821-1.825.
15. ☑ Assignment papers *(cover sheet and document(s))*. Name of Assignee: Keyless Systems Ltd.
16. ☐ 37 CFR 3.73(c) Statement *(when there is an Assignee)*.

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

PTO-1390 (06-13)
Approved for use through 6/30/2013. OMB 0651-0021
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

U.S. APPLN. No. (if known – see 37 CFR 1.5)	INTERNATIONAL APPLICATION No.	ATTORNEY DOCKET No.
	PCT/US2014/016777	2104-052-US

17. ☐ Other items or information:

The following fees have been submitted.	CALCULATIONS	PTO USE ONLY
18. ☑ Basic national fee (37 CFR 1.492(a)) **$280**	$ 280	
19. ☑ Examination fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) ..... **$0** All other situations **$720**	720 $	
20. ☑ Search fee (37 CFR 1.492(b)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) ..... **$0** Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority ..... **$120** International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB ..... **$480** All other situations **$600**	480 $	
TOTAL OF 18, 19, and 20 =	$ 1480	
☑ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). Fee for each additional 50 sheets of paper or fraction thereof **$400**	1200 $	

Total Sheets	Extra Sheets	Number of each addition 50 or fraction thereof (round **up** to a whole number)	RATE
218 - 100 =	/ 50 =	3	x **$400**

Surcharge of **$140.00** for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).	$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	- 20 =		x **$80**	$	
Independent claims	- 3 =		x **$420**	$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$780**	$	
Processing fee of **$140.00** for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).			+	$	
TOTAL OF ABOVE CALCULATIONS =				$ 2680	
☑ **Applicant asserts small entity status.** See 37 CFR 1.27. Fees above are reduced by ½.					
☐ **Applicant certifies micro entity status.** See 37 CFR 1.29. Fees above are reduced by ¾. Applicant must attach form PTO/SB/15A or B or equivalent.					
TOTAL NATIONAL FEE =				$ 1340	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property.			+	$	
TOTAL FEES ENCLOSED =				$ 1340	
				Amount to be refunded:	$
				Amount to be charged:	$

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $_____ to cover the above fees.

c. ☐ The Director is hereby authorized to charge additional fees which may be required, or credit any overpayment, to Deposit Account No. _____ as follows:

i. ☐ any required fee.

ii. ☐ any required fee except for excess claims fees required under 37 CFR 1.492(d) and (e) and multiple dependent claim fee required under 37 CFR 1.492(f).

d. ☑ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

ADVISORY: If filing by EFS-Web, do **NOT** attach the PTO-2038 form as a PDF along with your EFS-Web submission. Please be advised that this is **not** recommended and by doing so your **credit card information may be displayed via PAIR**. To protect your information, it is recommended to pay fees online by using the electronic payment method.

NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File)Transition Applications

☑ This application (1) claims priority to or the benefit of an application filed before March 16, 2013, and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE 1: By providing this statement under 37 CFR 1.55 or 1.78, **this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA**.

NOTE 2: A U.S. national stage application may not claim priority to the international application of which it is the national phase. The filing date of a U.S. national stage application is the international filing date. See 35 U.S.C. 363.

Correspondence Address

☑ The address associated with Customer Number: 32964 **OR** ☑ Correspondence address below

Name	Dekel Patent Ltd.				
Address	18 Menuha VeNahala Street				
City	Rehovot	State		Zip Code	
Country	Israel			Telephone	
Email	dekelltd@netvision.net.il				

Signature	/David Klein/	Date	13 August 2015
Name (Print/Type)	David Klein	Registration No. (Attorney/Agent)	41118

Privacy Act Statement

The **Privacy Act of 1974** (**P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Application No.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant	:	Benjamin Firooz Ghassabian
Appl. No.	:	
Filed	:	
Title	:	IMPROVED DATA ENTRY SYSTEMS
Group Art Unit:		
Examiner	:	
Docket No.	:	2104-052-US
Confirmation No.:		

Honorable Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Kindly amend the above-identified application as follows:

In the claims:

1-32. (Canceled)
33. (New) A data entry system comprising:
a device having a touch sensitive surface;
a virtual keyboard positioned on said touch sensitive surface wherein said keyboard has a number of rows of keys wherein each row of keys includes a plurality of letter keys; and
a word predictive system;
wherein upon providing a sequence of one or more interactions with the letter keys the data entry system predicts one or more words from a database of words, and
wherein said word predictive system ambiguously relates each interaction with the letter key to said letter key or to another letter key from the corresponding row of letter keys to predict a first word, and
wherein the system includes a correction system to ambiguously relate at least one of said interactions with the letter keys to a letter key from a row of the letter keys other than the interacted row of letter keys to predict a second word.
34. (New) The system of claim 33, wherein the system prioritizes said first word over said second word to present said words.
35. (New) The system of claim 33, wherein the system ambiguously relates an interaction with a row of the keyboard to any of the letter keys of said row to predict said first word.
36. (New) The system of claim 33, wherein the system ambiguously relates an interaction with a row of the keyboard to any of the letter keys of said row near an interacted point to predict said first word.
37. (New) The system of claim 33, wherein said touch sensitive surface is a touch screen.
38. (New) The system of claim 33, wherein an area around a letter printed on a row of the keyboard defines a letter key corresponding to said letter.
39. (New) The system of the claim 33, wherein the letter keys of each row of keys are configured similar to the letter keys of a traditional keyboard of a computer.
40. (New) The system of the claim 33, wherein the letter keys are configured similar to at least one of a QWERTY, a QWERTZ or an AZERTY keyboard.
41. (New) The system of claims 33, wherein the row of letter keys is divided into at least two zones wherein each zone includes a number of said letter keys.
42. (New) The system of claim 33, wherein said keyboard is a QWERTY keyboard and wherein each of the group of letter keys "Q, W, E, R", "A, S, D, F" and "Z, X, C, V" belongs to a different zone.
43. (New) The system of claim 33, wherein said first word is one or more words, and said second word is one or more words.
44. (New) The system of claim 33, wherein said rows of keys are horizontal.
45. (New) A method of presenting words in a data entry system comprising;
receiving a sequence of one or more interaction signals from a keyboard having a number of rows of letter keys;
ambiguously relating each of said interaction signals to a letter of the corresponding row of keys of the keyboard;
predicting a first word from a database of words;
further relating at least one of said interaction signals to a letter from a row of keys other than the row of keys being interacted;
predicting a second word from a database of words;
prioritizing said a first word over said a second word for presentation.
46. (New) The method of claim 45, comprising receiving said interaction signals from a traditional on-screen keyboard.
47. (New) The method of claim 45, comprising relating an interaction signal to any of the

letters of the interacted row of keys to predict said a first word.

48. (New) The method of claim 45, comprising relating an interaction signal to any of the letters of said row of keys near an interacted location on said row of keys to predict said a first word.

49. (New) The method of claim 45, comprising a keyboard wherein a row of the keyboard is divided into more than one zone, each zone including a number of letters keys of said row, wherein an interaction with a row of keys is ambiguously related to ant of the letter keys of said zone.

50. (New) The system of claim 45, wherein an area around a letter printed on a row of the keyboard defines a letter key corresponding to said letter.

51. (New) The system of claim 45, wherein said first word is one or more words, and said second word is one or more words.

52. (New) The system of claim 45, wherein said rows of keys are horizontal.

Samsung Exhibit 1005, Page 187 of 439

REMARKS

The present amendment is intended to place the application in better condition for examination. No new matter has been added.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

DEKEL PATENT LTD.

BY ____/David Klein/_____

David Klein, Patent Agent
Reg. No. 41,118
Tel +972-8-949-5334
Fax +972-8-949-5323
E-mail: dekelltd@netvision.net.il

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As below named inventors, we hereby declare that:

Our residence, post office address and citizenship are as stated below under our names.

We believe that we are the original, first and sole inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled

IMPROVED DATA ENTRY SYSTEMS

the Specification of which

X is attached hereto
was filed on
as Application Serial No. _____
and was amended on _____ (if applicable).

We hereby state that we have reviewed and understand the contents of the above-identified Specification, including the claims, as amended by any amendment referred to above.

The above-identified application was made or authorized to be made by the person executing the oath or declaration.

We acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, 1.56.

We hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or (f) of any provisional application filed in the United States in accordance with 35 U.S.C. §119(e), or any application for patent that has been converted to a Provisional Application within one (1) year of its filing date, or any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FILED APPLICATION(S)

Priority is claimed for all of the following patent applications:

APPLICATION NUMBER	COUNTRY	(DAY/MONTH/YEAR FILED)	PRIORITY CLAIMED
61/765,751	17 February 2013 (17.02.2013)	US	
61/766,747	20 February 2013 (20.02.2013)	US	
61/769,285	26 February 2013 (26.02.2013)	US	
61/772,066	4 March 2013 (04.03.2013)	US	
61/774,605	8 March 2013 (08.03.2013)	US	
61/777,102	12 March 2013 (12.03.2013)	US	
61/778,888	13 March 2013 (13.03.2013)	US	
61/802,690	17 March 2013 (17.03.2013)	US	
61/803,456	20 March 2013 (20.03.2013)	US	
61/804,681	24 March 2013 (24.03.2013)	US	
61/810,805	11 April 2013 (11.04.2013)	US	
61/811,756	14 April 2013 (14.04.2013)	US	

61/813,271	18 April 2013 (18.04.2013)	US
61/814,290	21 April 2013 (21.04.2013)	US
61/819,598	5 May 2013 (05.05.2013)	US
61/821,331	9 May 2013 (09.05.2013)	US
61/822,934	14 May 2013 (14.05.2013)	US
61/823,971	16 May 2013 (16.05.2013)	US
61/825,049	19 May 2013 (19.05.2013)	US
61/827,020	24 May 2013 (24.05.2013)	US
61/830,114	2 June 2013 (02.06.2013)	US
61/833,512	11 June 2013 (11.06.2013)	US
61/833,991	12 June 2013 (12.06.2013)	US
61/834,889	14 June 2013 (14.06.2013)	US
61/835,704	17 June 2013 (17.06.2013)	US
61/837,662	21 June 2013 (21.06.2013)	US
61/838,288	23 June 2013 (23.06.2013)	US
61/838,403	24 June 2013 (24.06.2013)	US
61/841,360	30 June 2013 (30.06.2013)	US
61/843,391	7 July 2013 (07.07.2013)	US
61/846,030	14 July 2013 (14.07.2013)	US
61/858,210	25 July 2013 (25.07.2013)	US
61/860,396	31 July 2013 (31.07.2013)	US
61/865,254	13 August 2013 (13.08.2013)	US
61/866,119	15 August 2013 (15.08.2013)	US
61/868,172	21 August 2013 (21.08.2013)	US
61/869,722	25 August 2013 (25.08.2013)	US
61/875,192	9 September 2013 (09.09.2013)	US
61/878,695	17 September 2013 (17.09.2013)	US
61/879,152	18 September 2013 (18.09.2013)	US
61/882,160	25 September 2013 (25.09.2013)	US
61/893,291	21 October 2013 (21.10.2013)	US
61/899,240	3 November 2013 (03.11.2013)	US
61/902,242	10 November 2013 (10.11.2013)	US
61/908,122	24 November 2013 (24.11.2013)	US
61/908,248	25 November 2013 (25.11.2013)	US
61/913,472	9 December 2013 (09.12.2013)	US
61/920,572	24 December 2013 (24.12.2013)	US
61/926,474	13 January 2014 (13.01.2014)	US
61/927,039	14 January 2014 (14.01.2014)	US
61/929,187	20 January 2014 (20.01.2014)	US
61/931,633	26 January 2014 (26.01.2014)	US
61/937,545	9 February 2014 (09.02.2014)	US
PCT/US2014/016777	PCT	18 February 2014	YES

We hereby claim the benefit under Title 35, United States Code, §120 of any United States application listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in any prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, we acknowledge the duty to disclose material information as

defined in Title 37, Code of Federal Regulations, §1.56, which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NO.	FILING DATE (DAY/MONTH/YEAR)	STATUS - PATENTED, PENDING, ABANDONED

We hereby appoint as my agent David Klein (Agent, Registration No. 41,118) with full power of substitution and revocation to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Please address all correspondence regarding this application to:

David Klein
DEKEL PATENT LTD.
Beit HaRof'im
18 Menuha VeNahala Street, Room 27
REHOVOT ISRAEL

Direct all telephone calls to (972) 8-949-5334 and facsimiles to (972) 8-949-5323.

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF INVENTOR: Benjamin Firooz Ghassabian
ADDRESS: 12/6 Hadishon Street, Jerusalem 96956, Israel
COUNTRY OF CITIZENSHIP: Israel

SIGNATURE OF INVENTOR:
DATE: 13 August 2015

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	
	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2104-052-US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20100171700		2010-07-08	Sharan Santosh	
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FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	1906297	EP		2008-04-02	Research in Motion		☐
	2	2012/101636	WO		2012-08-02	Keyless Systems		☐
	3	03/085505	WO		2003-10-16	Edwin Ng		☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2104-052-US

	4	2011/158064	WO		2011-12-22	Nokia		☐
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T[5]
	1	PCT Search Report PCT/US2014/016777, 24 July 2014 mailing date						☐
If you wish to add additional non-patent literature document citation information please click the Add button Add								

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2015-08-13
	First Named Inventor	Benjamin Firooz Ghassabian
	Art Unit	
	Examiner Name	
	Attorney Docket Number	2104-052-US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David Klein/	Date (YYYY-MM-DD)	2015-08-13
Name/Print	David Klein	Registration Number	41118

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
KLEIN, David
18 Menuha VeNahala Street
76209 Rehovot
ISRAEL

INVITATION TO PAY ADDITIONAL FEES
AND, WHERE APPLICABLE, PROTEST FEE
(PCT Article 17(3)(a) and Rule 40.1 and 40.2(e))

Applicant's or agent's file reference 2104-052-PCT	Date of mailing *(day/month/year)* 24 July 2014 (24-07-2014)
	PAYMENT DUE within **ONE MONTH** from the above date of mailing
International application No. PCT/US2014/016777	International filing date *(day/month/year)* 18 February 2014 (18-02-2014)
Applicant KEYLESS SYSTEMS LTD.	

1. This International Searching Authority

(i) considers that there are 2 *(number of)* inventions claimed in the international application covered by the claims indicated on an extra sheet:

(ii) therefore considers that **the international application does not comply with the requirements of unity of invention** (Rules 13.1, 13.2 and 13.3) for the reasons indicated on an extra sheet:

(iii) [X] has carried out a partial international search (see Annex) [ ] will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:
see extra sheet

(iv) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid.

2. Consequently, the applicant is hereby **invited to pay,** within the time limit indicated above, the amount indicated below:

EUR 1.875,00	x	1	=	EUR 1.875,00
Fee per additional invention		number of additional inventions		currency/total amount of additional fees

3. The applicant is informed that, according to Rule 40.2(c), **the payment of any additional fee may be made under protest,** i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive, where applicable, subject to the payment of a protest fee.
Where the applicant pays additional fees under protest, the applicant is hereby invited, within the time limit indicated above, to pay a protest fee (Rule 40.2(e)) in the amount of EUR 865,00 *(currency/amount)*

Where the applicant has not, within the time limit indicated above, paid the required protest fee, the protest will be considered not to have been made and the International Searching Authority will so declare.

4. [X] Claim(s) Nos. see extra sheet have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	GOLZE, Doreen Tel: +49 (0)30 25901-704

Form PCT/ISA/206 (April 2005)
Registered Mail

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 206

Continuation of Box 4.

Claims Nos.: 22-32

Claims Nos.: 1, 4

1 Claims 1 and 4 of the present application do not meet the requirements of Article 6 PCT to such an extent that a meaningful search is possible only to a limited extent, see Article 17(2)(a) PCT.

1.1 In claim 1, the expression "wherein the system further comprises a word predictive system so that (sic) to predict a word upon receiving a sequence of key interactions" amounts to define the feature of a word predictive system by the result it is supposed to achieve. This renders the intended scope of protection, and therefore of the search, difficult, if not impossible, to ascertain.

Moreover, the description contains several jargon expressions, like "spell help system", "semi-ambiguous system", "fully-predictive and/or semi-predictive mode", "auto-correction system", which cast doubt upon the extent and the nature of the prediction that is achieved by these systems. This renders the intended scope of protection even harder to understand.

In order to establish the International Search Report, the International Search Authority relied on an embodiment which discloses more closely how the prediction is carried out, namely page 62, line 29 to page 63, line 18.

1.2 In claim 4, the expression "slightly modified QWERTY layout order" does not make any sense. In particular, the word "slightly" is vague and indefinite and therefore renders the extent of modifications unclear. It is unclear whether a German or a French layout (respectively QWERTZ and AZERTY) could be seen as "slightly modified" versions of the QWERTY layout.

For the sake of the search, the ISA interpreted this expression as meaning that the keyboard is presented in a layout differing from the standard by the arrangement of several letters.

2 Claims 22 to 32 of the present application do not meet the requirements of Article 6 PCT to such an extent that a meaningful search not possible.

Claim 22 comprises the definition that "said zones are delimited such that (sic) to augment the accuracy of the predictive system without deforming the keyboard".

Such a definition amounts to define a feature by the result to be achieved, namely enhancing the accuracy of prediction. However, the application does not disclose which of the numerous embodiments of the invention actually allow to enhance the accuracy of the predictive system. This feature is even harder to define due to the fact that the application discloses numerous prediction algorithms, which would not necessarily exhibit the same effects in terms of accuracy of prediction.

Therefore, the ISA could not figure out which concrete embodiments would correspond to the claimed subject-matter. The same applies to claims 23 to 32. Therefore, this subject-matter could not be searched.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 206

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.

INVITATION TO PAY ADDITIONAL FEES

International application No.
PCT/US2014/016777

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

1. claims: 1-12

A data entry system comprising:
- a plurality of keys wherein five of said keys represent all of the letters of an alphabet;
- wherein said five keys are arranged such that to form two to three rows of keys;
- wherein a first row includes two of said five keys and a second row includes at least two other keys of said five keys;
- and wherein the system further comprises a word predictive system so that to predict a word upon receiving a sequence of key interactions.

---

2. claims: 13-21

A data entry system comprising:
- a virtual content, and a chain of characters
- wherein upon providing a gesture in a desired direction, the system positions the chain of characters in said direction on the virtual content.

---

1 The only feature common to the first and second inventions is a generic data entry system, which can not be considered to constitute a "special technical feature" (STF) of the invention in the sense of Rule 13.2 PCT.

2 The following technical feature of claim 1 can be seen to make a contribution over the above teaching of D1 and is therefore considered to be a "special technical feature" (STF) of the invention in the sense of Rule 13.2 PCT:
- a plurality of keys wherein five of said keys represent all of the letters of an alphabet, wherein said five keys are arranged such that to form two to three rows of keys.
The objective technical problem to be solved by this STF may be seen as how to reduce the size of a keypad.

3 Likewise, the STF of the second invention is:
- upon providing a gesture in a desired direction, the system positions the chain of characters in said direction on the virtual content.
The objective technical problem to be solved by this STF may be seen as how to change a property of a chain of characters.

4 Thus, the claims mentioned above do not present a single common STF, nor are these STF's corresponding ones, since they do not solve a single common objective problem which is new and inventive. Therefore, the technical relationship required by Rule 13.2 PCT is not present between these groups of claims.

Annex to Form PCT/ISA/206
COMMUNICATION RELATING TO THE RESULTS OF THE PARTIAL INTERNATIONAL SEARCH

International Application No
PCT/US2014/016777

1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
see 'Invitation to pay additional fees'
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.

3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.

4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 906 297 A1 (RESEARCH IN MOTION LTD [CA]) 2 April 2008 (2008-04-02)	1-10
Y	paragraph [0009]; claim 1 paragraphs [0023] - [0035]; figures 5A-5E,6 paragraph [0054]	11,12

Y	WO 2012/101636 A2 (KEYLESS SYSTEMS LTD [IL]; GHASSABIAN BENJAMIN FIROOZ [IL]) 2 August 2012 (2012-08-02)	11,12
A	page 10, paragraph 1 page 11, paragraph 3; figure 101A	1

X	WO 03/085505 A1 (NG EDWIN [SG]; OH JOO SENG [SG]; TAN CHIN FOO [SG]) 16 October 2003 (2003-10-16) page 13, paragraph 2 page 16 - page 17; figure 1 page 29, paragraph 2 - page 32, paragraph 2	1-12

X	WO 2011/158064 A1 (NOKIA CORP [FI]; COLLEY ASHLEY [FI]; LUOMALA PETRI JUHANI [FI]) 22 December 2011 (2011-12-22) paragraphs [0035] - [0041]; figure 2	1-12

X	US 2010/171700 A1 (SHARAN SANTOSH [US] ET AL) 8 July 2010 (2010-07-08) paragraphs [0041] - [0045]; figure 8	1-12

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° 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 document 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

1

Patent Family Annex

Information on patent family members

International Application No
PCT/US2014/016777

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1906297 A1	02-04-2008	CA 2604369 A1	27-03-2008
		EP 1906297 A1	02-04-2008
WO 2012101636 A2	02-08-2012	EP 2668554 A2	04-12-2013
		WO 2012101636 A2	02-08-2012
WO 03085505 A1	16-10-2003	AU 2003225458 A1	20-10-2003
		CA 2481498 A1	16-10-2003
		CN 1678975 A	05-10-2005
		EP 1497710 A1	19-01-2005
		JP 2005521969 A	21-07-2005
		KR 20040107488 A	20-12-2004
		NZ 536209 A	31-08-2006
		SG 125895 A1	30-10-2006
		US 2003193478 A1	16-10-2003
		WO 03085505 A1	16-10-2003
WO 2011158064 A1	22-12-2011	NONE	
US 2010171700 A1	08-07-2010	NONE	

European Patent Organisation

Account details

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BIC: DRESDEFF

BNSDOCID: <XS_____200704010CR_I_>

Electronic Patent Application Fee Transmittal	
Application Number:	
Filing Date:	
Title of Invention:	IMPROVED DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Filer:	David L. Klein
Attorney Docket Number:	2104-052-US
Filed as Small Entity	

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Basic National Stage Fee	2631	1	140	140
Natl Stage Search Fee - Report provided	2642	1	240	240
Natl Stage Exam Fee - all other cases	2633	1	360	360
Pages:				
Natl Stage Appl Sz fee per 50 pgs >100	2681	3	200	600
Claims:				
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		1340

Electronic Acknowledgement Receipt	
EFS ID:	23196389
Application Number:	14767606
International Application Number:	PCT/US2014/016777
Confirmation Number:	7885
Title of Invention:	IMPROVED DATA ENTRY SYSTEMS
First Named Inventor/Applicant Name:	Benjamin Firooz Ghassabian
Customer Number:	32964
Filer:	David L. Klein
Filer Authorized By:	
Attorney Docket Number:	2104-052-US
Receipt Date:	13-AUG-2015
Filing Date:	
Time Stamp:	09:02:22
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1340
RAM confirmation Number	9666
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The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	2104-052-transmittal-pto-1390.pdf	219621 8086e7d9206585c8f90599528950d6b46466dbe5	no	4
Warnings:					
Information:					
2	Preliminary Amendment	2104-52_prelim_usr.pdf	31961 ba54911544308813 2d3d7f04f558dbfb6bab4e0d	no	4
Warnings:					
Information:					
3	Oath or Declaration filed	2104-052_Declaration.pdf	70866 1bc271b49f5ce0ed8b053529bfe80005d7ba352b	no	3
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	2104-052-IDS.pdf	612277 8ffe49a1539ff495d3b6c2952dcdba10d7c709c7	no	4
Warnings:					
Information:					
5	Foreign Reference	PCT_Search_Report.pdf	285672 5aea65c51e3d71bfc8bc2506825362a3d3cb91c6	no	7
Warnings:					
Information:					
6	Foreign Reference	2104-052-EP1906297A1.pdf	1494398 0b633e74a855530ffa265c5c71f0bf8e95b151d0	no	27
Warnings:					
Information:					
7	Foreign Reference	2104-052-WO2012101636A2.pdf	5702866 614db58d5bea954fcce1b2e9fd17fdec15932b24	no	98
Warnings:					
Information:					

8	Foreign Reference	2104-052-WO03085505A1.pdf	3039279 2f43684cf8fbec5c9121f7897e2a27028946d250	no	89
Warnings:					
Information:					
9	Foreign Reference	2104-052-WO2011158064A1.pdf	1343584 4a6923b3cfbf9bdd7be20f03774d29f6f6ce8604	no	41
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	37103 bd9847fa699c79d497c25b71094f4e7889cf8ca0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	12837627		

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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 August 2014 (21.08.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/127337 A2

(51) International Patent Classification:
G06F 3/023 (2006.01)

(21) International Application Number:
PCT/US2014/016777

(22) International Filing Date:
18 February 2014 (18.02.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/765,751	17 February 2013 (17.02.2013)	US
61/766,747	20 February 2013 (20.02.2013)	US
61/769,285	26 February 2013 (26.02.2013)	US
61/772,066	4 March 2013 (04.03.2013)	US
61/774,605	8 March 2013 (08.03.2013)	US
61/777,102	12 March 2013 (12.03.2013)	US
61/778,888	13 March 2013 (13.03.2013)	US
61/802,690	17 March 2013 (17.03.2013)	US
61/803,456	20 March 2013 (20.03.2013)	US
61/804,681	24 March 2013 (24.03.2013)	US
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[Continued on next page]

(54) Title: IMPROVED DATA ENTRY SYSTEMS

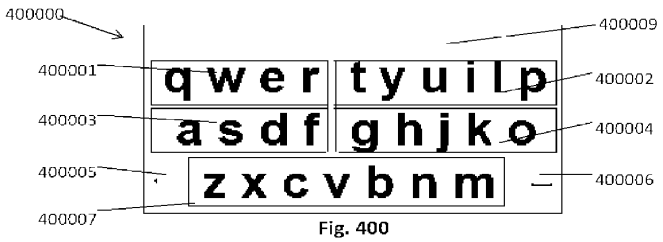

Fig. 400

(57) Abstract: A system is described with a plurality of keys, five of the keys representing all of the letters of an alphabet. The five keys are arranged to form two to three rows of keys. A first row includes two of the five keys and a second row includes at least two other keys of the five keys. The keys are hard keys and/or virtual keys.

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IMPROVED DATA ENTRY SYSTEMS

FIELD OF THE INVENTION

The present invention relates to data input systems and particularly systems and methods for entering letters, words, other symbols and/or other information. The present invention also relates to a method of social interaction by texting on virtual content(s) such as a picture or a video.

BACKGROUND OF THE INVENTION

Mobile devices including cellular phones, personal digital aids and miniature computers are widely used as they are easily carried around and can perform many tasks. One problem of mobile device(s) is text entry, which is problematic due to their small size of a device. One solution for text entry in mobile devices is using a limited key set in which at least some of the keys are ambiguously associated with a plurality of letters. Upon receiving a sequence of key strokes, a word predictive system proposes a word of a dictionary/database. If the system does not propose the desired word, the system proposes other words. The problem of such system is that when a word is not in the database the user must use another method of text entry.

Another problem of mobile devices is entering symbols other than letters.

With the emergence of devices having touch screens, on screen full (e.g. QWERTY) keyboard systems are used on most devices. Due to the size of mobile devices, and the number of keys of a full keyboard, such keys are reduced in size rendering the keyboard cumbersome and the data entry slow. The screen of a device is intended to display the output. Having a full keyboard with many keys on the screen covers a significant portion of the screen, hindering the use of many current applications and limiting creation of many other applications.

A real mobile data entry system must be mobile, enabling to enter data in any environment such as while standing, walking, in the dark, etc. In addition, such system must preferably free the screen from an interface that occupies a large portion of the screen.

SUMMARY OF THE INVENTION

The data entry system, described in this application, provides a system that is adapted to mobile environments. It is also intuitive, accurate, fast, and easy to understand and use.

An aspect of some embodiments of the invention relates to an input interface adapted to identify user interactions and to associate at least some of the user interactions with different types of input signals. Optionally, some of said input signals are together associated with all the letters of a language such as the Latin/Roman alphabet or a phonetic alphabet.

An aspect of the inventions relates to an input interface (e.g. herein may be referred to as a keyboard) having a few input means (e.g. herein may be referred to as keys/zones) adapted to relate an input signal received by interaction with an input means to an unambiguous character (e.g. herein such an input signal may be referred to as unambiguous/identified input signal, and such a

character may be referred to as identified/precise character) and/or to ambiguously relate said interaction to any of a group of characters assigned to said input means (e.g. herein such an input signal may be referred to as ambiguous input signal, and such a character may be referred to as ambiguous character).

An aspect of some embodiments of the invention relates to an input interface (e.g. hereafter may be referred to as keypad/keyboard) wherein (e.g. at least) a few number (e.g. 4 to 12) of its input means (e.g. hereafter, may be referred to as keys or zones on a touch sensitive surface such as a touchscreen) ambiguously and/or precisely represent more than one characters/letters. According to first method said a few number of keys together represent all of the letters of an alphabet. According to a second method, said a few number of keys together represent some of the letters of an alphabet (e.g. hereafter may be referred to as Preferred characters). The rest of the letters (e.g. hereafter may be referred to as Non-preferred characters) of said alphabet are represented by a key/zone outside said a few number of keys. For ease of description, herein, such a key of the/a keypad and interaction with it may be referred to as "narrowly ambiguous key/interaction" providing "narrowly ambiguous input signal", and said key/zone outside the keypad and interaction with it may be referred to as "broadly ambiguous key/interaction" providing "broadly ambiguous input signal". In some paragraphs herein, said zone may also/is referred to as "navigation zone".

An aspect of some embodiments of the invention relate to a procedure of assisting the user to correctly entering a word which may be mistyped by the user by assigning all of the characters (e.g. letters) of a language to the broadly ambiguous keys/interactions. This aspect herein may be referred to as Spelling Help feature.

Preferably, said a few number of keys are split to form two groups of keys. Preferably, said key/zone outside said a few number of keys is located between or below said split group of keys. Preferably, said keypad is a virtual keypad located on a touch sensitive surface. Optionally, said touch sensitive surface is a touch screen.

Preferably, said input interface is used with a word prediction system/software wherein upon/during providing a sequence of one or more interactions with the input interface, the system predicts one or more words from the corresponding entries of a database of words used by the system. A word predictive system/software predicting words as such is known by people skilled in the art and some of such software (e.g. T9, iTap, or auto correction software used with an on-screen QWERTY keyboard wherein an interaction with a key may ambiguously be related to said key and some of the surrounding keys because the keys are too small and the user may mispress a key) are implemented in a variety of mobile phones.

Optionally, a single letter may be assigned to more than one zone/key.

Preferably, the input interface further includes additional input means relating to symbols

and/or functions such as the space key sand the back space keys.

Optionally, to at least one of the input means more than one letter of a language is assigned such that a predefined interaction with the input means ambiguously and/or precisely corresponds one of the letters. In such case, herein, the system may be referred to as being in the Ambiguous Letter Mode.

An aspect of the inventions is related to a traditional keyboard wherein the letter are divided into few groups (e.g. 5 or 6) each assigned/represented by a different zone/key. Optionally, the keyboard has an alphabetical layout. Optionally, the keyboard has a traditional letter layout (e.g. QWERTY, QWERTZ). Preferably, (e.g. minor) modification to the layout is provided. Preferably, a different portion of the surface of a key/zone is assigned to an identified character. Preferably, interacting with a portion of a key/zone is related by the system to said identified letter and/or ambiguously to any of the letters assigned to said key/zone. Preferably, the background (e.g. color, shade, etc.) of a zone/key is different than the background of its adjacent key/zone.

Optionally, the keyboard can be switched from a large size to a small size or vice versa. Optionally, the system may be switched to a Precise Symbol Mode, wherein a predefined interaction with a key/zone may provide an individual precise/identified special character or function. The interface of the system in such mode may preferably be different than the interface in other modes. Preferably, special characters are divided into a plurality of groups (e.g. four to five groups) based on a common characteristic.

An aspect of some embodiments of the invention relates to an input system wherein a first predefined type of interaction with an input means ambiguously correspond to a first group of characters assigned to said input means, and wherein a second predefined type of interaction with the input means ambiguously correspond to a second group of characters assigned to said input means.

An aspect of some embodiments of the invention relates to an input system wherein a first predefined type of interaction with an input means ambiguously correspond to any character of a group of characters assigned to said input means, and wherein a second predefined type of interaction with an input means (precisely) correspond to an identified character assigned to said input means.

An aspect of the invention relates to an enhanced word predictive data entry system receiving input information in form of precise and/or ambiguous input signals to predict a (e.g. one or more) word. A precise input signal corresponds to an identified character in a character position in said word and an ambiguous signal corresponds to an ambiguous character in a different character position in said word.

An aspect of some embodiments of the invention relates to a data entry system using one or

more N-gram (e.g. N>0) database of words to predict a word.

An aspect of some embodiments of the invention relates to a first type of interactions (e.g. gliding actions) provided anywhere and/or on a virtual keypad on a touch sensitive surface to emulate a second type of interactions (e.g. tapping actions) with the keys of a virtual keypad (e.g. or keypad model).

An aspect of some embodiments of the invention relates to editing/entering text instantaneously in any direction on a virtual content such as a picture/video, and methods to share the (e.g. combined) content with others.

An aspect of some embodiments of the invention relates to commenting (e.g. writing text) in text box relating to a picture/video (e.g. shared or to be shared). For an edited video such comments may be time-stamped at any particular point in the video.

An aspect of the invention relates to creating and/or operating a virtual forum.

An aspect of some embodiments of the invention relates to the selecting/grabbing at least a portion of text (e.g. a word) to modify the said portion.

BRIEF DESCRIPTION OF FIGURES

Exemplary non-limiting embodiments of the invention will be described with reference to the following description of embodiments in conjunction with the figures. Identical structures, elements or parts which appear in more than one figure are preferably labeled with a same or similar number in all the figures in which they appear, in which:

Fig. 400-400B shows a keypad divided into several zones.

Fig. 440A-B shows a simplified keyboard.

Fig. 441A shows an image where portion(s) of it are selected by the user for editing purposes.

Fig. 441B shows an image where selected portion(s) of it have been edited, while other portion(s) of it remain unedited.

Fig. 442A shows a selected portion of an image where said portion is disabled for editing.

Fig. 443A shows an image that is partitioned into several portions.

Fig. 443B shows portions of an image that are edited, while the remaining portions are not edited.

Fig. 444 shows an example of a “wall” in a social application using image editing principles.

Fig. 444A shows several images that include information from the images' respective poster, having a small gap separating between the images.

Fig. 444B shows several images that include information from the images' respective poster, having no gap separating between the images to produce a single image.

Fig. 445 shows a portion of the wall that has the image of a wall which may be different from other portions of the wall.

Fig. 446 shows an image divided into five portions by means of drawing lines.

Fig. 446A-C shows a comment/post on various portions of image that is provided by a user.
Fig. 451 shows as an example of text/graphic messaging.
Fig. 452 shows a (e.g. compressed qwerty) keyboard.
Fig. 452A shows a (e.g. linear) one line keyboard of the invention.
Fig. 452B shows an arrangement of preferred letters assigned to a zone.
Fig. 452C shows two zones, including preferred letters, and a broadly ambiguous zone.
Fig. 452D shows an assignment/arrangement of letters to a (e.g. a larger) zone(s).
Fig. 453A-C shows various methods of arrangement of keys of a keypad.
Fig. 454A shows a keypad where the limits of the borders of the Space and Backspace keys are demarcated.
Fig. 455 shows a list of words relating to the semi-predictive mode.
Fig. 456 shows a list of words relating to the fully-predictive mode.
Fig. 457A shows four different types of relationships between preferred and non-preferred letters/characters.
Fig. 457B shows a key configuration for an example of a relationship between preferred and non-preferred letters/characters.
Figs. 458A to 459B show various examples of entering characters precisely during the entry of words and the corresponding words proposed by the system.
Fig. 460A shows a keypad with the non-preferred characters displayed in an enlarged zone.
Fig. 460B shows a keypad with the non-preferred characters arranged in four groups.
Fig. 460C shows a keypad where letter(s)/character(s) have related letter(s)/character(s).
Fig. 461A-B shows arrangement of special characters and/or functions on keys.
Fig. 462A-B shows an example of a keypad having a plurality keys on and/or next to which the preferred and non-preferred characters are arranged/presented.
Fig. 463A-D shows an example of keypads having a plurality keys with preferred and/or non-preferred characters on various key layouts.
Fig. 464 shows an example of a keypad.
Fig. 465 shows an arrangement of preferred characters (e.g. shown in large font) on the keys/zones of a keypad.
Fig. 465A shows a preferred arrangement/assignment of the preferred and non-preferred characters of a keypad.
Fig. 465B-D shows an example of a linear arrangement/assignment of the preferred and non-preferred characters of a keypad.
Fig. 466A-C show the keypad of the invention in different instances (e.g. respectively, fully-predictive mode, semi-predictive mode, non-preferred mode).

Fig. 467A shows a method of (e.g. alphabetic) arrangement of letters of a keypad having four keys.

Fig. 467B-C shows keypads of the invention in a precise mode.

Fig. 468 shows an assignment of letters of a language on a keypad.

Fig. 469A shows a linear keypad having alphabetic order.

Fig. 469B shows a keypad wherein the preferred characters are grouped in four different zones.

Fig. 470 shows a one line (e.g. linear) alphabetically ordered keypad.

Fig. 471A-B shows an example of a keypad having a broadly ambiguous zone.

Fig. 472A shows an example of an enlarged keypad of the invention.

Fig. 472B shows examples of alphabetical keypads having four keys.

Fig. 473 shows an example of a search input.

Fig. 474A shows an example of a keypad.

Fig. 475A shows as an example of a keypad where letter keys are disposed diagonally.

Fig. 476A shows an example of a keypad where the preferred and non-preferred characters are displayed in different colors.

Figs. 477A-G show examples of a keypad for various embodiments of the invention.

Fig. 478A-D show examples of keyboards have one or two lines of keys.

Fig. 479A-D show examples of a keyboard having a QWERTY or QWERTY-like letter arrangement.

Fig. 479E-F show examples of a keyboard having a symbol zone/key.

Fig. 479G-H shows an example of a keypad have a zone/key to switch to semi-predictive or fully predictive mode/instance.

Fig. 479I-K show examples of a keypad having a broadly ambiguous zone.

Fig. 479L shows an example of a keypad having the characters "." and "@".

Fig. 479M-O show examples of a keypad substantially with a QWERTY letter arrangement.

Fig. 479P shows an example of a keypad (e.g. in its precise mode) for German language with a substantially similar QWERTZ letter arrangement.

Fig. 479P1 shows an example of a keypad with a substantially similar QWERTY letter order.

Fig. 479Q shows an example of a keypad with a substantially similar QWERTZ letter order in ambiguous mode.

Fig. 479R-S show examples of a keypad for French language with a substantially similar AZERTY letter arrangement.

Fig. 481A to 481C show three examples of keyboards located at the edge of an input interface.

Fig. 482A shows an example of a keypad where its keys are arranged around the edge of an input interface.

Fig. 483A shows an example of a keypad in precise mode printed a on the screen of a watch.

Fig. 483B shows an example of a keypad in ambiguous mode printed on a screen of a watch.
Fig. 487A shows a button having several functions.
Fig. 488A-C show examples of navigating the various modes of the keypad/keyboard.
Fig. 488D shows an example a screen of a device having two different buttons/zones.
Fig. 488E-F shows an example of the system switched into the precise letter mode.
Fig. 488G shows an example of the keypad where buttons are lines located at the edge of the screen.
Fig. 488H shows an example where the mode buttons and the wordlist are located close to each other on the right side of the screen.
Fig. 488I shows an example of a word list arranged in three lines and two columns of words.
Fig. 489A-B show examples of very small keys where the majority (e.g. substantially, almost the whole display) of the tough sensitive input means/display is available to the user.
Figs. 490A-E show examples of drawings demonstrating the principles of creating and manipulating a reduced dynamic keypad.
Figs. 490F to 490H show examples of keypads/keyboards where broadly ambiguous zones are respectively located on different locations relating to the other letter keys.
Fig. 490I-J shows examples of keypads where letter keys are split vertically.
Figs. 490K-N and 490P-S show examples of splitting and unsplitting a keypad.
Fig. 490T shows an example of a gliding action for increasing the width of the keys of a keyboard.
Fig. 490U shows an example of an enlarged/increased keyboard.
Fig. 490V shows an example of a reduced/decreased keyboard.
Fig. 490W-Y shows examples of keys/zones that are associated with special characters and/or functions that are displayed on the sides of the screen.
Fig. 490Z1 shows an example of a keypad with function buttons highlighted by an outline.
Fig. 490Z2 shows an example of a keypad with function buttons displayed as a bar.
Fig. 490Z3 shows an example of a keypad with function buttons displayed as lines.
Fig. 491A-E, Fig. 492A-C, Fig. 493A-E, and Fig. 494A-B show examples of various gliding actions interacting with a keypad.
Fig. 495A shows an example of a wrist device having a wrist watch and its band.
Fig. 495B shows an example of a wrist device with a bracelet including an electronic device.
Fig. 495C shows an example of a wrist device where the body and the cover of the electronic device both include a display unit.
Fig. 495D shows an example of a bracelet.
Fig. 495E shows an example of a strap having a housing to removably house an electronic device.
Fig. 496A shows an example of a small electronic device having a touch sensitive surface.

Fig. 496B shows an example of a small electronic device with a data entry system having a keypad with few keys and a broadly ambiguous zone.
Fig. 496C shows an example of the screen of a small electronic device after a user provides a gesture from the edge of the device/screen towards inside of the screen for during data entry.
Fig. 496D shows an example of the screen of a small electronic device after a user provides a gesture from the left edge of the device/screen towards inside of the screen.
Fig. 496E shows an example of the screen of a small electronic device with more symbols after a user provides a rightwards gesture on the screen.
Fig. 496F shows an example of the screen of a small electronic device after a user provides a gesture from the right edge of the device/screen towards inside of the screen.
Fig. 496G shows an example of the screen of a small electronic device showing more precise letters.
Fig. 496H shows an example of a window corresponding to the precise symbol mode shown to the user after providing the gliding action.
Fig. 496I-O shows examples of the screen of a small electronic device after various gestures.
Figs 496P-S show a type of wrist mounted (e.g. communication) device(s).
Fig. 496Q shows an example of a wrist device while the user's hand is in a vertical position.
Fig. 496R shows an example of a wrist mounted device having attaching/detaching means.
Fig. 496S shows an example of a wrist device having a strap including a communication device.
Fig. 496T shows an example of a screen of a device having a cover.
Fig. 497A shows an example of a virtual keypad located on a touch screen.
Fig. 497B shows an example of letters assigned to a broadly ambiguous zone.
Fig. 497C shows an example of a keypad in the precise symbol mode.
Fig. 498A shows an example of a box on which an image frame is defined.
Fig. 498B shows an example of a box with an image frame that contains a photo/image.
Fig. 499A shows an example of a keypad with multi-mode keys/zones.
Fig. 499A1 shows an example of a keypad where two neutral zones are used to provide any of the functionality of the space and backspace keys/zones.
Fig. 499B shows an example of an enlarged keyboard with multi-mode keys/zones.
Fig. 499C shows an example of a multi-mode keys/zones, space, and backspace key of a keyboard.
Fig. 499D shows an example of a keypad having four keys/zones and a broadly ambiguous zone.
Fig. 499E shows an example of a keypad having backspace functionality in the neutral zone.
Fig. 499F shows an example of a keypad that is integrated in a small device.
Fig. 499G shows an example of a keypad with keys shown in its invisible mode.
Fig. 500A-H shows examples of a keypad where various gestures may move through a neutral zone.

Fig. 500I-M shows various examples of keypads where various gestures are substantially straight.
Fig. 501A-C show examples of keypads.
Fig. 502A shows an example of a 4-key mini keypad.
Fig. 502B shows an example of a 4-key super mini keypad.
Fig. 502C shows an example of a small and split 5-zone keypad.
Fig. 503A-503C show examples of 3 types of keyboards.
Fig. 504A shows an example of a keypad where a key includes the apostrophe in the first layer.
Fig. 504B shows an example of a keypad a space key and a backspace key.
Fig. 505A-E show examples of keyboards divided into several zones.
Fig. 506A shows an example of a keyboard having an additional space key/zone located above it.
Fig. 506B shows an example of a keyboard having an additional space key/zone and backspace key/zone are located above the keyboard.
Fig. 507A shows an example of a keyboard where the user uses one hand/finger to type.
Fig. 507B shows an example of a keyboard where the user uses two hands/fingers to type.
Fig. 508A-C show examples of keyboards.

DETAILED DESCRIPTION OF EMBODIMENTS

The data entry system of the invention generally refers to using a predefined number of keys to enter text/data. The letters/characters of a language are distributed on at least some of said number of keys such that to at least one of the keys (e.g. hereafter may be referred to as an "ambiguous letter key" or "ambiguous key") more than one letter/character is assigned.
According to one embodiment of the invention the keypad may preferably have a few number (e.g. 4 to 8) of keys ambiguously representing more than one character/letter. According to one method, said a few number of keys together substantially represent all of the letters of a language.

Preferably, said keys and the layer layout may represent a traditional keyboard (e.g. QWERTY) form factor. Figure 400 shows, as an example, a device 400000 having an on-screen keyboard wherein the letter(s) are represented by five zones/keys 400001-400004 and 400007 located on a touch sensitive surface 400009, wherein each of said keys represents three characters/letters. In this example, the keyboard includes two more keys, namely the Space key 400006 and Backspace key 400005. Preferably the keys are/zones are separated such that to be easily distinguished from each other. In case of a virtual (e.g. on screen, on a touchpad) keyboard the border between the keys are marked by separating delimiters (e.g. lines).

According to one embodiment, the surface relating to the letters of a virtual keyboard may be divided in into few (e.g. 4 to 6) zones each having a plurality of letters. Each of said zones may be considered as an ambiguous key/zone. A word prediction system as described may be used to

predict words upon interactions with said zones. The surface may be divided in any manner, preferably, such that to augment the accuracy of the prediction. Preferably, the divided zone may be marked such that to be distinguished from each other.

Fig. 400A, shows as an example, an on screen QWERTY keyboard divided into five zones 400101-400105 to each a plurality of letters are assigned. The zones are divided by distinguishing lines (e.g. 400111). All principles (e.g. of data entry) described herein may apply to this type of keyboard. For example, when a zone is interacted, the system may relate the interaction to (e.g. both) an ambiguous input signal (e.g. corresponding to any character of the letters assigned to the interacted zone) and/or to a unambiguous input signal (e.g. corresponding to the letter on which the said interaction is provided).

A zone of a keyboard may include one or more special characters following the same rules of a letter (e.g. considered ambiguous and/or unambiguous). For example, an apostrophe may be assigned to one of the zones.

Fig. 400B shows an AZERTY keyboard divided into five zones. In this example an apostrophe 400221 is assigned to the zone 400205. Note that in this example, the separating/distinguishing bars/lines (e.g. 400211) are also traversing outside the letter zone of the keyboard so that to better distinguish the zones from each other.

The rest of the keyboard such as function keys and/or special character keys are not shown here. One or more of said keys may be integrated within a zone but preferably being as an independent key.

It must be noted that the division of a virtual keyboards as shown here are exemplary divisions. Other manner of division of a virtual keyboard based on these principles may be considered (e.g. the keyboard/zones may be divided/defined differently). The dividing such a keyboard may be a predefined division (e.g. by the creator/manufacturer of the keyboard) or a dynamic division (e.g. by the creator/manufacturer of the keyboard or by a/the user). Note that the division of (e.g. preferably the letter keys of) a keyboard may be determined by the user, for example, by providing gestures to define delimiters of (e.g. arbitrary) zones of said keyboard. Preferably said delimiters may be display. Note that the zones of a keyboard may be delimited by (e.g. slightly) distancing said zones from each other.

According to a preferred embodiment, the keyboard is divided into several zones such that the zones are delimited such that to augment the accuracy of the predictive system without deforming the keyboard. As an example, main vowels may be separated from each other by delimiters. Preferably, the delimiters are provided arbitrarily such that each of the zones may have a different shape. Preferably, the delimiters are provided such that each zone is easy to interact with. The number of zones may be defined such that to be as few as possible while keeping prediction

accuracy at a high level. Preferably the delimiters are provided from top to bottom or bottom to top. Alternatively, the delimiters can have any shape.

The principles of dividing and presenting a virtual keypad as described has a many advantages. While keeping the form factor of a traditional keyboard, they permit to have few large keys that can be divided differently based on the language used by the keyboard, also permitting to have very high accuracy of word prediction in any language. Such principles, may be very beneficial for languages having many letters (e.g. Russian, Indian, Korean, etc.). The number of zones may vary for example based on the number of letters of a language.

Additionally, a virtual keyboard designed as such may be reduced in height and/or width. Throughout this patent resized keyboard are shown and described in detail.

Note that the principles of division of a virtual keyboard described herein may also be applied to the keyboards having hard/mechanical keys. In this case, interacting with a key within a zone, may precisely correspond to interacted key and/or ambiguously correspond to any of the keys of the zone in which the interacted keys is located. The hard keys of a zone may have a different characteristics (e.g. different color) so that to be easily distinguishable from the keys of another zone,

According to one method, the pair of keys 400001 and 400003, and the pair of keys 400002 and 400004, are (e.g. reduced in size and) positioned on opposite sides of the touch sensitive surface and the zone 400007 (e.g. herein may be referred to as broadly ambiguous zone) is located outside (e.g. between) said pairs of keys.

Preferably, the pairs of keys are arranged such that to form two columns of letter keys. Preferably, the Space key is positioned on the side of a first column of letter keys and the Backspace key is positioned on the side of a second column of letter keys. Optionally, each of said space or the backspace keys may form a column of keys together a first and a second column of letter keys, respectively.

According to one embodiment, a word predictive system using predicting a word from a database of words based on key interaction provided by a user may be used by the data entry system of the invention. The principles of such word prediction system is commonly known (e.g. T9, etc.) Upon interaction(s) (e.g. tapping action(s)) with the one or more said keys/zones, the system may predict a word from the database and preferably propose it to a user.

In the example, fig. 400, in order to enter the word “why” the user may provide input information corresponding (e.g. precise and / ambiguous input signals corresponding to entering a word by the (e.g. word predictive) system may herein be referred to as input information) to entering said word by for example interactions (e.g. pressing/tapping actions) on ambiguous key 400001, the zone 400004, and the key 400002. The system may propose/predict the word “why”

which corresponds to said key/zone interactions and has the highest priority among the words of the database corresponding to said interactions. If the predicted word is the desired word, the user may confirm it by providing an end-of-the-word signal such as tapping on the space key. As such, according to one method, in addition to entering the predicted word, the system may provide a space character after the entered word. Such a system to predict a word may herein be referred to as fully ambiguous/predictive system).

Preferably, the system may simultaneous propose more than one word corresponding to the input information provided by the user. The proposed words may form a wordlist. If a desired word is not in the word list, upon providing a predefined interaction (e.g. a gliding action on/from the wordlist, tapping on an icon, etc.) the system may propose additional corresponding words.

Optionally, the user may be enabled to enter at least one of the characters of the desired word precisely so as to assist the system to enhance the quality of prediction by the system. By receiving and combining said at least one precise/identified character and one or more key presses ambiguously corresponding to at least one of the remaining characters of the desired word, the system may more accurately predict a desired word.

According to one embodiment of the invention, the letters of an alphabet may be divided to two groups of characters, a first group preferably includes (e.g. may include some exception), the letters that are more frequently used (e.g. herein may be referred to as preferred characters/letters) and a second group includes the rest of the letters (e.g. herein may be referred to as non-preferred characters/letters). As an example, in Fig. 440A, the preferred letters are assigned to the keys 440001 to 440004, and the none-preferred letters are assigned to the zone 440007 between said keys. In this example, the keyboard includes a space key 440006 and a backspace key 440005. These matters have been described in detail in previous patents filed by this inventor.

As mentioned before, when a user taps on a key, the system may relate said interaction to ambiguous and/or unambiguous input signals. In the current example, when a user provides a sequence tapping actions on the keys/zones of the keyboard, according to one method, the system may relate interactions with the keys 440001 to 440004 to identified characters on which the tapping actions are provided, and may relate the interactions with the zone 440007 to ambiguous characters assigned to said zone. The system, to predict a word as such, may herein be referred to as semi-ambiguous/predictive system. Accordingly, the words proposed to the user may include identified and/or none ambiguous characters. If none of the proposed words are the desired word, the user may switch the keyboard to a precise keyboard mode wherein the non-preferred characters/letters may be entered precisely. By interacting said keyboard the user can replace the ambiguous character of a proposed word by precise characters. Said keyboard may be a keyboard

displaying only the none preferred characters or a full keyboard displaying all characters (e.g. a qwerty keyboard).

Figure 440B shows the keys of said keypad during providing a gliding action (e.g. short/long) and/or long pressing action, provided on any one of the keys of the keypad. A key of this keypad, in such a case, herein may be referred to as 'expanded key.' According to one method, only the keys on which said gliding and/or gliding action is provided is expanded. According to another method, all of the keys may be expanded during providing of a gliding action and/or long pressing action on any key. In this application a keyboard in retracted mode a keyboard in retracted mode may respectively In this application a keypad Optionally, the second keypad may have the same appearance as the first keypad, which in this application is referred to as the 'second keypad". According to one method, providing another gliding action on/from a key may reduce the size of the keyboard (and vice versa). The principles of expanding /reducing the size of a keyboard may be applied to any type of keyboard.

Note that, any of the principles, features, concept, aspects, etc., of the invention may be applied to /used with any type input method (e.g. keyboard, voice recognition, handwriting recognition, lip reading, etc.) for example a QWERTY keyboard.

When a word is being entered by providing the input information, the system may propose one or more candidate words in a word list to the user. The word matching the best the input information (e.g. has the highest frequency, has not the highest priority but is matches the best because of preceding words in the text, etc.) may herein be referred to as the (current) predicted word or main candidate.

After typing a beginning of a word, a candidate word proposed by the system may correspond to the desired word. The user may provide an interaction with (e.g. long press on) said candidate, and the system may propose additional words beginning with/based on the interacted candidate. After such interaction, preferably said candidate word become the main candidate and /or its characters preferably will be considered as identified characters (e.g. such a word may herein be referred to as fixed word.). Note that a user may fix a word during the entry of a word and continue typing the rest of the word. By considering the fixed portion and the input information corresponding to the rest of the word the system may more accurately predict a word.

When a proposed word (e.g. among the list) is fixed, said word may preferably replace the current predicted word and additional words/candidates may be predicted based on the selected word and be presented preferably next to the current predicted word (e.g. below the current predicted word). According to one aspect, repeating an interaction such as a long pressing action on a same predicted/candidate provides additional candidates based on said word/stem.

According to one embodiment, a predefined interaction such as a gliding action (e.g. leftward, down wards, etc.) on/from a predefined zone such as the zone between the split keys and/or on/from the (e.g. zone corresponding to the) word list may preferably correspond to deleting the word being entered and preferably the word list. In this example, a gliding action including a holding action may result in deleting more words until the user lift his/her finger (e.g. from the touch screen). Accordingly, said interactions in an opposite direction may preferably correspond to an undo function to reviving of one or more deleted words.

A method of spelling help may be used with the system so that to help a user to type a word such as a long word or a word for which the spelling is not known, etc. According to one embodiment of the invention, the user may provide one or more beginning characters of a word (e.g. herein may be referred to as a beginning portion of a word) and/or one or more of the end characters of a word (e.g. herein may be referred to as an end portion of a word). By considering the input information corresponding to a word as such, the system may predict one or more corresponding words from a database of words. Different scenarios may be considered, for example:

- Preferably, before providing the input information corresponding to an end portion of a word, the user may provide a predefined interaction (e.g. a long-pressing action, a gliding action, downwards from the Backspace key of a keypad, etc. Such interaction herein may be referred to as the/a last letters alert). Note that, in this scenario, according to one method, the user may not provide input information corresponding to the beginning portion of a word;
- A predefined number of characters corresponding to a beginning portion of a word and/or a predefined number of characters corresponding to an end portion of a word may be provided by a user, without the user providing a predefined interaction;
- The user provides input information corresponding to a beginning and ending portions of a word without providing an interaction between said portions. In this case, the system dynamically differentiates one of more combinations of beginning and end portions of corresponding words from the input information provided by the user.

Preferably, the length of a word(s) proposed by the system, based on the input of information, may include at least one character in addition to the number of characters corresponding to the input information.

According to one embodiment, (e.g. for better prediction accuracy) input information provided as described above may be provided for several portions of a word based on the principles as described above (e.g. providing input information for a middle portion of a word and for an end portion of a word).

With continuous description of the current embodiment, during the entry of a portion (e.g. an end portion) of a word, upon the user providing a number of backspacing actions such that said number of backspace actions is one more than the number of characters of said end portion being entered, the system cancels (e.g. ignores) said predefined interaction relating to entering a corresponding portion (e.g. end portion).

According to one embodiment of the invention, a recorded phrase such as mentioned earlier, may be entered by a data entry system using the Spell Help function described herein. According to a preferred method, a user may enter the input information corresponding to one or more beginning characters of a phrase and/or ending characters of said phrase. Preferably, before providing the input information corresponding to the ending character(s) of said phrase, the user may provide a predefined interaction such a gliding action (e.g. on a left side of the keyboard currently being used), to inform the system that the input information provided of said interaction preferably corresponds to the ending characters to the word being entered. Note that according to one method the system may predict/present single word(s) and/or phrase(s) corresponding to said input information to the user. As an example, in order to enter the exemplary recorded phrase "Best regards, John" If a corresponding word/phrase includes a function (e.g. see the example of recording/saving the current exemplary phrase), then if said word is entered/selected by the user, it preferably will be printed by considering the phrase characteristics.

It must be noted that the term 'word' used through this application may be considered as a word, a gram of an entry of a database of words, an entire entry of a database of words, compound word, composite word, phrase, a character, etc., creating and/or entering such a word may be herein referred to as creating and/or entering a text portion.

According to one embodiment of the invention, a text portion may be recorded by any means such as, for example, during the entry of a text. As an example, at any moment during the entry of a text, a user may provide a predefined interaction to inform the system to start recording entry of said text from that moment. Preferably, another or the same predefined interaction may inform the system to end said recording. Said text portion may be stored and preferably later be recalled for some purpose such as re-entering said text portion. aid text portion may be reused (e.g. reentered) as described earlier, for example, by typing the keys corresponding to a few beginning characters of said text portion, and then providing a gliding action downwards from the left keys, and then typing a few last letters of said phrase.

According to one embodiment, in order to enhance the accuracy of the system, relating to entering text portions, a first predefined interaction may inform the system of the entry of a first type of text portion such as a text portion having a first number of words (e.g. one word). And a

second predefined interaction may inform the system of the entry of a second type of text portion, such as a text portion having more than one word.

Note that, according to on method, instead of relating the interaction, (e.g. gliding action) provided to inform the system about the entry of the last few letters of a text portion, the user may be required to provide such an interaction for any of the words of a text portion, and then provide the last few letters of said word of said text portion.

The spell help system/feature described in this and in the related/previous applications filed by this inventor may be used with any type of auto-correction system. For example, the input information corresponding any portion (e.g. at least one of the beginning and/or the ending portion, or other portion) of a word may include an ambiguous input signal corresponding to an erroneous interaction such as an interaction with an erroneous input means (e.g. mistyping on an ambiguous keys/zone, tapping on a wrong key/zone that does not correspond to a user's desired character of a word). Further, said input information may include information that does not contain a desired interaction or missing information that was erroneously omitted by the user (e.g. the user did not type on an input means that the user meant to input). Said interaction(s) may be of any kind, including tapping, sliding (e.g. gliding or swiping) gestures, speaking, moving (e.g. detection of motion in the air), etc. Such erroneous input signals may herein be referred to as erroneous input signal.

Further to the above spell help system/feature, said input information may (e.g. only) be provided through unambiguous input signals, for example, corresponding to some identified/individual characters. Said input information may also be provided through an unambiguous and ambiguous input signals. Said ambiguous and/or unambiguous input information may be provided by any of keypad/keyboards (e.g. such as those contemplated in this patent application, a qwerty (e.g. touchscreen) keyboard (e.g. providing precise characters and/or providing ambiguous input signals upon interaction with dynamic zones related to the location of the user's interaction with the keyboard, etc.), a keyboard having ambiguous and/or precise keys). Several auto-correction embodiment/s and/or methods may be considered to be used with the spell help system/feature, including those embodiments and methods described in this and previous patent applications filed by this inventor.

According to one method, when an input information corresponding to a word is provided by a user, the system may consider any one or more of the input signals included in said input information as being erroneous input signal(s). According to a preferred method, the system may consecutively consider any one of the input signals (e.g. one signal at a time), preferably starting with an arbitrary or predefined being character position (e.g. from the first letter in a word to a last letter in a word, or vice versa). Preferably, from a word of a predefined minimum length (e.g.

depending on language), the system may consider two or more input signals as being erroneous (e.g. more than one error contained in the input information corresponding to the exemplary word "entertainment").

Note that, the system preferably by default may consider the input information as being completely correct (e.g. without erroneous input information) and preferably at first proposes the corresponding predicted words, and preferably after such consideration the system may propose words relating spell help and/or auto-correction methods/features as described herein. Such proposed words based on erroneous input signals may automatically be presented, or presented upon a user's predefined interaction.

According to one embodiment of the invention, (e.g. one or more (e.g. all) word(s)) of an N-gram (e.g. N>0 or N>1) entry of a database may be entered by using the spell help system of the invention.

Methods of Spelling Help by typing one or more beginning characters of a word and/or typing one or more ending characters of a word have been described before by this inventor. According to one method, the beginning characters of a word may be entered by using a first type of interaction and the ending characters may be entered by using a second type of interaction.

According to another method, during the entry of a word, (e.g. in addition to relating said interactions to a sequence of characters) the system (e.g. automatically) may relate a first number of key/zone interactions to beginning characters of a word, and may relate the rest of the key/zone interactions to the ending characters of said word.

According to another method, (e.g. after entering the input information (e.g. key presses) corresponding to one or more beginning characters of a word) and, preferably, interacting with a means such as a key/button corresponding to spelling help, the user may enter the input information corresponding to the one or more ending characters of the word. According to one method, said key/button may be provided/presented in the presented wordlist corresponding to the input information provided by the user. As an example, after entering the input information corresponding to a word, in addition to the corresponding word/s being presented to the user, the system may also display said key/button corresponding to the spell help. At any moment during the entry of the (beginning) portion of the word, the user may interact with said key/button and then enter input information corresponding to one or more ending characters of the word.

According to one embodiment, in order to predict a (e.g. one or more) word using the spell help (e.g. of the invention), the system may either consider all of the input information corresponding to the word (e.g. provided by the user) and/or a portion of it. As an example, the system may consider the input information corresponding to a (e.g. predefined) number of the beginning characters of the word and the input information corresponding to a (e.g. predefined)

number (e.g. some or preferably all) of the ending characters of the word provided by the user. As an example, the system may consider the input information corresponding to four beginning characters of the word (e.g. even if the user provided an input information corresponding to more beginning characters) and the input information corresponding to the ending characters of the word.

Principles and methods regarding recording/considering a portion (e.g. a word, a phrase, a sentence) of a text (e.g. during the entry of a text) and entering them later by using a data entry system such as for example the data entry system of the invention have been described before. According to one embodiment, (e.g. instead of a gesture/gliding action) a means to inform the system of the beginning and/or the ending of the recording procedure may be in the form of an interaction with a key/button, for example, similar to the key/button used for the spell help system. According to one method, said key/button may be presented to the user during the entry of a word. A first interaction with said key/button may preferably correspond to the beginning of the recording procedure (e.g. which preferably includes the input information corresponding to the word being entered). A second interaction with said key/button, preferably during the entry of another word, may preferably end the recording procedure (e.g. which preferably includes said another word being entered). Note that said key/button may be presented separate from a wordlist. In this case, preferably, after the first interaction of said key/button, the system begins to record the input information corresponding to the text/word being entered, until a second interaction of said key/button.

The different methods of spell-help have been described before. According to one embodiment, (e.g. after interacting with the spell help means/button/icon) the user is preferably required to enter a few last characters of the word precisely. In this case, the system may preferably consider the beginning portion of the input information as being ambiguous. According to one method, the system may also consider that at least one of the input information corresponding to the beginning and/or the last characters of the word to have one or more mistyping/misspelling errors, and may predict one or more words accordingly.

According to one aspect, after a word is selected, the automatic spelling help feature described herein in detail, may preferably be activated.

Providing a short and a long gliding action in a same direction may correspond to two different symbols/functions. In fig. 440B, as an example, providing a long gliding action 440211 may preferably correspond to entering the special character '2', and providing a short gliding action may correspond to precise character W. According to one method, a gliding action in a same direction regardless of its trajectory length may ambiguously correspond to any of several characters (e.g. W and 2) corresponding to said direction.

The principles of using stems/words mixed with keyboard interactions and word/stem interactions described herein may be applied to any type of (e.g. alphabetic) language such as Roman based languages (e.g. English, Italian), Korean, Hindi, Arabic, Hebrew, etc.

The principles of swapping and/or selecting wordsword(s)/stem(s) and preferably proposing/predicting longer word(s)/stem(s) including (e.g. beginning with) a selected word/stem as just described throughout this application may be used for the entry of the phonetic transcription of a word/stem (e.g. hereafter may be referred to as or a phonetic word/stem) for languages such as Chinese or Japanese (e.g. hereafter, may be referred to as a phonetic alphabet). As an example, Chinese language uses Pinyin input method wherein the Chinese characters are represented by the Roman phonetic transcription. A word of a Chinese language may be constituted of one or more characters, each may be represented by a pinyin phonetic transcription (e.g. herein may be referred to as a pinyin representation of a word, or pinyin). According to one embodiment of the invention, a database of pinyin representation of words may be used by the data entry system of the invention. As such, a pinyin representation of a word having more than one syllable may be entered by providing the input information corresponding to said syllable. A word list that may include the corresponding pinyin representations of words may be presented to the user. If the presented word list does not include the desired pinyin, the user may provide a predefined interaction such as a gliding action as described for Roman-based languages, (e.g. reject action or next options action), and the system may propose/present a new word list. If needed the user may repeat this procedure until the system proposes the desired word. The user may select a desired pinyin representation of a word within the/a corresponding word list as described earlier (e.g. by tapping on it). The system may preferably fix the characters of the selected pinyin representation of a word, and preferably, may propose longer pinyin representations of words beginning with the fixed characters, and preferably also show the corresponding hieroglyphic words preferably based on their frequency of use. And so on. According to one method, during proceeding to providing the input information corresponding to the next pinyin representation of a word of the desired word, by considering the selected pinyin representation and said input information, the system may propose one or more corresponding pinyin representations of words wherein their first pinyin representation of a word is the selected one. Now, the user may either select one of the new proposed pinyin representations of words (e.g. as the desired pinyin representation of a word or as a stem of a longer pinyin representations of a words word) or he may continue typing the next one. And so on.

In the current embodiment, according to one method, at any moment (e.g. for each selected pinyin representation of a word) during the entry of a pinyin representation(s) of a word, (e.g. after providing information corresponding to the beginning symbols of a word), the user may select

its/their corresponding symbol(s) or the user may select all of the symbols of the user's desired word after all of the pinyin(s) of the desired pinyin -based word (e.g. phonetic word) is/are entered.

For the sake of clarity, in the embodiments relating to a hieroglyphic language such as the Chinese language or Japanese languages as described herein, a phonetic representation of a word such as a pinyin representation of a word in case of(e.g. as one example for the Chinese language is preferably) of a word may be considered as equivalent to a stem of a word and/or a single word in a language with an alphabetic system (e.g. English). As such all principles of the data entry system of the invention may preferably be applied to the entry of input information of a phonetic language for entering phonetic chains of characters (e.g. phonetic words/stems) which may be represented by symbols in the corresponding hieroglyphic language.

According to one embodiment of the invention, the system may include an auto-correction method such that when the user touches a key/zone on a location near the border between (e.g. zones corresponding to two or three) letters/characters, the system may consider all of said letters/characters, and preferably provide/predict different words accordingly.

It must be noted that the keypad of the invention may have any number of (e.g. letter) keys, each key may have any number of characters/letters, and any other configuration of letters on the keys.

According to a first aspect of the invention, each of a plurality of (e.g. dynamically assigned) zones/keys on (e.g. a virtual keyboard) on the screen of a device may ambiguously represent a number of characters such as letters. When a user interacts with (e.g. taps on) a location between two (e.g. neighboring) zones/keys, at least some of the characters surrounding the location, preferably regardless of key(s)/zone(s) to which characters are/may be assigned, may be considered as an ambiguous input preferably corresponding to a plurality of said characters by the word predictive data entry system of the invention.

According to a second aspect of the invention, when a plurality of zones/keys on the screen each represent a (e.g. single) character such as a letter, when a user interacts (e.g. taps) on/near a zone/key, in addition to the character of the corresponding zone/key, the system may ambiguously consider at least some of the characters (preferably those characters close to the location of the interaction) corresponding to the neighboring keys/zones as input to the data entry system of the invention. Also, preferably, when the user interacts (e.g. taps on) on/near a zone/key which may also be related to an individual identified character such as a letter, the system may also consider said identified character as input to the data entry system of the invention. In both cases, the system may predict/propose words corresponding to a sequence of input signals provided as such, wherein at least one of the input signals ambiguously corresponds to a plurality of characters.

The arrangement/assignment of (e.g. dynamic) zones and/or assignment of one or more characters to a zone may be of any kind. For example, the zones may constitute a single row of zone(s), a double row of zone(s) (e.g. parallel to each other, and/or located on opposite sides of a touch sensitive surface such as a touch screen), etc. The (e.g. dynamic) assignment of one or more characters to a zone may be based on alphabetical order, QWERTY-based order, or based on any of the principles of data entry system of the invention (e.g. preferred character(s) may be assigned to one or more row(s) of zone(s) and non-preferred character(s) may be assigned to one or more zone(s) outside said zone(s), etc.). As an example, the keypad of the invention may be a narrow full QWERTY keyboard (e.g. a QWERTY keyboard layout compressed in either the vertical or horizontal orientation, in a manner to preferably at least substantially maintain its QWERTY appearance but preferably such that said keypad may be useable (where said keypad may be used by the data entry of the invention (e.g. by considering a plurality of characters near an interaction on a zone of said keypad as input to the (e.g. predictive) data entry of the invention) in a manner to maintain the highest possible prediction accuracy). According to one method a (e.g. multiple-) split QWERTY keyboard wherein each of the split portions is narrow, as described, and preferably is located on an opposite side on the screen may be considered and used. In the current embodiment, the keyboard used with the word prediction system may also include one or, preferably, more special characters that may, at least, be included in words of a database, such as "'", "_", "/", "-", ".", "&", etc. Fig. 452 shows such a (e.g. compressed qwerty) keyboard 452200. In this example, characters "&" 452051, and "-", "_" and "'" 452052.

Fig. 452A shows an exemplary (e.g. linear) one line keyboard of the invention in which some (e.g. preferably) preferred characters are arranged on a single row zone 452001. When a user interacts (e.g. taps, slides/glides, double taps, etc.) on a zone on said keypad, the system may consider at least some of the characters (e.g. displayed/located) near the impact of the user's interaction (e.g. tapping action, sliding action, double tapping action, etc.) on the zone. A (e.g. one or more) predefined zone(s) (e.g. 452002) outside the (e.g. single row) zone may correspond to a broadly ambiguous zone(s) as described before. By providing at least a sequence of interactions (e.g. tapping actions) on the said single row zone and/or the broadly ambiguous zone(s), the word predictive system may predict/propose a word. Fig. 452B, shows, for example, another type of arrangement of preferred letters assigned to said first zone is shown. Other letter(s), configuration of letters on a zone, number of corresponding zone(s), arrangement of said zone(s) on a touch sensitive surface, etc., may be considered by people skilled in the art. As an example, fig. 452C shows the two zones 452201, and 452202, including the preferred letters, and a broadly ambiguous zone 452203.

In the event that each zone/key represents a single identified character, providing a predefined interaction such as a long pressing action or a gliding action (e.g. preferably) on a larger zone corresponding a group of such zones/keys may correspond to entering one of another group of characters such one of a group of special characters or one of a group of non-preferred characters assigned to said larger zone (e.g. 452002 of Fig 452A).

According to one embodiment of the invention, providing short gliding action(s) or providing long gliding action(s) from/on a zone/key in a predefined direction may correspond to two different symbols such as two special characters and/or functions, and providing a predefined interaction such as a gliding action with any length in a (e.g. another) predefined direction may preferably correspond to a single character such as, preferably, a non-preferred character/letter.

According to one method, upon providing a predefined interaction such as a gliding action and/or a long pressing action with such a larger zone or with a zone/key of the keypad having at least one plurality of preferred characters, the corresponding other characters may be shown near the user's finger such that, preferably, substantially all of them may be visible to the user.

According to one embodiment, when the user switches to the precise letter mode, the system may show the non-preferred characters in one or more rows, based on any order, preferably, based on an alphabetic order.

According to one embodiment of the invention, preferably in the semi-predictive mode, if a word being entered (e.g. or already entered and then grabbed by a predefined interaction, for example by (e.g. single or double) tapping on it) is not in the dictionary, the user may switch the system into the precise letter mode. In this case, the user may tap on the (e.g. zone(s) corresponding to non-preferred) characters to replace at least some of (e.g. preferably all of) the (e.g. non-preferred) characters of the word. According to one embodiment of the invention, upon providing a predefined interaction such as a gliding action (in a predefined direction or trajectory) or, for example, a long pressing action from/on a (e.g. dynamic) zone anywhere on a (e.g. one line) keyboard and/or on a predefined location such as on/from a character such as a letter, may correspond to (e.g. precisely) enter a predefined character (e.g. a non-preferred or preferred character), (e.g. either alone or from a group of characters presented to the user).

Note that in the embodiments/principles described herein, zone(s) relating to one or more character(s) may preferably be considered by the system as part of a larger zone (e.g. the keypad/letters keys of the invention).

Note that, through this application, although the word 'zone' and/or 'key' is used to describe the relationship (e.g. relative distance) between two or more characters (e.g. preferred characters) to assign one or more characters to a corresponding input signal related to a user interaction with the keypad (e.g. the larger zone) of the invention, it is understood that different other

parameter(s)/object(s) of description such as the distance between points/areas/characters/locations may be used to assign one or more characters to an interaction with the larger zone (e.g. including characters) providing an input signal to the system.

Fig 452D show another type of assignment/arrangement of letters to a (e.g. a larger) zone(s). In this example, the letters are arranged in two groups such that to have a (e.g. significant) space/gap 452302 anywhere between the groups. In this example, the space/gap 452302 relates to a broadly ambiguous zone as described herein.

According to one embodiment of the invention, by providing a predefined interaction, the system may enter into the precise character (e.g. letter) mode wherein the non-preferred characters and/or special characters/functions may be shown (e.g. on different zones) to the user, preferably in a straight line. The (e.g. non-preferred) characters may preferably be arranged in alphabetical order. An interaction with a zone corresponding to a character may enter said character precisely.

Fig. 453A shows another method of arrangement of keys of the keypad of the invention, in this example, the keypad having narrow letter keys 453001 to 453004 (e.g. being split in to two groups and located on opposite edges of the display 453009 (e.g. touch sensitive screen of a device)). In this example, the space and backspace keys are grouped with the letters keys of each side (e.g. such as to form a row/column of keys). Note that, in this example, the boarder of the space and backspace keys are not shown. The space and backspace keys may be located above the letter keys, between the letter keys, under the letter keys, or beside the letter keys. In this example, the broadly ambiguous zone is located between the split keys. According to one method, the letter keys may be large but only a narrow portion of them being visible to the user.

Different methods of entering precise characters through the data entry system of the invention have been described before. According to one embodiment of the invention, when user interacts with a zone assigned to a or related to a preferred character, in addition to entering said/a preferred character, the system may show in a location of the screen the non-preferred character(s) related to said key. As an example, as shown in Fig. 453A, if the user interacts with any zone related to a letter of a key (interacting with a zone relating to a letter of a key may herein be referred to as interacting with a letter on a key) such as the key 453004, the system may show the corresponding non-preferred characters BPQ (e.g. at a location 453011) on the screen 453009 of the device 453000. To each of said non-preferred characters a predefined zone (e.g. on the screen) is defined such that an interaction such as a tapping action on the zone relating to a non-preferred character may preferably enter said character precisely preferably by replacing the entered precise character. Note that, according to one method, the non-preferred characters relating to each key may preferably be printed next to the key, or close/on the key. The current embodiment of entering

precise characters may be used/integrated with any of the methods of entering words such as Semi-predicted Mode and/or the Fully-predictive Mode of the invention.

According to one embodiment of the invention, when the user touches anywhere on the key all of the (e.g. preferred and/or non-preferred) characters related to said key may be shown on a location on the screen as described immediately above and interacted with as described immediately above. Fig. 453B shows an example of this embodiment wherein by providing a tapping action anywhere on the key 453004 the system has printed/displayed all the characters related to said key on the location 453111.

According to another embodiment, the system may include a means, for example, such as providing a predefined gliding action on/from a key so that to present/display all of the non-preferred characters (e.g. in a location) on the screen. In this case, interacting with a zone corresponding to a preferred and/or a non-preferred character may enter said character precisely. Fig. 453C shows an example of such an embodiment wherein the non-preferred characters 453301 are display (e.g. on a screen) for a given predefined interaction. Now the user can tap on any of the characters (e.g. letters) on the screen to enter said character(s) precisely.

Note that in the embodiments above, any of the preferred and/or non-preferred characters relating to a keys/zone of the keypad of the invention may include one or more of the commonly used special characters (e.g. such as "'" is included in a word such as "it's").

As mentioned before, the (e.g. preferred and/or non-preferred) characters (e.g. letters) of the invention may be grouped in various groups and assigned to various zone(s)/key(s) on a touch sensitive surface to for a keypad of the invention or said (e.g. preferred and/or non-preferred) characters may form a continuous sequence of characters on the surface (e.g. preferably a linear sequence) and wherein an interaction with any location of said sequence of characters may dynamically define a key/zone of the keypad of the invention, including the characters close to the touch impact on said sequence of characters. Said group of characters may be considered as an ambiguous key(s)/zone(s) of the invention. By receiving a sequence of one or more such ambiguous dynamic zone or key interactions the data entry system of the invention may predict one or more words accordingly. Accordingly, each of the considered ambiguous characters of such interaction may be printed/displayed on a screen in a separate zone such that an interaction with a zone corresponding to a character enters said character precisely (e.g. as described above).

Fig. 454A shows an example of the keypad of the invention, in this example, the limits of the borders of the Space and Backspace keys are demarked in the figure, but are not shown on the screen and/or keypad of the invention. As described throughout this application, gliding actions in predefined directions on/from the Space and/or Backspace key may be related to symbols such as functions and/or special characters, letters such as, for example, accented letters, etc. In this

example, said gliding actions are preferably provided on/from said key(s) towards preferably a plurality of preferred gestures (e.g. such as gliding actions) departing preferably anywhere on/from said key(s) in a direction such as left, upper-left, up, upper-right, and right.

Another method of entering precise characters may be considered. According to one embodiment of the invention, in order to entry a non-preferred character precisely, by considering the exemplary keypad of Fig. 454A, (e.g. during the entry of a word) when a user interacts with a (e.g. preferred) character (e.g. letter) on a key, said character may be printed/displayed in a corresponding word(s) in the word list proposed by the system. The user may then interact (e.g. tap) with said word and the system may propose/predict a new list of word(s) wherein all of their characters (e.g. zero of more characters) except the last character of the word resemble the corresponding characters of the interacted word and wherein the last character of said word(s) each include one of the non-preferred characters relating to the interacted key. Note that, said word list may also include word(s) other than those described immediately above.

Fig. 455 shows and example of the principles just described above, with a semi-predictive mode of the invention. In this example, in order to enter the word "AZARENKA" letter-by-letter precisely, a user may tap on the letter "A" then tap, for example, on the letter "S" of the key 455005. The system may propose a word list 455201 of a number of words including the word/precise-chain-of-characters "AS" (e.g. hereafter may be referred to as non-definite precise stem) and preferably some other words beginning with the letters "AS". In order to replace the letter "S" by the desired letter "Z", the user may tap on the word/chain-of-characters "AS" in the word list. Consequently, preferably, the system may propose a new word list 455202 including a number of words/chain of characters (e.g. "AC", "AG", "AU", and "AZ") (e.g. that herein may be referred to as "suggested chains of precise characters") each beginning with the letter "A" (e.g. the first letter of the non-desired word "AS") and each ending with a different one of the non-preferred characters corresponding to the key 455003 and wherein said words (e.g. preferably) have the same length as the non-desired word (e.g. such) (e.g. Note that the system may also propose additional words (e.g. "ASK") beginning with the chain of characters "AS" in said word list). The user now may interact (e.g. tap) on the desired chain of characters (e.g. word) "AZ" to select it, and continue to tap on the characters "A", "R", "E", and "N" so that the system presents at least the chain of characters "AZAREN" in a word list 455203. Now, in order to enter the letter "K", the user taps on a letter such as the letter "N" on the key 455002. The system may propose the word/chain-of-characters "AZARENN" – this is not the desired chain of characters. The user may tap on said word and the system may propose a new word list 455204 including a number of words having the same number of characters as the word "AZARENN" and where in each of said words start with the chain-of-characters "AZAREN" and where in each of said words end with one of the non-preferred

characters (e.g. "C", "G", "U", and "Z") corresponding to the key 455003. Now the user selects the word "AZARENK" in the word list 455304 and type on the letter "A" on the key 455002 to complete the desired word (e.g. letter-by-letter precisely).

Fig 456 shows the principles of this embodiment used with the fully predictive mode of the data entry system of the invention. In this example, in order to enter the word "AZARENKA" the user first interacts (e.g. taps) with the letter "A" and then interacts with the letter "L" of the key 454002. The system proposes the ambiguous word "AS" and the precise chain of characters "AL" in a word list 456301 that also includes at least one more word (e.g. "NET") preferably (e.g. ambiguous) related to the interactions with the keys 454002 and 454003. The precise characters "AL" is are not desired by the user. The user interacts with said precise chain of characters "AL". Consequently, preferably, the system may propose a new word list 456302 including a number of words each beginning with the letter "A" (e.g. the first letter of the non-desired word "AL") and each ending with a different one of the non-preferred characters corresponding to the key 455003 and wherein said words (e.g. preferably) have the same length as the non-desired word (e.g. Note that according to a first method, the system may also propose additional words (e.g. "ALBERT") beginning with the selected chain-of-characters "AL", and that according to a second method, the system may propose additional words by considering the key interactions as ambiguously corresponding to any of the characters of the corresponding keys). The user now selects the chain-of-characters "AZ" and continues to enter the rest of the characters as described in the example of semi-predictive mode.

Note that, according to a preferred method, preferred and non-preferred characters related to the keys of the keypad of the invention having four letter keys are grouped such that letters the key 454001 stand on one point, and letters on the key 454002 stand on two points, and letter on the key 454003 stand on a wide base, and letters on the key 454004 containing substantially a closed circle, as described before and in previous applications filed by this inventor.

Note that, according to one method, the keypad of the invention may preferably have a broadly ambiguous zone as described throughout this application. According to another method, all of the preferred and non-preferred characters related to the keys (e.g. four keys) of the keypad of the invention, as described, may be considered as preferred characters. Such keypad may preferably, not include a broadly ambiguous zone and may be used with the word predictive data entry system and use the methods of entering precise characters as described throughout this and previous applications filed by this inventor. As an example, in the examples of Fig. 453B, each of the keys 453001 – 452004 may be assign to all of the preferred and non-preferred characters related to any of said keys as display on and near each key. All of said ambiguous keys may be used by the word predictive system of the invention. Additionally, for example, according to a preferred method,

when the user interacts with the key 453002 all of the characters assigned to said key may be shown in a location on a screen where interacting with any of said characters may enter said character precisely as described before.

According to one embodiment of the invention, each of the preferred letters/characters may correspond to some non-preferred letters/characters. Fig. 457A shows four different types of relationships between the preferred and non-preferred letters/characters (e.g. such as the relationship shown in the line 457301 and its corresponding key configuration as shown in Fig. 457B. In this example, the non-preferred characters "BC" are related to the preferred character "A", the preferred character "D" has no relationship with any non-preferred character, and so on.). Such relationship is shown in the example of Fig. 457B in such a way that, for example, for the group of characters "E,F,G,H" the preferred character "E" is displayed on the key and the last non-preferred character of the group is shown preferably outside the key, near said preferred character "E". In this example, the preferred character "S", "R", "N", "D", have no group relationship. The above principles may be used for entering precise characters.

In the examples of Fig. 454A to 456, when a user interacts with any preferred character, the corresponding non-preferred characters are a similar group of characters, while in the immediate example above, interacting with each of the preferred characters corresponds to a different group (e.g. of one or more) of non-preferred characters, if any. The principle of entry of precise characters related as such may be similar to those described from Fig. 455 through to Fig. 456 with the difference that here the related non-preferred characters used for entering characters precisely are those characters assigned/related to said preferred characters.

The assignment of non-preferred characters to preferred characters, in the current embodiment, may be of any kind such as alphabetical order, QWERTY order (e.g. "Q" assigned/related to "W" and e.g. "M", "V", "B" assigned/related to "N"), shape order (e.g. "K", "H", "X" assigned/related to the preferred character "A"), etc. Note that in the current embodiment any other type (e.g. arbitrary) assignment/relationship between a preferred and corresponding non-preferred character(s), if any, may be considered by those skilled in the art.

In the embodiments above, for entering characters precisely by using the non-preferred characters assigned to a preferred character, according to one method, when the user interacts with a chain-of-characters corresponding to the non-definite precise stem, the system may replace the last character of the non-definite precise stem by the first related/assign non-preferred character and so on, until the system replaces set character with the desired non-preferred character corresponding to the preferred character. After entering precisely the preferred character "A", if the user interacts with the character "E", the system may show the stem "AE". If the user taps one time on that stem in the word list, the system may propose the stem "EF". If the user interacts (e.g. taps) with the stem

"EF" the system may propose the stem "EG". Interacting with the stem "EG" will cause the system to provide "EH" wherein "H" is the last non-preferred character relating to the preferred character "E". As such, any non-preferred character corresponding to a preferred character may be entered using this method of multi-tapping on a proposed stem and may be used for entering characters precisely, letter-by-letter and mentioned before in various embodiments.

Figs. 458A to 459B show various examples of entering characters precisely during the entry of words and the corresponding words proposed by the system.

According to one embodiment, the non-preferred may be hidden or shown (displayed) next to the keys based on the uses manual interaction, or automatically according some system criterion/criteria.

Note that the keypad of the invention may be of any kind configuration of keys/zones and various assignments of characters to said keys/zones. As an example, the keypad of the invention may have 10 keys each having one preferred character related/assigned to one non-preferred character, and 2 more keys each having one preferred character related/assigned to two non-preferred characters, wherein preferably one of the non-preferred characters of said two non-preferred characters is the one that is used less often (e.g. has lowest frequency of use among the letters of a language, e.g. 'Z' and 'X' in a Roman based language).

According to one correction embodiment, after the user provides interaction with a key, the system may preferably show at least the corresponding non-preferred characters (e.g. the system may show all/any of the non-preferred characters too) on a location of the screen for entering any of the characters precisely, as described before. According to one embodiment of the invention, when the user continues to interact with the key(s), the non-preferred characters shown as such corresponding to the first key interaction may remain on the screen. As an example, after providing the input information corresponding to a desired word, if the user's word is not in the dictionary, the user may proceed to correct the entered chain-of-characters. For that, if the first character of the desired word is a non-preferred character, the user may tap on a desired letter of the group of non-preferred characters corresponding to the key of the first key interaction which is shown on the screen, if not, the user may, for example, tap on the desired preferred character. Now the system may show the non-preferred characters corresponding to the following key interaction of the user, and so on.

According to one embodiment of the invention, (e.g. each of) a group of non-preferred characters may have its own corresponding zone on a/the touch sensitive surface, and wherein interacting with said zone may enlarge said zone or may result to show the (e.g. enlarged) corresponding characters on a location on the screen as described before (e.g. the zone corresponding to the enlarged non-preferred characters may herein be referred to as the non-

preferred characters' enlarged zone). As an example, Fig. 460A, a tapping on (e.g. the zone corresponding to) the non-preferred characters 460021 may result to proposing the enlarged corresponding non-preferred characters in a zone 460022 near the word list 460011 on the screen 460009 of a device 460000.

Note that the non-preferred characters may be grouped according to any type of arrangement such as for example alphabetical arrangement. In the exemplary Fig. 460B, the non-preferred characters are arranged in four (e.g. separate) groups in 460111-460114 in an alphabetical order.

According to one embodiment, each (e.g. of the preferred) letters/characters may have at least one related character/letter such as a non-preferred character. By providing a predefined interaction such as a gliding/long-pressing action with a (e.g. zone corresponding to a preferred) character/letter, the system may enter the corresponding (e.g. non-preferred) character (e.g. preferably, precisely). As an example, in Fig. 460C, a long pressing action or a gliding action from/on the (e.g. zone corresponding to the) letter "S" may correspond to entering the letter "Z". Accordingly, a gliding action upward from/on the (e.g. zone corresponding to the) letter "L" may correspond to entering the letter "C", and a gliding action downward from/on the (e.g. zone corresponding to the) letter "L" may correspond to entering the letter "U".

Note that other types of arrangement of non-preferred characters and other methods of entering a non-preferred character may be considered. As an example, according to another method, each of the non-preferred characters may have its own zone, wherein upon interacting with one of said zones the system may preferably enter the corresponding character precisely.

According to one embodiment of the invention, according to a first method, after the user selects a non-preferred character in the non-preferred characters' enlarged zone, said non-preferred character replaces the corresponding preferred character and said zone disappears.

According to a second method, after said selection of said non-preferred character, said zone remains displayed on the screen and subsequently selecting another character from said zone, replaces the previously selected non-preferred character.

According to a second method, after said selection of said non-preferred character, said zone remains displayed on the screen and subsequently selecting another character from said zone, appends the corresponding selected character to the previously selected non-preferred character.

According to one embodiment, a (e.g. non-preferred) character may be related to one or more (e.g. pre-defined) corresponding (e.g. non-preferred) characters. According to one method, after said selection of a (e.g. non-preferred) character from the non-preferred characters' enlarged zone, said one or more (e.g. pre-defined) corresponding (e.g. non-preferred) characters are displayed in the non-preferred characters' enlarged zone and available for selection to be preferably be appended to the previously selected non-preferred character. As an example, after selecting the letter 'C'

from the non-preferred characters' enlarged zone, the system may show the corresponding related characters (e.g. 'K', 'H', etc.) and the user may select a related character to, for example, enter (e.g. two) consecutive (e.g. non-preferred) characters (e.g. 'CK').

According to one embodiment of the invention, a press-and-holding action on a key/zone may bring up (e.g. display) the corresponding symbols (e.g. such as special characters of at least said key). According to one method, the user may interact (e.g. tap) any of the symbols to enter said symbol. According to another embodiment, a predefined gliding action provided on any key may enter a corresponding symbol (e.g. such as a special character or function) of said key.

Note that in the embodiments described throughout this application, a zone/key described may be dynamically defined based on the location of interaction with the keypad (e.g. including preferred characters) of the invention as described before. In this case, according to one method, the relationship/assignment of the non-preferred characters corresponding to one or more preferred characters that are considered by the system based on such an interaction(s) may also be dynamically defined.

According to one embodiment of the invention, during the entry of the input information corresponding to a word, a user may provide a predefined interaction, such as a gliding action in the broadly ambiguous zone, to inform the system that the input information corresponding to a next portion of a word will not be provided by the user, hereafter referred to as the 'skipped portion'. After said interaction, if the user provides input information, the system relates said input information to a/any next portion of the desired word. The length and/or the corresponding characters of the skipped portion may be dynamically defined by the system, by considering the a predefined criterion and/or by considering the contents of a dictionary/word database, by, for example, finding words that match, preferably, all the/said input information relating to the entry of a word.

As an example, the user may enter a beginning and a last portion of a word, and the system may accordingly propose corresponding words that begin and end with said portions of a word.

According to one embodiment of the invention, after a predefined time interval, starting from the end or beginning of the user's last interaction (e.g. pressing on a key), the system may preferably begin to process the input information, by, for example, searching a dictionary/word database and may select words for proposal to the user.

According to one embodiment of the invention, after a predefined time interval, starting from the end or beginning of the user's last interaction (e.g. pressing on a key), the system may preferably display/propose word(s) (e.g. in the form of a word list) to the user.

Fig. 461A shows another type of assignment of special characters to the keys of the keypad of the invention. Fig. 461B shows another type of assignment of special character and functions to

the keys such as the Space and the Backspace keys of the keypad. In this example, up to eight gliding actions in various directions may each correspond to a predefined character or function. Optionally, two gliding actions, each having a different length, provided in a same direction, may each correspond to a different character. For example, a short and long gliding action in the direction 461011 may correspond respectively correspond to a first and second character (e.g. '?' and '¿').

As mentioned before the, the letters (e.g. all of the letters, preferred and/or non-preferred letters, etc.) of the keypad may be arranged in alphabetical order. Fig. 462A shows, as an example, the keypad of the invention having a plurality (e.g. four) of letter keys (e.g. 462001 to 642004) on and/or next to which the preferred and non-preferred characters are arranged/presented in alphabetical order. In this example, the preferred characters are shown on the keys (e.g. TWY on the key 462004), and the non-preferred characters are shown outside the keys (e.g. letters UVXZ 462021 on the key 462004). Such a keypad may be used with a data entry system such as the word predictive (e.g. fully-predictive and/or semi-predictive) data entry system of the invention. As an example, for a preferred letter, the user may preferably tap on a key, and for a non-preferred character the user may preferably tap on the broadly ambiguous zone 462007 between the keys. The use of preferred and non-preferred characters by a data entry system such as a word predictive system to predict words has already been described in detail.

In this example, the keypad may also include additional key(s) such as a Space key (462005) and/or a Backspace key (462006), which may also include additional function(s).

Note that, in the current embodiment, the preferred characters and/or the non-preferred characters, may be defined/modified based on the parameters such as the accuracy of prediction in different languages while keeping the alphabetical order. Fig. 462B shows, as an example, an arrangement of letters on a keypad. In this example, the presentation of the non-preferred characters and preferred characters of Fig. 462A are slightly modified, and are shown on the keys (462101 to 462104) of the keypad in small font, and the preferred characters are printed in a large font. In this example, the keypad may preferably include at least a broadly ambiguous zone (462107). Note that, the number of preferred characters assigned to a key are shown as an example and may vary.

Note that all of the letters of an alphabet may be assigned to the keys of a keypad as preferred characters. In this case the keypad may not include a broadly ambiguous zone. For example, in the examples above, all of the letters may be assigned to the (e.g. four) keys in alphabetical order.

With continuous description of the current embodiments, according to a first method, for a key interaction, the system may present the non-preferred characters (e.g. 462021) in an enlarged format (e.g. 462022) (e.g. so that the user can precisely enter a non-preferred character by tapping on it) as described before. According to a second method, for a key interaction, the system may

present all of the character of said key in an enlarged format preferably so that the user can precisely enter a character. According to a third method, for a key interaction, the system may present any number of predefined characters (e.g. in an enlarged format) preferably so that the user can precisely enter a character.

Fig. 465 shows a preferred arrangement of preferred characters (e.g. shown in large font) on the keys/zones of the keypad of the invention. In this example, the non-preferred characters (e.g. shown in small font) are also shown on the keys, but preferably, as mentioned before, according to a preferred method the non-preferred characters may be assigned to the broadly ambiguous zone 465007. Note that, as mentioned before, the broadly ambiguous zone is preferably part of the keypad of the invention.

Fig. 465A shows another preferred arrangement/assignment of the preferred and non-preferred characters of the keypad of the invention.

Fig. 465B shows an example of a linear arrangement of the keys and the arrangement/assignment of preferred and non-preferred characters of the keypad of the invention. In this example, a zone (e.g. not shown) outside said keys may be considered by the system as a broadly ambiguous zone of the keypad of the invention.

Fig. 465C shows an example of a linear arrangement/assignment of the preferred and non-preferred characters of the keypad of the invention. As mentioned before, when a user interacts with a zone on such a keypad, the systems considers/relates (e.g. ambiguously and/or precisely) a number of characters near the impact point of the user's interaction. In this example, the preferred characters that are shown in large font, are printed on the keypad (e.g. zone) such that the user may enter (e.g. precisely) the preferred characters by interacting with them. According to one method the system may (e.g. also and preferably simultaneously) consider said preferred character and the nearby characters as ambiguous characters. According to one method, if the user interacts with (e.g. a zone corresponding to) non-preferred character(s), the system may consider the nearby non-preferred characters as ambiguous characters. According to one method, after such interaction, the system may also enlarge said characters and optionally the nearby preferred characters, so that the user can enter any of said considered characters precisely. Note that a sequence of such ambiguously entered characters and optionally the precisely entered characters, may be considered by the word predictive system to predict word(s).

Fig. 465D shows another type of keyboard similar to keyboard 465300 of Fig. 465C where in this example, all the characters (e.g. preferred and non-preferred characters) are arranged close to each other to reduce the size of the keypad.

As mentioned before the, the letters (e.g. all of the letters, preferred and/or non-preferred letters, etc.) of the keypad may be arranged in the order of a standard (e.g. QWERTY) keyboard.

Fig. 463A shows, as an example, a keypad of the invention including a plurality (e.g. four) of letter keys (463001 to 463004). The preferred characters (e.g. 463011) are shown in large font and non-preferred characters (e.g. 463012) are shown in small font on the keys of the keypad. According to one method, for preferred characters, the user may tap on the keys and for non-preferred characters the user may tap on a broadly ambiguous zone (not shown) outside said keys. Preferably the keys of the keypad may have different forms so that together, they constitute a QWERTY-like keyboard. In this example, the boarders between keys are shown by lines (463021 to 463023). Such keyboard may also be used with a data entry system as mentioned before. Note that, the preferred characters assigned to a key are shown as an example and may vary. For example, in Fig. 463A, the character 'N' was presented as a preferred character (e.g. shown in large font) and the character 'M' was presented as a non-preferred character, and in Fig. 463B, the character 'M' 463111 is presented as a preferred character, and 'N' 463112 is presented as a non-preferred character. Also note that the number of preferred characters may vary, accordingly as required.

It must be noted, that a keypad of the system having a QWERTY arrangement, may have any number of keys.

Fig. 463C shows the keypad 463B in a split configuration having two portions each have two keys. In this example, the keys 463201 and 463202 form a first portion of the keypad and the keys 463203 and 463204 form a second portion of the keypad. Said portions are separated by a broodingly ambiguous zone 463207.

The keypad of the invention, as described above, may be resized, for example, to be in large format and/or in compact format. Fig. 463D shows a preferred embodiment of the invention, in this example, the keypad 463C is shown in a (e.g. vertically) compact format. In this example, the keypad includes additionally keys 463305 and 463306 relating to, for example, Space and Backspace as described throughout this application by the inventor. When a user touched a key, the non-preferred characters related to said key (e.g. 463304), may be shown in an enlarged format (e.g. 463332) so that the user may be able to enter at least one of them precisely. In this example, a word list 463331 presenting words corresponding to the input information provided by the user is also shown.

Note that all of the letters of a QWERTY-like keypad may be assigned to the keys of a keypad as preferred characters. In this case the keypad may not include a broadly ambiguous zone. For example, in the examples above, all of the letters may be assigned to the (e.g. four) keys in QWERTY-like keypads.

Note that letter arrangements other than Alphabetical and/or QWERTY-like keyboard arrangements may be consider by people skilled in the art based on the principles described above.

Such a keypad may be used with a data entry system such as the word predictive (e.g. fully-predictive and/or semi-predictive) data entry system of the invention. The use of preferred and non-preferred characters by a data entry system such as a word predictive system to predict words has already been described in detail.

It must be noted that in examples above, that although these embodiments, methods, principles, and examples refer to the use of keys, such keys are preferably zones on a touch sensitive surface such as a touchscreen.

It is understood that instead of a QWERTY-like keyboard, any other keyboard having any number of keys any character assignment, etc. may be used.

As mentioned before, the data entry system of the invention may use a keyboard such as an on-screen (e.g. alphabetically ordered, QWERTY-like, etc.) keyboard on a touch sensitive screen relating to an electronic device. As mentioned before, when user interacts with the keys, he may tap in an area of the keyboard being close to the character that the user intended to enter. The system may consider at least some of the neighboring character relating (e.g. near, around, or corresponding predefined characters) to the pressed area (e.g. zone). This may provide a set of ambiguous characters for each interaction with the keyboard. By providing a sequence of such interactions, the user may dynamically provide an ambiguous input information to the data entry system (i.e. each of the number of such interactions with the keyboard may be related to at least one character such as a letter, such as to duplicate a virtual key interaction corresponding ambiguously corresponding to one or more characters). Note that, even if there are non-preferred characters presented on the keyboard, according to a preferred method, the system may consider only the preferred characters relating (e.g. near, around, or corresponding predefined characters) to the interaction with the keyboard. As an example, by considering Fig. 464, when a user interacts with the keyboard at the touching/interaction point 464011, the system considers at least the letters 'E', 'R', and 'D' as ambiguously corresponding to said interaction. These matters have already been described in detail.

According to one embodiment, during the entry of a word, the letters of one of the words presented in the word list may be those letters that the user has tapped on them on the corresponding keys, and the remaining one or more characters of said word corresponding to user's interaction with the broadly ambiguous zone may be presented by a predefined character such as a blank character (e.g. such word may hereafter be referred to as an incomplete word). According to one method, if the user selects said incomplete word, it may become the current predicted word and the system or the user may enter the system into a correction procedure by switching the keypad into another layer wherein the non-preferred characters (e.g. on enlarged keys) are presented. Typing on the presented characters may replace said predefined/blank characters.

Note that, each time the user replaces a predefined character (e.g. by a non-preferred character), the system may propose one or more words from the database used by the system corresponding to the input information provided until then.

Fig. 467A shows another method of (e.g. alphabetic) arrangement of letters of a keypad of the invention having four keys 467001-467004 and a broadly ambiguous zone 467007. Different scenarios may be considered, such as:

(1) According to one embodiment (e.g. hereafter may be referred to as the preferred scenario)(e.g. preferably, in the fully ambiguous mode), each of the keys represents the letters displayed on it,. The remaining letters are (e.g. t, u, v, w, x, y, z, not shown) represented by the broadly ambiguous zone 467007. According to one method, in this example, in order to enter a word, and interaction such as a tapping action on a key/zone may ambiguously correspond to any of the letters on said key/zone. As such, a sequence of interactions with key(s)/zone(s) may correspond to one or more words of a database used by the system. Note that according to one embodiment, the characters/letters assigned to the broadly ambiguous zone may be displayed on said zone or anywhere on the screen. Note that, according to one embodiment, the boarders of the broadly ambiguous zone may be displayed on the screen. In the example Fig. 467A, the broadly ambiguous zone 467007 is the zone preferably between the letter keys and the space and backspace keys. In this example, the borders of the broadly ambiguous zone are not displayed.

(2) According to one embodiment, (e.g. preferably, in the semi-predictive mode), interacting with a key, may correspond to any of the preferred characters assigned to said key (e.g. in this example, the preferred letters displayed on a key are shown in large font, while the non-preferred letters are shown in small font). Interacting with the broadly ambiguous zone 467007 may preferably correspond to any of the non-preferred letters (e.g. small) shown on the keys (e.g. b, g, j, k, m, p, q) and the rest of the letters of the language that are not shown (e.g. t, u, v, w, x, y, z).

(e.g. In the embodiments above) optionally, according to one method, a predefined interaction such as tapping on any of the letters of a key may identify said letter and entering it (e.g. here in may be referred to as precisely entering a character/letter). According to a second method, a predefined interaction such as a tapping action on any preferred letter may precisely enter said letter. Accordingly, another type of interaction such as a (e.g. short) gliding action from a preferred character towards a non-preferred character may precisely enter said non-preferred character.

The system may include a precise mode wherein a predefined interaction such as a gliding action on/from the Space 467006 or Backspace key 467005 in a predefined direction may enter the system into said precise more where the user can precisely enter (e.g. any) characters. Fig. 467B and 467C show, as an example, such keypads.

Another method of assignment of letters of a language to a keypad of the invention is described using Fig 468. In this example, in addition to the keys 468001 to 468004 two broadly ambiguous zones 468007 and 468008 are considered each relating to portion of the mainly the remaining characters (e.g. none-preferred characters and TUVWXYZ, respectively.

As mentioned before, during interaction with a key/zone, such as tapping on a key, in addition to relating said interaction to an ambiguous input signal, the system may also relate said interaction to a precise character, preferably the character with which the user interacts (e.g. taps on).

As such, when the user provides the input information corresponding to a word, the system may consider/propose two types of corresponding words. A first type may include one or more words corresponding to ambiguous input signals and the second type may include one or more words that include one, more, or all of the precisely identified characters considered by system. Note that in some cases, the precisely identified characters may comprise all of the characters of a word. As an example, the table immediately below shows the words corresponding to interacting with the keys 467002, 467001, and the zone 467007. If the user types anywhere on said keys and the broadly ambiguous zone, the system may propose one or more words of the first type such as the words “eat”, “fat”, “hat” (herein may be referred to as ambiguous words), and “gay”. Additionally, if the user precisely taps on the letter F, then taps on the letter A, and finally taps on the zone 467007, the system may also propose the word “fat”. Similarly, for interacting with the letter H instead of the letter F, the same may apply to the word “hat”. By using this method the user may enter a desired word from a number of ambiguous words.

According to on method, the system proposes a (e.g. one or more) word of a second type only if said word, only if said word contains a (e.g. one or more) criterion such as having at least a predefined minimum frequency of use/occurrence. Said frequency of use/occurrence may be predefined number or a dynamically defined number, such as the relationship of frequency of said word and the frequency of an ambiguous word(s) wherein both types of words correspond to a same sequence of input signal(s). Note that in some cases, said second type of word may even become the current predicted word so that a predefined interaction such as tapping on the Space key may enter said word. According to one method, if the user select second type of word, the system may propose other words (e.g. having the same number of characters) corresponding to the input information provided by the user and corresponding to said second type of word.

According to one method, all of the characters/letters displayed on a key may be entered precisely by providing an interaction such as the tapping action on them. According to another method, when the user provides an interaction with a character displayed on a key to enter it precisely, the system may also consider a related (e.g. non-preferred) character/letter or one or more

characters near said character, and based on these characters and additional input information provided during the entry of a word, the system may propose one or more corresponding words.

Fig. 470 shows a one line/row (e.g. linear) alphabetically ordered keypad. Several methods of entering text using this keyboard may be considered.

-According to a first method, interacting with a zone corresponding to a character (e.g. where the zone does not necessarily have to be over said character) may ambiguously correspond to said character and a number of characters near said character.

-According to a second method, interacting with a zone corresponding to a preferred character (e.g. shown in large font) (e.g. where the zone does not necessarily have to be over said character) may ambiguously correspond to said character and a number of preferred characters near said character.

-According to a third method, interacting with a zone corresponding to a (e.g. preferably preferred) character (e.g. shown in large font) (e.g. where the zone does not necessarily have to be over said character) may ambiguously correspond to said character.

In the methods just described above, a tapping action on a broadly ambiguous zone 470207 preferably may either correspond to any of the characters (e.g. letters/symbols) of the corresponding alphabet or to the non-preferred characters.

In the example of Fig. 470, a predefined action such as a tapping action on a preferred character may enter said character precisely and a gliding action, as described in Fig. 467A, may correspond to entering a non-preferred character precisely. For example, the gliding action 470212 provided from the letter E to the letter F, may correspond to precisely entering the letter F. Similarly, providing the gliding action 470211 may correspond to entering the character G. Also, as an example, providing any of the gliding actions 470213 or 470214 may correspond to precisely entering the character X. According to another method, a gliding action provided from a (e.g. preferred) character, may correspond to precisely entering another (e.g. preferred) character. Note that, in Fig. 470, the broadly ambiguous zone 470207 is, as an example, preferably located between the Backspace key 470205 and the Space key 470206.

Note that each of a group of characters of such a keypad may have a common zone from which providing an interaction, such as a long gliding action, may correspond to precisely entering a symbol such as a function or special character. Fig. 469B shows, as an example, the letters of the keypad 470000 of Fig. 470, may be divided into four zones wherein each zone may also correspond to a different group of special characters as shown and described before and throughout this application.

Fig. 469A shows another type of linear keypad having alphabetic order. In this example only the preferred characters are displayed and the rest of the characters are assigned to the broadly ambiguous zone 469107. As described before, interacting with a zone relating to a character, may

correspond to either said character or to said characters and the characters near said character, depending on the method used as described above. Fig. 469B shows said keypad wherein the preferred characters are grouped in four different zones 469101 to 469104, wherein each zone also corresponds to a different group of symbols such as special characters.

Note that in the embodiments described throughout this application, according to one method, the broadly ambiguous zone may correspond to all of the letters of the corresponding alphabet. As an example, in embodiment corresponding to Fig. 469A or Fig. 467A, a user may provide the interaction corresponding to a partial number of (e.g. preferably preferred) characters corresponding to a desired word and, for the rest of the characters (e.g. preferred and/or non-preferred) of the desired word, the user may interact with (e.g. tap on) the broadly ambiguous zone. This matter has already been described in detail by this inventor.

In the embodiments described throughout this application, instead of using tapping actions corresponding to a sequence of (e.g. ambiguous and/or precise) characters, a gliding action interaction representing said sequence of characters my be used. To enter a word, according to one method a mixture of (e.g. one or more) such a gliding action and (e.g. one or more) other interactions such as tapping interactions may be used. These matters have already been described in detail before by this inventor.

Note that in any of the embodiment throughout this application, any other letter arrangement may be considered by people skilled in the art to be used with the principles of data entry as described. For example, said letter arrangement may (e.g. partially or fully) resemble a qwerty arrangement.

According to one method, the current predicted word may be a word having the highest priority corresponding to the input information provided by the user, even if said input information corresponds to the portion of said word such as its beginning portion.

With continuous description of the preferred scenario, as presented in Fig. 467A, according to one method, as shown in Fig. 471A when a user interacts with (e.g. taps on) the broadly ambiguous zone 471007, in addition to ambiguously relating said interaction to any character of a group of characters assigned to said zone (e.g. T, U, V, W, X, Y, Z, and preferably some special characters), the system may also relate said interaction to a predefined identified character (e.g. the character 'T') precisely, such as preferably based on the frequency of said groups of character.

With continuous description of the current embodiment, the letters assigned to a key may be presented to a user in two manners; a first group may be displayed in a first manner (e.g. a color, font, size, weight, etc.) and the rest of the characters of said key may be presented in a second manners (e.g. another color, font, style, size, weight, etc.). As such, according to one method, when a user interacts (e.g. taps on) with the a key, in addition to ambiguously relating said interaction to

any character of a group of characters assigned to said key, the system may also relate said interaction to an identified character displayed in said first manner on/near which the user provides said interaction on said key. Said character may be presented in a word list. According to one method, preferably upon an/said interaction with a key, the system may present the characters displayed in the second manner on a location (e.g. preferably under/near the word list (e.g. on the screen)). If the user interacts with one of said characters, the system may replace said identified character. Note that selecting an identified character as such preferably resembles a similar procedure (as described before, in detail) to replace an identified (e.g. preferred) character by another identified (e.g. non-preferred) character. According to one method, same procedure may be applied to entering any character of the groups of (e.g. non-preferred) characters assigned to the broadly ambiguous zone of Fig. 467A. For example, as shown in Fig. 471A, when a user interacts with the zone 471007 the system may ambiguously relate said interaction to a character of the group of (e.g. non-preferred) characters (e.g. T, U, V, W, X, Y, Z) assigned to the broadly ambiguous zone and display it in a word list (e.g. the letter 'u' 471011). Additionally, the system may relate said interaction to a predefined identified character (e.g. 'T' 471012) of said group of characters. In addition to said characters, the system may also propose additional corresponding (e.g. longer) words from the word database used by the system. As such, by providing a sequence of such interactions, in addition to predicting words corresponding to said sequence of interactions, the system may also present a word wherein all of its characters are identified characters. According to a preferred method, all of said words are presented in a same word list. Note that in this embodiment, all of the characters assigned to a key are preferably considered by the system as preferred characters (e.g. irrespective of the manner of display). As an example, the characters I, K, L, M, N assigned to the key 4671003 are all considered as preferred characters wherein some of the characters I, L, N are displayed in a first manner (e.g. large black font), while the other characters J, K, M are displayed in a second manner (e.g. small grey font). As an example, the user can enter any of the characters I, L, N (e.g. L) precisely by tapping on it. When such tapping action is provided, the system may also provide the characters displayed in the second manner J, K, M in a location on the screen. If the user taps on any (e.g. M) one of said characters displayed in said location, the system may preferably replace the entered character (e.g. L) by said character (e.g. M).

Note that according to one embodiment the characters assigned to the broadly ambiguous zone may also be display in said zone. Fig. 471B shows, as an example, the keypad of the invention having four keys and a broadly ambiguous zone wherein the characters are respectively arranged in alphabetic manner on the four keys and in the broadly ambiguous zone. According to one embodiment, the principles of entering precise/identified characters of a key may also apply to the characters assigned to the broadly ambiguous zone. As an example, as shown in Fig. 471B, the

characters T, U, V, X, Y, Z assigned to the zone 471107 are displayed in two different manners as described before. As such, as an example, in addition to ambiguously relating an interaction such as a tapping action on the broadly ambiguous zone 471107, the system may also relate said interaction to an identified character (e.g. one of the characters T, W, and Y) as described above. Upon said interaction, the system may also display, for example in a zone 471131 (e.g. near the word list), the characters (e.g. U, V, X, Z) displayed in the second manner on the broadly ambiguous zone 471107 so that the user can enter any of said characters precisely as described above for the keys.

Note that a group of characters assigned to a key of the keypad may include letters and/or special characters.

According to another embodiment, preferably, in the fully ambiguous mode, all of the characters (e.g. letters) assigned to a key and/or to the broadly ambiguous zone(s), may preferably be displayed on said key(s)/zone(s) in a same manner (e.g. color, font, style, etc.). As such when a user interacts with (e.g. taps on) a key and/or a broadly ambiguous zone, in addition to ambiguously relating said interaction to any character of a group of characters (e.g. letters and/or special characters) assigned to said key/zone (e.g. herein may be referred to as an ambiguous input signal and/or ambiguous interaction), the system may also relate said interaction to a predefined identified character on/near which the user provides said interaction on said key (e.g. herein may be referred to as a precise input signal and/or precise interaction). Said character may be presented in a word list. When a user enters input information, by providing a sequence of such interactions the system may present two types of words to the user. A first type of one or more words by relating said key/zone interactions to ambiguous input signals, and a second type of one or more words (e.g. the length of one of the words corresponds to the number of key and/or zone interactions, and the additional words may be longer words, for example wherein their beginning characters correspond to said key/zone interactions) by relating said key interactions to precise input signals. Note that, according to one method, the input information provided by the user may be a mixture of ambiguous and precise input signals as described throughout this and other patent applications filed by this inventor. As an example, if the user uses another method (e.g. such as a gliding action) for entering a precise character, the system may predict one or more words by considering said precise character and relating the rest of the key and/or zone interactions provided by the user to ambiguous signal(s).

Fig. 472A shows an exemplary keypad of the vowels ‘A’, ‘E’, ‘I’, ‘O’, and ‘U’ to a separate key/zone while keeping an alphabetic order on the keypad, and preferably also separating the letters S and T (e.g. by assigning the letter T to the broadly ambiguous zone) a familiar and highly accurate word prediction system is provided. Note that by locating two pairs of letter keys on opposite sides

(e.g. of the screen) of a device and locating two letters keys only under a user's thumb, the user's thumb has only two positions (e.g. up-down, or left-right, depending on the keys being respectively positioned in vertically or horizontally) during entering a word and the rest of the letters being preferably between said zone, any user is enabled to type blindly and quickly form the beginning.

As an example, fig. 472B shows a keypad of the invention having four letter keys 472201-472204. In this example, according to one method, the principles of text entry similar to those described above and shown through fig. 472A may be considered.

In the embodiments above, in addition to the letters, a group of (e.g. ambiguously) characters assigned to a key may also include one or more symbols such as special characters. As show in fig. 472B, as an example, the key 472203 includes an apostrophe that may be included in some of the words of the database used by the system.

In some of the embodiments (e.g. in the embodiments above) or all of the embodiments of the invention, a broadly ambiguous zone (e.g. the zone, 472207 of fig. 472B) may represent some or all of the characters assigned to the keys or all of the characters/letters of a language (e.g. even if the keys (e.g. the four letter keys) of the keypad together represent all of the characters/letters of a language). According to one method, at any moment during the entry of a word, the user may interact with (e.g. tap on) the broadly ambiguous zone for a character/letter of his desired word. As such, when the user provides a sequence of interactions including interactions with the letter keys and/or the broadly ambiguous zone, the system predicts one or more word corresponding to said interactions. This matter has already been described in detail before in this and in the previous patent applications filed by this inventor.

Note that according to one embodiment, the characters/letters assigned to the broadly ambiguous zone may be displayed on said zone or anywhere on the screen. Note that, according to one embodiment, the boarders of the broadly ambiguous zone may be or not be displayed on the screen. In the example Fig. 467A, the broadly ambiguous zone 467007 is the zone preferably between the letter keys and the space and backspace keys. In this example, the borders of the broadly ambiguous zone are not displayed.

Note that selecting an identified character as such preferably resembles a similar procedure (as described before, in detail) to replace an identified (e.g. preferred) character by another identified (e.g. non-preferred) character. According to one method, same procedure may be applied to entering any character of the groups of (e.g. non-preferred) characters assigned to the broadly ambiguous zone of Fig. 467A. For example, as shown in Fig. 471A, when a user interacts with the zone 471007 the system may ambiguously relate said interaction to a character of the group of (e.g. non-preferred) characters (e.g. T, U, V, W, X, Y, Z) assigned to the broadly ambiguous zone and display it in a word list (e.g. the letter 'u' 471011). Additionally, the system may relate said

interaction to a predefined identified character (e.g. 'T' 471012) of said group of characters. In addition to said characters, the system may also propose additional corresponding (e.g. longer) words from the word database used by the system. As such, by providing a sequence of such interactions, in addition to predicting words corresponding to said sequence of interactions, the system may also present a word wherein all of its characters are identified characters. According to a preferred method, all of said words are presented in a same word list. Note that in this embodiment, all of the characters assigned to a key are preferably considered by the system as preferred characters (e.g. irrespective of the manner of display). As an example, the characters I, K, L, M, N assigned to the key 4671003 are all considered as preferred characters wherein some of the characters I, L, N are displayed in a first manner (e.g. large black font), while the other characters J, K, M are displayed in a second manner (e.g. small grey font). As an example, the user can enter any of the characters I, L, N (e.g. L) precisely by tapping on it. When such tapping action is provided, the system may also provide the characters displayed in the second manner J, K, M in a location on the screen. If the user taps on any (e.g. M) one of said characters displayed in said location, the system may preferably replace the entered character (e.g. L) by said character (e.g. M).

Note that according to one embodiment the characters assigned to the broadly ambiguous zone may also be display in said zone. Fig. 471B shows, as an example, the keypad of the invention having four keys and a broadly ambiguous zone wherein the characters are respectively arranged in alphabetic manner on the four keys and in the broadly ambiguous zone. According to one embodiment, the principles of entering precise/identified characters of a key may also apply to the characters assigned to the broadly ambiguous zone. As an example, as shown in Fig. 471B, the characters T, U, V, X, Y, Z assigned to the zone 471107 are displayed in two different manners as described before. As such, as an example, in addition to ambiguously relating an interaction such as a tapping action on the broadly ambiguous zone 471107, the system may also relate said interaction to an identified character (e.g. one of the characters T, W, and Y) as described above. Upon said interaction, the system may also display, for example in a zone 471131 (e.g. near the word list), the characters (e.g. U, V, X, Z) displayed in the second manner on the broadly ambiguous zone 471107 so that the user can enter any of said characters precisely as described above for the keys.

Note that a group of characters assigned to a key of the keypad may include letters and/or special characters.

Note that according to one method, each group of several characters may be assigned to a separate zone which is preferably also assigned to a different groups of special characters, as described throughout this application. For example, in fig. 467B, providing gliding action on/from, respectively, the zones, 467101-467104, may correspond to entering special characters from four

different groups of characters as described throughout this application, and providing gliding action on/from the zone 467105 may correspond to entering mouse functions as described before.

Also for example, in fig. 467C, providing gliding action on/from, respectively, the zones, 467201-467204, may correspond to entering special characters from four different groups of characters as described throughout this application.

According to one method, (e.g. in alphabetical order) the characters assigned to the zones/ keys and the broadly ambiguous zone may begin with a vowel.

Note that switching between the reduced (e.g. ambiguous) keypad and the (e.g. precise) enlarged keypad or vice versa may be achieved by providing a gliding action on a/any zone/key of the keypad.

Note that, according to a preferred type of arrangement, the main character related to a secondary character may not necessarily have a high frequency of use.

Regarding the broadly ambiguous zone, different scenarios of presentation and/or interaction for input may be considered such as:

-Scenario 1: the broadly ambiguous zone may be a single (e.g. additional) key/zone (e.g. having several subzones) resembling to any of the letter keys such keys 474001 to 474004 of fig. 474A.

-Scenario 2: the broadly ambiguous zone may be a separate/additional zone relating to any of the keys of the keypad (e.g. including the (e.g. additional) key/zone of scenario 1).

-Scenario 3 (preferred): the broadly ambiguous zone (e.g. 474007) may be a large zone that also includes the subzones (e.g. 474017) of scenario 1. In this case, according to a preferred method, tapping anywhere on the broadly ambiguous zone (e.g. including tapping on the subzones 474017) may preferably correspond to, both, an ambiguous and a corresponding precise input signal (e.g. corresponding to an identified letter/character). According to a first method, one of the letters/characters (e.g. T) assigned to the broadly ambiguous zone may be entered precisely by default when the user interacts with (e.g. taps on) a location outside the subzones (e.g. 474017) in the broadly ambiguous zone (e.g. 474007). In this case, said letter (e.g. T) may preferably not be printed anywhere in the broadly ambiguous zone (e.g. including in its included subzones) as shown in figs. 474A.

According to another method, such default letter/characters is not considered when the user interacts outside the subzones in the broadly ambiguous zone. In this case, such letter (e.g. T) may preferably be assigned/printed to/on one of the corresponding subzones.

It must be noted that, at any moment the user may be allowed to hide the letters/subzones assigned to the broadly ambiguous zone. As such, preferably, the icons and/or borders relating to the space and backspace keys may also be hidden, so that to reduce the visible portion of the

keypad. Also, the user may be allowed to reduce the size of the letter keys. In this case, according to one method, interacting with a key/zone may correspond to an ambiguous input signal assigned to said key, and to enter precise character, the user may use other methods (e.g. providing gliding actions in different direction on/from said key, each corresponding to a different letter/character assigned to said key) as described throughout this and the previous patent application filed by this inventor. Note that according to one method, the user may be enabled to make the letter keys invisible or just shoe the borders of them.

Note that, when the system identifies an entered character as a precise character, the system preferably proposes/predicts words that include said identified character in the corresponding character position within the words

Note that the keys of the keypad may have any arrangement. Fig. 475A, shows as an example, a keypad of the invention wherein its letter keys 475001 to 475004 are disposed diagonally so that the precise letter can be entered easier. The fig. also shows the broadly ambiguous zone 475007 which in this case is located between keys that includes a large zone wherein a portion of the zone is occupied by the sub-zones as described above,

Different keypads corresponding to the semi-predictive mode of the invention have been described and shown before. According to one embodiment, each of the keys of such keypad may have a number of zones such as four subzones. Fig. 476A shows an exemplary such keypad. In this example, the preferred characters on each key are shown in black font and the none-preferred characters are printed in red. Note that as described before in detail, in the semi-precise mode, for the preferred characters the user may interact such as tap on said characters or on a zone relating to said characters, and for the none-preferred characters the user may preferably interacts with the broadly ambiguous zone (e.g. 476007). By receiving a sequence of one or more such interactions the system may predict one or more words. This and the relating matters have already been described in detail before.

A keypad of the invention used by the semi-predictive mode of the invention may have any type of key and/or letter arrangements. Note that a key can be a zone on a touch sensitive surface such as a touch screen

Fig. 477A shown another example of the keypad of the invention on the screen 474009 of an electronic device. In this example, the letters are arranged in alphabetical order on four keys 477001-477004, and the broadly ambiguous zone 474007 (e.g. in this example, may be considered as a key).

The fully ambiguous mode of the invention has already been described in detail. The above keypad may preferably be used with the fully ambiguous version of the invention. In this example, The letters A to D are assigned to the key 477001, the letters E to H are assigned to the key 474003,

the letters I to N are assigned to the key 477003, the letters O to S are assigned to the key 477004, and the letters T to Z are assigned to the zone/key 477007. As described before, when a user interacts with a key/zone, the system may preferably (e.g. simultaneously) relate said interaction to two types of interaction: ambiguous interaction and precise interaction. To enter precisely a character/letter, the user may use precise interaction as described earlier. As described and shown before, a key/zone of the keypad may include several sub-zones (e.g. herein may be referred to as subzone) such that interacting with a subzone may enter precisely the character/letter assigned to said sub-zone. According to a preferred method, as shown in this example, any of the keys/zone(s) of the keypad may preferably include a sub-zone corresponding to a different single letter (e.g. and or any special character (e.g. ambiguously assigned to said key). As such different keys of the keypad may have different numbers of subzones and therefore their size may vary. For example, the key 477001 has four subzones each relating to a different single letter of the group of letters assigned to said key. As such, the key 477002 has six subzones, the key 477003 has four subzones, the key 477004 has five subzones, and the broadly ambiguous zone/key 477007 has preferably seven subzones. In this embodiment, interacting with a subzone may preferably provide an ambiguous input signal corresponding to any of the letters assigned to said key, and a precise input signal corresponding to an identified character assigned to said sub-zone. As such at any moment, the user may be able to enter both predictive and/or precise input information (e.g. the user may enter a word ambiguously by tapping anywhere on the keys and/or zone, or enter a chain of characters letter by letter precisely. Note that in this example, the characters/letters A-H are assigned to the left keys, and the characters/letters I to N are assigned to the right keys. This is beneficial especially in devices such as tablets because the user can faster remember and/or scan the alphabetically ordered letters.

According to one embodiment, the system may have a switching method so that to reduce the size of the/a keypad for example such as the keypad of fig. 477A. As such, as shown in fig. 477B, after switching the keypad to such a mode,. In this example, the size of the keys 477001 to 477004 are reduced, and the key/zone 477007 is replaced by the broadly ambiguous zone 477107. Now, interacting anywhere on the zone 477107 is preferably ambiguously related to any of the letters T to Z. according to one method, in this example, the number of subzones may be reduced such that to correspond to the main letters/characters, and the secondary characters may be entered as described before or in any other manner known by people skilled in the art.

According to one method, the size of the keypad/keyboard may be reduced into several predefined reduced sizes, for example, depending on the user's desire/needs. As such, after switching the keypad to one of the predefined sizes, the number of the subzones on a key may be reduced accordingly. In this case, each of the subzones may correspond to an identified predefined

main character on the corresponding key in a corresponding reduced size keypad. The secondary characters may preferably be shown in a different manner relating to the main character on the keys/zone(s) or they may not be shown.

As an example, Fig. 477C shows the (e.g. large size/mode) keypad of fig. 477A in a first reduced size (e.g. middle size/mode). In this example, each of the keys/zones of the keypad includes four subzones. Each of the subzones preferably represents a single identified character which in this example is printed in black. The secondary characters are printed in another color (e.g. red, gray).

Also as an example, Fig. 477D shows the (e.g. large size) keypad of fig. 477A in a second reduced size (e.g. middle) size/mode. In this example, each of the keys/zoned of the keypad include three subzones. Each of the subzones represents a single identified character which in this example is printed in black. The secondary characters are printed in color (e.g. red/gray).

According to one method, the subzones of a key/zone may not be equal in size or form. As an example, in Fig. 477C the broadly ambiguous zone 477207 includes four subzones 477217 related to the main characters UVWY which in this example are printed in black, and a large subzone 477227 (e.g. outside the subzones 477217 within the zone 477207) corresponding to an identified character which in this example is the letter T which preferably is not printed in said subzone. Note that as mentioned before, interacting with any of said subzones may correspond to, both, the corresponding identified character and to a corresponding ambiguous input signal. Note that, the borders of the subzones may or may not be shown/printed.

According to one embodiment of the invention, preferably in the fully ambiguous mode, when the user taps on a letter key and or the/a broadly ambiguous zone, in addition to relating said tapping action to an ambiguous character, the system may relate said tapping action to a predefined identified character (e.g. a vowel/consonant, a blank character, a visible character representing a blank character, etc.). According to one method, each key may have a different default character, while according to another method, all of the keys/zone may have a same default character. As such, when a user provides a sequence of one or more tapping action on the keys and/or the boadly ambiguous zone, one of the proposed words may preferably be constituted from the corresponding default characters (e.g. said word may herein be referred to as the default word). According to one method, if the user interacts with said/the default word, the system may preferably switch into the precise letter mode, wherein for each interaction with a key of the keyboard, the system may preferably replace the corresponding default character in the default word by the precise letter corresponding to the key of the precise keypad being interacted. By using this method, uncommon words and/or the words that are not included in the database of words used by the system may be entered character by character precisely. According to a preferred method, when the user interacts with a default word, the system may also propose more words (e.g. if any) corresponding to the

input information provided by the user until then. Each additional interaction with the default word may result in proposing more corresponding words. Preferably, at least at first, the system proposes the corresponding words with the length of the default word, and preferably then, the system proposes the words that a (e.g. the beginning) portion of them corresponds to the input information provided by the user.

According to one embodiment of the invention, providing gestures from anywhere on a key in several predefined directions may provide corresponding several identified character (e.g. letters) ambiguously assigned to said key. Preferably the order of the gestures directions may correspond to alphabetical order of the corresponding identified characters/letters. As an example, figs. 477E to 477G show a keypad of the invention (e.g. similar to that of the fig. 477B wherein the letters on the keys are printed such that to permit to have small keys) using an exemplary method of entering precise characters/letters (e.g. note that this method of entering precise characters/letters may be used in addition or in replacement to the methods of entering precise characters as described before such as through the figs. 477A to 477D. In this example, the default character of each key/zone may preferably be the first character of the corresponding ambiguous characters in alphabetical order (e.g. respectively, A, E, I, O, and T). The other characters of each key/zone may preferably be entered precisely according to their alphabetical order on the corresponding key, preferably according to gestures in corresponding predefined directions (e.g. clockwise order or opposite clockwise order).

For example, as shown in fig. 477E, providing gliding actions on/from the key 477701 towards up, upper-right, and right, may respectively correspond to entering precisely the letters, B, C, and D, and providing gliding actions on/from the key 477702 towards up, upper-left, left, lower-left, and down, may respectively correspond to entering precisely the letters, J, K, L, M, and N.

Also, for example, as shown in fig. 477F, providing gliding actions on/from the key 477703 towards up, upper-right, and right, may respectively correspond to entering precisely the letters, F, G, and H, and providing gliding actions on/from the key 477704 towards up, upper-left, left, and lower-left, may respectively correspond to entering precisely the letters, P, Q, R, and S.

Also, for example, as shown in fig. 477G, providing gliding actions on/from the broadly ambiguous zone/key 477707 towards up, upper-right, right, lower-right, down, and lower-left, may respectively correspond to entering precisely the letters, U, V, W, X, Y, and Z.

Note that in this example, providing a tapping action on the keys/zones 477701, 477703, 477702, 477704, and 477707, are preferably correspond to respectively, the default letters A, E, I, O, and T.

Note that this is only as example to demonstrate the principles of entering intuitively/blindly precise character/letters. Other methods may be considered for the same purpose. For example,

Samsung Exhibit 1005, Page 256 of 439

interacting such as a tapping action on a key may not correspond/provide a letter, but (e.g. a symbol representing) a blank character. In this case, according to one method, any (e.g. of some or all) of the characters (e.g. ambiguously) assigned to a key may be precisely entered by providing a gliding action towards a predefined direction. As an example, providing gliding actions on/from the key 477701 towards up, upper-right, right, and lower-right, may respectively correspond to entering precisely the letters, A, B, C, and D. Same rule may be applied to other keys/zones.

Note that in the embodiment above, the order (e.g. of gestures in different direction (e.g. such as up to eight different directions from a key) described for entering precise character is alphabetic. Other orders such as for example QWERTY order may be used. Note that according to principles described above, a user may enter a text blindly, both, in precise mode and in ambiguous mode.

According to one embodiment of the invention, as described throughout different patent applications filed by this inventor, gliding actions including a press-and-holding-action in different directions such as in up to eight directions as described above may be used for entering special characters assigned to a key. As described before in detail, each key may represent a group of characters having a common characteristic. For example, press-and-holding-and gliding actions in different predefined directions such as eight different directions on a key, may provide up to eight different special characters assigned to said key. A long pressing action on said key and removing the finger (e.g. without providing a gesture) may be related to entering another special character assigned to said key.

Note that, the keypads/keyboards shown in the patent applications such as this patent application filed by this inventor are shown as example to demonstrate the principles of the data entry system of the invention. Major or minor modifications may be considered. For example, in the examples of figs. 477A to 477D, rather than assigning the letter T to the/a broadly ambiguous zone (e.g. 477007 of figs. 477A and/or 477107 of fig. 477B), the letter T may be combined with/included in the group of character O to S, and be assigned to a corresponding key/zone (e.g. the key 477004 of fig. 477A and/or the key 477004 of fig. 477B).

According to one embodiment, the arrangement of letters on different keys may vary based on parameters such as the type of language used with the/a keyboard. For example, in English language, the letters O to T may be assigned to the key 477004 (e.g. although this may also cause a decrease of prediction accuracy because the letters S and T have both high frequency of use), and the letters U to Z may be assigned to the broadly ambiguous zone 477007 and/or 477107, while in French language the letters O to S may be assigned to the key 477004, and the letters T to Z may be assigned to the broadly ambiguous zone 477007 and/or 477107. This is because for example in English language the letters T and W are used often and according to one method it may be preferable to assign them to different/separate keys/zones, while in French language the letter W is

not often used and therefore the letters W and T may be included in the/a same group and be assigned to a same key/zone.

According to a preferred method, in (e.g. substantially) all of the Roman based languages (e.g. English, French, Spanish, Italian), the arrangement/assignment of letters an/to the keyboard/keypad of the invention may be similar (e.g. the letters O to S are preferably assigned to the key 477004, and the letters T to Z are preferably assigned to the broadly ambiguous zone 477007 and/or 477017). This may provide an intuitive and easy method of text entry in several languages (e.g. simultaneously) because the user does not have to learn (e.g. two) different letters layouts.

According to one embodiment, the system may include an automatic method of resizing the keypad based on user's way of interaction, for example, either when he/she begins to type a text/data or in real time while entering text/data. For example, during typing a portion of a text such as a word, if the user taps several (e.g. consecutive) times on a same location on a key, then the system may assume that the user is entering a word ambiguously. In this case, the system may automatically reduce the size of the keypad. On the other hand, as an example, during typing a portion of a text such as a word, if the user taps several (e.g. consecutive) times on different locations on a key, then the system my assume that the user is entering a word precisely. In this case, the system may automatically expand the size of the keypad.

As mentioned before, based on the principles of data entry described by this inventor, many other configuration of letters on/and/or many other key/zone arrangements may be considered by people skilled in the art. As an example, keyboards constitute of or including one line or two line keys such as or substantially similar to those shown in fig. 478A to 478C may be considered. In fig. 478A, the space key 478006 and the backspace key 478005 of the invention are located in a same line than the letter keys 478001 to 478005. In fig. 478B, the space and backspace key are located in a separate line relating to the line of letter keys, and in Fig. 478C, the key/zone 478007 and the space and backspace keys form a line separately from the line of keys 478001 to 478004. Keypad of fig. 478D is similar to that of the 478B with the different that this keypad has a single character/letter zone 478101. Note that in these example(s), any of the lines of keys/zones may be horizontal and/or vertical, and/or diagonal, etc.

Fig. 479A, shows another example of a keyboard of the invention having a QWERTY letter arrangement. In this example, the first/top line of letters of a QWERTY keyboard are divided into two separate groups wherein each group is assigned to a separate key. In this example, the letters QWERT are assigned to the key 479001 and the letters YUIOP are assigned to the key 479002. Accordingly, the second/middle line of letters of a QWERTY keyboard are divided into two separate groups wherein each group is assigned to a separate key. In this example, the letters ASDF

are assigned to the key 479003 and the letters GHJKL are assigned to the key 479004. Finally, the letters, ZXCVBNM are assigned to a/the broadly ambiguous zone/key 479007. Note that, this is an example, and therefore, major or minor modifications may be considered. For example, the letter G may be assigned to the key 479003 rather than being assigned to the key 479004. Also for example, as shown in Fig. 479B, (e.g. for better accuracy) the order of assignment of the letters J and I may be swapped such that to respectively corresponding keys 479002 and 479004. Note that the exemplary keypads of Figs. 479A and 479B resemble to the keypad of fig. 477A with a different letter arrangement.

In the current example, any of the keys/zones may also ambiguously (e.g. through a first type of interaction) and/or precisely (e.g. through a second type of interaction) represent a special character assigned to said key. Such special character(s) may be part of the group of letters assigned to said / corresponding key/zone.

According to one method, the special characters assigned to a key in the corresponding special character mode instance, may also ambiguously being assigned to a predefined interaction such as a predefined interaction with the corresponding key. According to one method, said special characters assigned to a key and the letters assigned to a preferably same key may constitute a single group og characters ambiguously assigned to a predefined interaction such as a tapping action on the corresponding key. As a first example, when the user provides a tapping action on the key 479002, said interaction may ambiguously correspond to any of the letters and special characters (e.g. in this example, digits 1-9) assigned to said key. As a second example, a tapping action on the key 479002 may ambiguously correspond to any of the letters assigned to said key, and a long pressing action on said key 479002 may ambiguously correspond to any of the digits 1-9 assigned to said key. It is understood that another type of first and/or second types of interactions may correspond to entering precisely any of the letters and/or special characters assigned to a key. These matters have already been described by this inventor.

With continuous description of the current embodiment, Fig. 479B shows the keyboard of the fig. 479C in another (e.g. reduced) mode resembling to the keypad of fig. 477B.

As mentioned, the exemplary keypads of figs. 479A to 479B, and the keypad of 479C of the current embodiment respectively resemble to the exemplary keypads of figs. 477A and 477B with a different letter arrangement, therefore preferably, the principles of data entry described in the embodiment relating to the exemplary keypads 477A to 477B may apply to the keypads of the current embodiment. As an example, Fig. 479D, shows the keypad of fig. 479A and B in a predefined reduced size including main and secondary characters as described before.

In the embodiments above described and shown through the exemplary keypads 477A, interacting with a predefined zone 477007 outside/between the keys may precisely correspond to

entering an identified character such as the character T. This character may preferably be used (e.g. considered in the input information provided by a user to enter a word) by the semi-predictive, fully predictive, (e.g. and fully precise) modes of the data entry system of the invention to predict/present corresponding words.

As mentioned before, according to one method, after the user selects a word in the word list presented by the system, the system may propose one or more longer words. If the selected word was not the current predicted word, then said word selected word may preferably become the current predicted word. According to one embodiment, providing a second tapping action on the selected word may enter said word. According to one method, after selecting it, the selected word preferably remains in its location within the word list (i.e. its location does not change) so that to permit a desired word in the wordlist by providing a double-tapping action on it.

According to one embodiment, after the user provides an end-of-the-word signal such as a space character, the system may propose one or more symbols (e.g. commonly used symbols such as !?.,) such as (e.g. special) characters and/or functions (e.g. Enter function, switching to another mode (e.g. special character mode) each preferably being assigned to different zone on a/the touch sensitive surface/screen (e.g. herein may be referred to as preferred symbols zones) such that interaction with one of said zones may preferably selects/enter the corresponding character/function. After such interaction several scenarios may be considered:

- According to a first scenario, preferably the presented preferred symbols zones are removed from the touch sensitive surface.
- According to a second scenario, the presented preferred symbols zones remain on the touch sensitive surface so that for example the user can enter more of said special characters and or functions. In this case, according to one aspect, providing a predefined interaction such as pressing on the space character, proceeding to entering a next word (e.g. tapping on a letter key), etc., may preferably remove the presented preferred symbols zones from the touch sensitive surface/screen.

According to one method, a predefined interaction such as a press-and-holding action on a such zone may correspond to repeating to enter the corresponding character until the user ends said interaction (e.g. removes his/finger from the touch sensitive surface). As mentioned, one or more of the zones may correspond to function(s). As an example, interacting with one of the preferred symbols zones may correspond to entering the system into the/a (e.g. precise) special character mode (e.g. hereafter may be referred to as symbol mode) of the invention where more zones corresponding to more special characters are preferably presented to the user. In this case, according to one method, at least the presented zone of the preferred symbols zones corresponding to the switching action may remain on the screen so that the user for example the user can switch back to the previous (e.g. letter) mode.

According to one method, after said (e.g. a first) preferred symbols zones are removed from the screen, another group of one or more preferred symbols zones may be presented on the screen. For example, the said another group may include a zone corresponding to activation of the Enter function. Note that said another group may include one or more zones of the previous (e.g. the first) preferred symbols zones. Fig. 479E shows as an example wherein after typing the "How", the user has pressed the space key 479406. In this case, the system preferably shows on a location 479411 (e.g. herein may be referred to as few/preferred symbols button/zone) a number of preferred symbols zones each corresponding to for example a symbol such as special characters or a functions. Providing a predefined interaction such as a tapping action on such a zone may enter/activate said symbol. In this example, the zones 479421 and 479426, respectively correspond to entering the character "?" and to switching the system into the precise symbols mode. Note that the few symbols button may be displayed diagonally or vertically preferably on/close to the/an edge of the screen. According to one method, the few symbols button may include more/other symbols/functions (e.g. Shift, CapsLock, Tab, Settings, Switching language, Remove keyboard from the screen, etc.). According to one aspect, (e.g. when the few symbols button is presented on the screen) all of the symbols assigned to the few symbols button may simultaneously be shown/available to a user, while according to another aspect, the few symbols button may have a means (e.g. a predefined zone to tap on, a sliding function over the few symbols button, etc.) so that the user can scroll between different layers of the few symbols button wherein each layer presents a number of (e.g. different) symbols/functions.

Note that the preferred symbols zones and their corresponding symbols shown in these examples are exemplary and they may vary. Other groups of one or more preferred symbols zones may be considered and their location on the screen may vary. Fig. 479F shows as an example, having three symbol zones 479511 and being located on the left of the screen.

According to one method, the at least one (e.g. preferably all of the) preferred symbols zones may preferably at least most of the time remain/displayed on the screen (e.g. herein may be referred to as permanent preferred symbol zone(s)) so that substantially always being available to the user. As an example, fig. 479G shows the keypad of the invention in for example the semi-predictive or fully predictive mode/instance 479001 (e.g. hereafter may be referred to as the original mode) and wherein a permanent preferred symbol zone/key 479011 relating to switching the system into symbol mode/instance is printed on the screen. According to a preferred method, after the user interacts (e.g. taps) on the zone/key 479011, the system may preferably switch to the symbol instance/mode 479012, wherein the symbols are shown/grouped in four different zones 479651 to 479654 based on their common characteristics as described throughout this and previous patent

applications filed by this inventor. Note that in this example, on each zone, the symbols are arranged in two lines.

After the system enters into the symbol mode, preferably, the permanent preferred symbol zone 479011 may change its appearance 479012 and/or function. In this example interacting with the zone/key 479012 may switch the system into the precise letter mode 479003. Now, preferably, the permanent preferred symbol zone/key 479012 may change its appearance and/or function to 479013 (e.g. in this example, similar to 479011) so that interacting with the zone/key 479012 may switch the system into the corresponding mode (e.g. in this example to symbol mode 479003.).

According to one method, in any of the modes (e.g. the symbol mode, the precise letter mode) if the user presses the space key 479606, the system preferably switches back to the original mode 479001.

According a one embodiment, the system may include both:

-a first type of preferred symbol zone(s) that may not always be shown on the screen (e.g. such as the zone(s) 479411 of fig. 479E which is preferably shown after typing a character/letter/word (e.g. a text) and pressing the space key, and the disappears upon providing a predefined interaction such as starting to type a next text (e.g. herein may be referred to as temporary preferred symbol zone); and/or

-a the permanent preferred symbol zones(s)/key(s).

Fig. 479H shows the keypad of the invention of fig. 479G in an exemplary instance after typing the word "what" 479121 and pressing the space key. In this example, both, the permanent preferred symbol zone/key 479711, and the temporary preferred symbol zone/key 479712 are presented on the screen 479409.

Note that, both, the number of temporary and/or the permanent preferred symbol zone(s) may vary. For example, the two permanent preferred symbol zones/keys may be shown on the screen, wherein a first one corresponds to the symbol mode, and the second one may relate to precise letter mode. According to one method, when the system is in the original mode/instance, interacting with a/the permanent preferred symbol zone/key may correspond to entering the system into the precise letter made. Another interaction with said preferred symbol zone may enter the system into the symbol_mode, and vice versa.

As mentioned before, the/a broadly ambiguous zone of a keypad of the invention may be located anywhere on the screen and preferably is invisible/transparent. Fig. 479I to 579K, show some examples of the keypad of the invention and the (e.g. their corresponding) broadly ambiguous zones. Fig. 479I shows an exemplary keypad of the invention with QWERTY letter arrangement as described before. Here the broadly ambiguous zone 479707 (e.g. corresponding to the letters ZXCVBNM) is the zone between the space key 579706 and the backspace key 479705. In this

example, the zone 479717 between the letter keys is accessible to a user so that for example he/she may be able to (directly) interact with content on the screen in that zone.

Fig. 479J shows another exemplary keypad of the invention with alphabetic letter arrangement as described before. Here the broadly ambiguous zone 479807 (e.g. corresponding to the letters TUVWXYZ) is the zone between the space key 579806 and the backspace key 479805. In this example, the zone 479817 between the letter keys is accessible to a user so that for example he/she may be able to (directly) interact with a content on the screen on that zone. According to another example, the broadly ambiguous zone may be located (e.g. location/zone 478008) next-to/near one of the (e.g. groups of the) keys of the keypad so that the whole middle of the screen being (e.g. directly) accessible. Note that in this example, the letter keys are designed to be very narrow so that to maximize the screen real state for viewing a content on the screen. According to other concepts, the letter keys may be displayed vertically of they may be small squares having alphabetical order (e.g. each key may have two or more lines of alphabetically ordered letters).

Note that in the examples of the keypads of Figs. 479I and 479J, all of the letters/characters on their respective keys 479701 to 479704, and 478801 to 478804, are preferably considered as preferred letters/characters, and the letters assigned to the respective broadly ambiguous zones may be considered as none-preferred letters/characters.

Fig. 479L shows another exemplary keypad of the invention, for example (e.g. in the precise letter mode) resembling to the keypad of Fig. 477A with the difference being that here the keypad also includes the characters "." 479881 and "@" 479882 so that the user can enter an email address without switching to another mode such as, for example, a symbol mode.

Fig. 479M shows another exemplary keypad of the invention with a QWERTY letter arrangement. Here the broadly ambiguous zone 4791107 (e.g. corresponding to the letters "Z", "X", "C", "V", "B", "N", "M") is the zone between the space key 4791106 and the backspace key 4791105. In this example, the letters are dispatched on four keys and the broadly ambiguous zone such that to provide high accuracy prediction.

Fig. 479N shows another exemplary keypad of the invention with a substantially similar QWERTY letter arrangement. Here the broadly ambiguous zone 4791207 (e.g. corresponding to the letters "Z", "X", "C", "V", "B", "N", "M") is the zone between the space key 4791206 and the backspace key 4791205.

In this example, the letters "O" and "L" that are in the QWERTY order have been swapped to provide very high accuracy of prediction.

Fig. 479O shows an enlarged exemplary keypad of the invention having a QWERTY-like arrangement preferably having five keys/zones (e.g. herein may be referred to as a 'multi-mode key/zone') each corresponding to a plurality of characters. In this example, letters QWER are

assigned to the key/zone 4791101, letters TYUILP are assigned to the key/zone 4791103, letters ASDF are assigned to the key/zone 4791102, letters GHJKO are assigned to the key/zone 4791104, and letters ZXCVBNM are assigned to the key/zone 4791107. In this example, the keypad is preferably in precise/enlarged mode. Note that as described throughout this application, an interaction with such precise/enlarged keyboard may preferably be simultaneously considered as relating to entering a precise character and/or an ambiguous character relating to said interaction. Note that, as shown in this example, additional characters (e.g. in this example the '@' and '.' symbols) may also be assigned to said zones/keys. Such additional characters may also be entered precisely and/or ambiguously as described. In a preferred embodiment, any of several groups of characters preferably having a common characteristic may be assigned to a corresponding zone/key of such keypad and be entered ambiguously and/or precisely. As such, words including alphabetical and/or special characters may be entered by using this embodiment. Note that for better prediction accuracy, modifications to a QWERTY layout may be applied. In this example of this embodiment, the letters L and O are swapped.

According to one embodiment, when the/a keypad/keyboard is in ambiguous mode (e.g. fig. 479M) at some point during enlarging at least some of the keys of said keypad/keyboard, said keypad/keyboard may switch to the/a corresponding keypad/keyboard (e.g. 479O) of the precise mode. According to one embodiment, when the/a keypad/keyboard is in precise mode (e.g. fig. 479O) at some point during shrinking at least some of the keys of said keypad/keyboard, said keypad/keyboard may switch to the/a corresponding keypad/keyboard (e.g. 479M) of the ambiguous mode.

Note that any means such as a slider, pinching action, etc. may be used to enlarge/shrink the/a keypad/keyboard. Note that, when the system (e.g. and the corresponding keypad) is in the ambiguous mode, the characters (e.g. letters) assigned to the/a broadly ambiguous zone of the ambiguous keypad may be shown/printed in said zone. Note that such a keypad may be of any kind such as those shown in Fig. 479A and Fig. 479M, or a keypad having any number of keys. For example, said keypad may have six letter keys, preferably arranged in two rows (e.g. columns) wherein the letters are arranged in a predefined order such as an alphabetic order, a qwerty type order (e.g. fig. 479P1. The letters L and O are swapped, but according to one aspect, they are not be swapped), etc.

Fig. 479P shows an exemplary keypad of the invention (e.g. in its precise mode) for German language with a substantially similar QWERTZ letter arrangement with (minor) modification (e.g. letters L and O are swapped). Fig. 479Q shows the keypad of Fig. 479P in its ambiguous mode.

Here the broadly ambiguous zone 4792107 ambiguously corresponds to the letters include "Y", "X", "C", "V", "B", "N", and "M".

Fig. 479R shows an exemplary keypad of the invention (e.g. in its precise mode) for French language with a substantially similar AZERTY letter arrangement with (minor) modification (e.g. letters L and O are swapped, and the letters Q and A are swapped). Fig. 479S shows another exemplary keypad of the invention (e.g. in its precise mode) for French language with a substantially similar AZERTY letter arrangement with (minor) modification (e.g. letters D and E are swapped, and the letters I and J are swapped). In these examples the corresponding ambiguous keypads are not shown but they resemble to that of fig. 479Q with these letter arrangements including modifications of swapped letters.

In the examples above modifications may be considered by people skilled in the art.

Methods of the entry of phonetic-based words/chains of characters (e.g. and thereafter the Hieroglyphic characters/words) using the data entry system of the invention has been described in different patent applications filed by this inventor. The data entry system of the invention having a keyboard having few (e.g. four) keys and one or more (e.g. preferably one) broadly ambiguous zone as described herein or in the previous patent applications may be used for such purpose. For example an alphabetical keyboard of the invention or a (e.g. slightly modified) qwerty-based keypad of the invention may be used for entering Pinyins and/or (thereafter) Chinese characters/words as described in detail before.

Fig. 479K shows another exemplary keypad of the invention with alphabetic letter arrangement as described before. Here the broadly ambiguous zone 479807 (e.g. corresponding to the letters (e.g. bcfghjkmpquvxz) printed in small) is the zone between the space key 579906 and the backspace key 479905. In this example, the zone 479917 between the letter keys is accessible to a user so that for example he/she may be able to (directly) interact with a content on the screen in that zone.

Note that in this example, the letters/characters printed in large font on the keys 479801 to 479804 are preferably considered as preferred letters/characters, and the letters printed in small font on said keys are preferably assigned-to and/or represented-by the broadly ambiguous zone 479907 and are preferably considered as none-preferred letters/characters (e.g. the small letters are printed on the keys 479901 to 479904 so that to remind at least the alphabetical order of the large letters and/or to provide a method of entering (e.g. any of) the letters precisely.

Note that as mentioned and shown before, the mouse functions may preferably be provided from a predefined zone such as for example a broadly ambiguous zone.

Forming and saving chain of words (e.g. phrases, sentences, etc.) in a database used by the system has been described before in previous patent applications filed by this inventor. According to one embodiment, after typing/providing the input information corresponding to a word, a predefined interaction (e.g. such as a gliding action preferably in a predefined direction) for entering

a proposed/predicted word (e.g. in a word list) may preferably enter said word and/or attach said word to a previous word (e.g. which is already entered) and/or to a next word (e.g. to be entered). Preferably the attached words may include (e.g. by the system or manually) a delimiter such as a space character and/or another predefined character. The attached words as such may be added to a dictionary. By entering the input information corresponding to at least the portion such as the beginning portion of a chain of words formed and/or saved as such, the system may predict and/or propose a portion or the whole of said chain of characters. Preferably, when providing the input information corresponding to a word of such chain of words, the user may also enter the corresponding delimiter. In this case, according to one method, the system assumes that the information provided by the user is preferably corresponding to a word of a chain of words in the database, wherein said word may preferably be any of the words of the words of said chain of words. Accordingly, the system may propose one or more chain of words that include said word. Note that the user may provide more than one word as such corresponding to a chain of words. Note that, according to one method, words entered as such may preferably correspond to the beginning words of the corresponding chain of words.

As mentioned and shown before, the words in the/a word list of the invention may be arranged in different manner such as vertically (e.g. herein may be referred to as vertical word list), and/or horizontally (e.g. herein may be referred to as horizontal word list), and/or in another manner. According to one embodiment of the invention, a switching method may be used to (e.g. dynamically) switch the word list from a first manner to a second manner. For example a predefined interaction such as a gesture provided on/from a vertical word list in preferably a predefined direction may switch said word list to horizontal (e.g. and/or vice versa).

It must be noted that a broadly ambiguous zone of a keypad as described throughout this and previous patent applications filed by this inventor, is preferably referred to an invisible zone displayed on the screen to which a number of one or more characters such as at least one letter is assigned. Said zone may be located anywhere on the screen preferably outside the visible zones/keys of the keypad. Preferably, the said broadly ambiguous zone (e.g. herein may also be referred to as invisible zone) may be/is located between the two groups of keys of the invention as described and shown before throughout different patent applications filed by this inventor. According to another method, the invisible zone may be located next to (e.g. above, below, on the right/left side) a key of one of the groups of keys of the keypad. Note that as mentioned before, more than one invisible zone may be considered in a keypad of the invention. Not that according to one method, the borders and/or the characters of an invisible zone (e.g. a broadly ambiguous zone) may be shown on the screen.

According to one embodiment of the invention, the data entry system of the invention may be implemented in an external means/hardware and be (e.g. wirelessly and/or by wire) connected to the corresponding device such as a handset, tablet, TV, etc. As an example, the data entry system of the invention may be implemented in a wristwatch, a bracelet (e.g. of a wrist watch), an external device attached to the/said corresponding device, etc.

As an example, the keypad of the invention may be implemented within/on a touchscreen of a (e.g. an electronic) wristwatch. The wristwatch may include the data entry system of the invention, and transmitting and receiving means so that to transmit information such as text provided through data entry system of the invention to a remote destination. Fig. 483A shows an exemplary illustration of the keypad of the invention in precise mode printed on the (touch) screen of the watch. Fig. 483B shows the keypad of the invention in ambiguous mode. In these examples, the button/zone 483011 is for example used to switch the system into different modes (e.g. precise mode, ambiguous mode, symbol mode, etc.

According to one embodiment, the input provided by the system within the wristwatch and/or the corresponding output may be transmitted to another device such as mobile phone, tablet, TV, etc. In this case, the screen of the corresponding device may print said output.

By using the approach of using an external input units/device, the screen of the devices such as mobile phones may be freed from displaying input interfaces and preferably be used for the output at least most of the time.

According to one embodiment of the invention, a predefined interaction such as a gliding action (e.g. including or excluding a long pressing action) in a predefined direction on/from a zone such as for example, the backspace zone/key, between the keys, etc., may relocate at least one of the portions (e.g. preferably, all) of the keypad in a direction such as the corresponding direction. After the user removes the finger from the screen the keypad may preferably stay at the last location. As an example, providing a gliding action upward or downward on/from the backspace key may relocated the keypad of the invention respectively upward or downward.

It must be noted that in different paragraphs in the description of the application the word device using the data entry system of the invention may have been used. Said device may be any type of device such as a handset, (mobile) phone, TV, PC, tablet, etc.

According to one embodiment of the invention, the keys of the keypad used by the system may be designed to be narrow or their visible portion being narrow. For example the three letter rows of a qwerty keyboard may form three narrow lines of keys. According to one method said keys are disposed symmetrically diagonally (e.g. two opposite pairs of keys).

A button for switching the system from a mode to another mode have been described an shown before. According to one embodiment, in addition to the tapping actions as described before,

gliding actions provided from/on said button in different directions may be assigned to different functions. Preferably at least a majority of said functions may be related to keyboard modes functions such a Shift, CapsLock, removing the keyboard from the screen, etc. fig. 487A shows a such button 487008 preferably always available on the screen. As shown in the enlarged portion 487011, a gliding action upward, towards upper-right, rightward, towards lower-right, and downward may respectively correspond to the functions, Shift, CapsLock, switching to ambiguous mode, changing languages, and removing the keyboard from the screen.

According to one embodiment of the invention, preferably in the fully ambiguous mode, when the user taps on a letter key and or the/a broadly ambiguous zone, in addition to relating said tapping action to an ambiguous character, the system may relate said tapping action to a predefined identified character (e.g. a vowel/consonant, a blank character, a visible character representing a blank character, etc.). According to one method, each key may have a different default character, while according to another method, all of the keys/zone may have a same default character. As such, when a user provides a sequence of one or more tapping action on the keys and/or the broadly ambiguous zone, one of the proposed words may preferably be constituted from the corresponding default characters (e.g. said word may herein be referred to as the default word). According to one method, if the user interacts with said/the default word, the system may preferably switch into the precise letter mode, wherein for each interaction with a key of the keyboard, the system may preferably replace the corresponding default character in the default word by the precise letter corresponding to the key of the precise keypad being interacted. By using this method, uncommon words and/or the words that are not included in the database of words used by the system may be entered character by character precisely. According to a preferred method, when the user interacts with a default word, the system may also propose more words (e.g. if any) corresponding to the input information provided by the user until then. Each additional interaction with the default word may result in proposing more corresponding words. Preferably, at least at first, the system proposes the corresponding words with the length of the default word, and preferably then, the system proposes the words that a (e.g. the beginning) portion of them corresponds to the input information provided by the user.

According to one embodiment of the invention, providing gesture(s) from anywhere on a key in at least one direction of a plurality of predefined directions may provide corresponding at least on character of a plurality of identified characters (e.g. letters) ambiguously assigned to said key. Preferably the order of the gestures directions may correspond to alphabetical order of the corresponding identified characters/letters. As an example, figs. 477E to 477G show a first exemplary method of entering precise characters/letters. In this example, the default character of each key/zone may preferably be the first character of the corresponding ambiguous characters in

alphabetical order (e.g. respectively, A, E, I, O, and T). The other characters of each key/zone may preferably be entered precisely according to their alphabetical order on the corresponding key, preferably according to gestures in corresponding predefined directions (e.g. clockwise order or opposite clockwise order).

For example, as shown in fig. 477E, providing gliding actions on/from the key 477701 towards up, upper-right, and right, may respectively correspond to entering precisely the letters, B, C, and D, and providing gliding actions on/from the key 477702 towards up, upper-left, left, lower-left, and down, may respectively correspond to entering precisely the letters, J, K, L, M, and N.

Also, for example, as shown in fig. 477F, providing gliding actions on/from the key 477703 towards up, upper-right, and right, may respectively correspond to entering precisely the letters, F, G, and H, and providing gliding actions on/from the key 477704 towards up, upper-left, left, and lower-left, may respectively correspond to entering precisely the letters, P, Q, R, and S.

Also, for example, as shown in fig. 477G, providing gliding actions on/from the broadly ambiguous zone/key 477707 towards up, upper-right, right, lower-right, down, and lower-left, may respectively correspond to entering precisely the letters, U, V, W, X, Y, and Z.

Note that in this example, providing a tapping action on the keys/zones 477701, 477703, 477702, 477704, and 477707, preferably correspond to respectively, the default letters A, E, I, O, and T.

Note that this is only as example to demonstrate the principles of entering intuitively/blindly precise character. Other methods may be considered. For example, interacting such as a tapping action on a key may not correspond/provide a letter, but (e.g. a symbol representing) a blank character. In this case, according to one method, any (e.g. of all) of the characters (e.g. ambiguously) assigned to a key may be precisely entered by providing a gliding action towards a predefined direction. As an example, providing gliding actions on/from the key 479901 towards up, upper-right, right, and lower-right, may respectively correspond to entering precisely the letters, A, B, C, and D. Same rule may be applied to other keys/zones.

Note that in the embodiment above, the order (e.g. of gestures in different direction (e.g. such as up to eight different directions from a key) described for entering precise character is alphabetic. Other orders such as for example Qwerty order may be used .Note that according to principles described above, a user may enter text blindly, both, in precise mode and in ambiguous mode.

According to one embodiment of the invention, as described throughout different patent applications filed by this inventor, gliding actions including a press-and-holding-action in different directions such as in up to eight directions as described above may be used for entering special characters assigned to a key. As described before in detail, each key may represent a group of characters having a common characteristic. For example, press-and-holding-and gliding actions in

different predefined directions such as eight different directions on a key, may provide up to eight different special characters assigned to a key. A long pressing action on a key and removing the finger (e.g. without providing a gesture) may be related to entering another special character assigned to said key.

Fig. 477H shows the keypad of fig. 477E wherein the letters represented by a key are shown in a simplified reduced manner to permit having extremely small ambiguous keys. for example, the letter IJKLMN assigned to the key 477802 are shown as I-N. in this example, the letters assigned to the broadly ambiguous zone are displayed as T-Z in a (e.g. small) location 477817 on said (e.g. large) 477707 zone.

According to one embodiment of the invention, after the system provides a number of one or more words (e.g. in an initial word list) based on the user's input information corresponding to a word (herein may be referred to as initial input information), providing a predefined interaction such as tapping on a zone such as on the uncompleted word may cause the system to enter into a/the precise letter mode and (e.g. preferably simultaneously) propose more words/stems (e.g. different from those proposed in the word list) (e.g. if any) (herein, a stem may also be referred to a s a word) corresponding to the input information provided by the user. Preferably, the stems are the beginning potions of corresponding longer words. According to one method, the system may preferably propose a large number of such words/stems in a large location (e.g. in an enlarged word list). (According to one method, the proposed words/stems have preferably the/a same length (e.g. the same number of characters) as the current predicted word and preferably include substantially all of the corresponding words/stems.) At this time several scenarios may be considered:

Scenario 1: The user may select a proposed word/stem. In this case, according to one method said word/stem may preferably be entered, while according to a second method, the system may propose another word list of one or more words (e.g. preferably including the selected word and) beginning with the selected word (e.g. if any). Preferably after selecting one of the words the enlarged word list is disappeared and a smaller word list (e.g. similar to the initial word list) may be proposed.

Scenario 2: The user does not select any of the proposed words (e.g. none-of the proposed words is her/his desired word) and begins (e.g. a correction procedure by) using the keyboard in precise letter mode to enter her/his desired word character by character precisely. In this case, preferably upon using said keyboard, the system removes the enlarged word list. Preferably, when the user begins to enter precise characters, the system may propose longer words based on the initial input information that was already provided by the user before entering into the correction procedure. The correction procedures of the invention have already been described in detail in different patent applications filed by this inventor.

According to one method, the words/stems in the enlarged word list may be displayed/proposed in alphabetic order, while according to another method they may be displayed/proposed based on said and/or other characteristics such as their priority, etc.

Note that the space and backspace keys of the keypad of the invention may preferably always be invisible and preferably their location on a surface may be presented by small icons (e.g. right and left arrows).

The arrangement of letters on the (e.g. four letter) keys of the keypad of the invention may be in alphabetical order to permit a novice user to type fast from the beginning. According to a first method, as shown in the example of fig. 474A, at least most of the letters may be arranged such that to form two linear lines of letters in alphabetical order (e.g. the letters A to H, and the letters I to S), while according to a preferred method, as shown in the example of fig. 477B, a first and second potions of said letters (e.g. A to H, and I to S) are preferably arranged on two pairs of keys (e.g. 477001, 477003, and 477002, 477004) located in opposite relationship (e.g. on the/a touch screen) 477009. This way, (e.g. specially on tablets) the user can more easily the keys to find a letter (e.g. for the letters A to H the user looks at the left side, and for the letters I to S the user looks at the right side. In the above mentioned examples, the remaining letters are assigned to the/a broadly ambiguous zone (e.g. respectively, 474007, and 477107).

As described before in this application and previous applications as filed by this inventor, groups of words such as predicted word (for example, candidate words) and the current word, may be display/presented to the user in various formats, styles, methods, etc. For example, predicted words may be presented as wordlists, as described before herein. Such a word list may contain candidate words and also include the current predicted word, preferably displayed the current predicted word in a different color to the candidate words. Alternatively, the current predicted word may (e.g. also) be displayed through/by any other means, for example, at a position in the text (e.g. as if the word is entered directly into the text at the current cursor position) of, for example, a text box. According to one embodiment of this invention, a wordlist may contain candidate words predicted/proposed by a predictive system combined with data entry system of the invention, including the current predicted/proposed word.

According to one method, the current word may be presented to the user according to several (e.g. one or more) criteria, preferably, relating to N-gram entries in a word database where, preferably, N>1 (e.g. bi-grams and/or tri-grams). Preferably, the system may present the current word when the following criteria are satisfied, for (e.g. any) input information provided to the system:

-If the last word in a candidate (e.g. one or more) N-gram is equal in length to the length of the current word being entered (e.g. same number of entered characters for the current word), then the

last word of the N-gram with the highest priority is preferably presented to the user as the current word.

-If the last word of a candidate (e.g. one or more) N-gram is not equal in length to the length of the current word being entered (e.g. same number of entered characters for the current word), then the last word of the N-gram with the highest priority is preferably presented to the user as the current word.

-If there is no N-gram in the word database that corresponds to the current input information for the current word being entered, then a 1-gram with the highest priority may be presented as the current predicted/proposed word, preferably with any length. Alternatively, the unigram presented as the current word may be restricted to the length of the current word being entered (e.g. the same number of entered characters for the current word).

-If no word (e.g. from unigrams, or from N-grams where N>1) are found that correspond to the input information for the current word being entered by the user, then system may propose a word with highest priority corresponding to any of the input information available to the system. Preferably, if such a proposed word is greater in length than the length of the current word being entered (e.g. same number of entered characters for the current word), then the presented word may be presented such that, preferably, the first characters of the proposed word are presented/display as the currently predicted word.

According to one embodiment of the invention, various modes of the keypad/keyboard may be navigated (e.g. presented and/or accessible) by the user at various (e.g. any stage) during the entry of input information to the system. Said modes may be presented and/or accessible to the user programmatically, for example, when the user is entering information into a field that only accepts numbers/digits. According to one method, the user may navigate (e.g. some of) the various modes of the keypad/keyboard, as shown in the example of Fig. 488A, 488B, and 488C. Fig. 488A shows an example of a keypad 488000 that includes a function key/button 488001; here the keypad is in the fully predictive mode. Upon the user activating the function key 488001, the keypad moves/switches/activates to another mode, preferably, as shown in Fig. 488B, the precise letter mode and the system presents the precise letter keypad 488100. In this mode, the function key 488101 presents numbers/digits and an additional function key 488102 is shown. Upon the user activating the additional function key 488102, the system returns to the fully predictive mode, for example, as shown in Fig. 488A. If the user does not activate the additional function key, but instead activates function key 488101, then the keypad moves/switches/activates to the special character mode, for example as shown in Fig. 488C. In this mode the function key 488201 presents characters on an alphabet, and an additional function 488202 is shown. Upon the user activating the additional function key 488202, the system returns to the fully predictive mode, for example, as

shown in Fig. 488A. If the user does not activate the additional function key, but instead activates function key 488201, then the keypad moves/switches/activates (e.g. back) to the precise letter mode, for example as shown in Fig. 488B.

Note that the symbols for Fig. 488B and Fig. 488C are descriptive examples, and not all of the symbols are necessarily shown, for example on the keys 488211 and 488212.

According to another embodiment, the access to the precise letter mode and to the precise symbol mode may be through two different types of interactions/means/buttons/zones so that the user can access any of said modes directly. Fig. 488D shows as an example, the screen 488009 of a device having two different buttons/zones 488111 and 488112 so that interacting with them permits a direct access respectively to the precise letter mode and to the precise symbol mode. Preferably the buttons are narrow and located close/adjacent to the edge of the device. This has several advantages such as: a) the button(s) does not cover a significant portion of the screen, b) the access to (e.g. a tapping action on) the button(s) is accurate. In the example of Fig. 488E, the system is switched to the precise letter mode, and the buttons 488113 and 488114 respectively correspond to switching the system to the precise symbol mode and to the ambiguous mode. In the example of Fig. 488F, the system is switched to the precise symbol mode, and the buttons 488115 and 488116 respectively correspond to switching the system to the precise letter mode and to the ambiguous mode. Note that such a button (e.g. 488115) may have an additional invisible portion so that as to make (e.g. detectable) zone larger without covering the content on the screen.

Note that the buttons corresponding to switching between modes, the word list, etc., may be located / displayed in any (e.g. predefined) location on the screen. As an example, in Fig. 488H, the mode buttons 488117 and the wordlist 488118 are located close to each other on the right side of the screen 488109.

According to one embodiment, different types of interactions with a type of button as just described in the embodiment above, may be used by any application (e.g. an application other than the application using the screen) to provide different input signals to the system for any purpose (e.g. without interfering with the functions of the user interface on the screen corresponding to an application which is currently running.). As an example, different (e.g. straight) gliding actions towards different directions provided from the corresponding edge of the device towards the inside of the screen may be related to functions that are related or are not related to the current running application. This is because, the gliding action provided from the edge of the device or touch sensitive surface (e.g. touch screen) towards the inside of the device at first interacts with such button/bar. This permits/enables an application/a system to perceive a screen event before any other application that uses another portion of the screen. Such type of button/bar and preferably the corresponding gliding actions as described may be used for entering different corresponding input

information. Said input information may be used by the system to provide/process different functions. Note that one or more of such buttons/bars may be located on a same edge of a device. According to one embodiment such button may have the form of a (e.g. an invisible) line (e.g. 488331 of fig. 488G). According to one method, a single such button may substantially cover an edge of the screen. One or more of such buttons may be place on one or more edges of a screen. As an example, as shown in fig. 488G, three gliding actions 488301, 488302, and 488303 which are provided from the edge of the device/screen towards the inside of the screen preferably provide three different input signals that may be used for any purpose (e.g. to input key interactions, to input data/text, to activate functions, etc.).

As an example, by providing one or more such bars (e.g. 488331, 488332, 488333) on one or more edges of the screen of a device such gliding actions may simulate (e.g. ambiguous and/or precise) key interactions. As an example, in fig. 488G, six gliding actions 488301 to 488306 may simulate interactions with six keys of the keypad of the invention (e.g. respectively the keys 488401 to 488406). As an example, a different gliding action such as the gliding action 488307 may simulate interacting with the broadly ambiguous zone 488407of the/a keypad of the invention. It is understood that a greater or lesser number of different gliding actions may be related to a greater or lesser number of keys simulating interactions with keypads with a greater or lesser number of keys. This type of keypad may be beneficial for many people including visually impaired people. In this case, the keypad may not be printed/shown/presented on the screen. Note that said gliding actions may be related differently (e.g. in another order) to the keys of the/a keypad of the invention. Also other types of gliding actions may be used to emulate interactions with the keys of a keyboard. For example, a plurality of gliding actions wherein each of them is provided from a different portion of one or more edges of a touch sensitive surface (e.g. in any angle) towards the inside of a touch sensitive surface may represent a corresponding plurality of different input signals, and wherein each of the input signals may correspond to one or more characters (e.g. emulating a precise keyboard or an ambiguous keyboard).

According to one embodiment, the word list may include more than one line of words (e.g. up to three lines) and more than one column of words (e.g. up to two columns). Fig. 488I shows as an example, a word list 488997 showing five words arranged in three lines and two columns of words. In this example, the word having the highest priority is shown in a separate line. Obviously, other number of lines and/or columns may be used to display a number of presented/predicted words. In this example, a gliding action on/from the word list:

a) To the right may provide more corresponding words

b) To the left may print the previously predicted/presented words

c) Towards up, deletes the word list and/or the word being typed

In this example, a gliding action from a word downwards may correspond to fixing said word, and preferably presenting more/other longer words beginning with the fixed word.

Also as an example, a predefined interaction such as a gliding action including a press-and-holding action, provided on/from the word list may enter the system into a/the correction procedure of the invention and may automatically result in switching the keyboard into the precise letter mode.

Note that according to one method, upon providing a predefined interaction, such as a long pressing action, on the keyboard mode button 488001, the keypad of the invention may, preferably, be switched to another mode, for example, the precise letter mode, and stay/remain in that mode until another predefined interaction such as a tapping action on the button 488102 is provided (e.g. in this example, providing space characters, preferably, does not switch back the system to the ambiguous mode). Same may be applied to the symbol mode by, for example, a long pressing on the button 488101 so as to lock the system in, for example, a precise symbol mode of the invention.

According to one embodiment of the invention, the size of a key (e.g. as presented to a user) may be very small. A very small key may, preferably, be defined for the purposes of this and previous patent applications as key that has a size:

- being a minimum size of one display element (e.g. pixel) of a display of an input means, for example, such as a touchscreen;
- being a minimum size of an area equal in size to the resolution of a coordinate position of an input means, for example, such as a touch sensitive surface;
- being a maximum size of the area, preferably, no larger than a fraction (e.g. half) of the touching (e.g. impact) area of a user's finger with a touch sensitive surface/display;
- being a maximum size of a fraction (e.g. 10%) of the length (e.g. width and/or height) of a touch sensitive surface/display; or
- a substantially small area of a touchscreen/touch sensitive surface considered by a user not to hinder access to the majority of the information presented on the touchscreen/available information accessible by the touch sensitive surface.

Examples of very small keys are presented in Fig. 489A and Fig. 489B. In these examples, the majority (e.g. substantially, almost the whole display) of the tough sensitive input means/display is available to the user.

According to one method, the keypad of the invention may be (e.g. physically and/or virtually) split in two or more portions each having one or more keys. At least some of said portions of the keypad may be moved towards each other and/or moved away from each other on the/a corresponding input means, for example, a touchscreen/touch sensitive surface. A predefined interaction, with/on at least one portion/key/zone of the keypad, for example, such as a dragging or gliding action, or a pinching action (e.g. such as two fingers gliding towards or away to/from each

other) may be used for such a purpose. Preferably, the space/area between keys (e.g. the/a broadly ambiguous zone) may contract/expand accordingly. Preferably, the size of any portion/key/zone may contract/expand accordingly.

According to one embodiment of the invention, the keys of the keypad may be approached (e.g. moved towards each other) and preferably reduce the size of the/a broadly ambiguous zone (e.g. and the keypad).

This may permit to have an extremely small input interface (e.g. herein may be referred to as reduced dynamic keypad) for a highly accurate input system. Figs. 490A to 490E show exemplary drawings demonstrating the principles of creating and manipulating a reduced dynamic keypad. Fig. 490A shows a keypad of the invention having four keys 490001 to 490004, a broadly ambiguous zone 490007, a space key 490006 and a backspace key 490005. In this example, at least the group of keys (e.g. 490001, 490002) of one (e.g. left) side (e.g. herein may be referred to as the first portion of a keypad), and at least the group of keys (e.g. 490003, 490004) of another (e.g. right) side (e.g. herein may be referred to as the second portion of the keypad) are positioned far (e.g. not substantially close and/or not beyond a predefined space between the/said portions) from each other, near opposite edges of the screen (e.g. a portion of the input means) 490009 of a device. According to one method, said first and second portions of keypad may be approached (e.g. moved closer together) by a means such as by dragging (e.g. with a gliding action) one portion towards another portion or by dragging both (e.g. by a pinching action) portions towards each other. Different dragging methods may be considered. According to a preferred method, a portion may be dragged towards another portion by touching one of the keys such as the space key or the backspace key and dragging the respective portion of keys towards the other portion of keys. For example, as shown in Fig. 490B, the portion of keys on the right side may be dragged towards the portion of keys on the left side by touching the space key 490006 and sliding the finger towards the left portion of keys. Preferably, the size of the broadly ambiguous zone (e.g. 490007) is now reduced. According to one method, another predefined interaction such as a dragging action from another key, for example, the backspace key may be used to relocate at least both the portions of the keypad on the screen. As an example, Fig. 490C shows the reduced dynamic keypad of the invention being relocated on the screen by touching the backspace key 490005 and providing a gliding action towards a desired location on the screen 490009 (e.g. by dragging the backspace key 490005 from one location to another location).

As mentioned before, the keys of the keypad may be invisible/transparent. Preferably, the borders of the invisible keys (e.g. preferably at least the letter keys) are presented on the screen in a predefined manner such as that shown in Fig. 490D. In this example, the borders of the space and the backspace keys are not shown, because the user may easily know where said keys are located

relative to the letter keys 49001-490004. Also, preferably, the borders of the (e.g. invisible) broadly ambiguous zone are generally not shown because the user may easily know its location (e.g. between the split keys) relative to the letter keys. Fig. 490E shows, as an example, the keypad of Fig. 490D superposed on a content (e.g. text) presented on a screen wherein the portion of the content under the keys/zone(s) of the keypad is visible to the user.

Note that the letter keys and the broadly ambiguous zone(s) may herein be referred to as letter keys/zones. Note that as shown in Fig. 490D, the space and backspace keys may be located anywhere (e.g. preferably outside the letter keys/zones) on the screen. Preferably other buttons/zones/keys (e.g. keyboard mode button, few symbols location, etc.) may be located on at least one of the edges of the screen.

According to one embodiment, the system may include a means such as using a predefined user's interaction for positioning the (e.g. portions of the) keypad of the invention in a predefined (e.g. default) location on the screen.

According to another method of dragging, a first portion of the keypad may be dragged towards or away from a second portion of the/a keypad by providing a predefined interaction such as touching a corresponding key (e.g. letter keys, space key, backspace key) and sliding said portion in a desired direction. Preferably, when such dragging action is provided from a first portion towards or away from a second portion, said portions stay on a same (e.g. horizon or vertical) level (e.g. plane/axis) so that the broadly ambiguous zone stays (e.g. preferably, (e.g. proportionately) expands/contracts) in a square, rectangular, or similar/other shape, for example, to it shape before said dragging action.

Note that the first and/or the second portions of the keypad described may include or exclude the space, the backspace keys, and/or, optionally, other keys/buttons/zones (e.g. corresponding to functions, special characters, letters, etc.).

According to one method, at least the whole letter keys/zones may be relocated on the screen by a dragging action from a key wherein said dragging action includes a press and holding action (e.g. at its beginning).

Note that the keypad of the invention may be divided in top and bottom portions instead of left and right portions. The keypad may also be divided into more than two portions.

Said reduced dynamic keypad may provide several valuable features (e.g. in addition to other advantages/features mentioned herein). For example, said reduced dynamic keypad enables a user to easily and/or comfortably enter data with one (e.g. or two) hands. One-handed use is particularly valuable for users of small devices (for example, mobile phones with touch screen input means, tablet computers with larger screen where the/a few keys close to each other can provide fast text entry with one hand), for example, when the have a need to multitask in the (e.g. physical)

environment of activity. Another example, since the size and/or location of the reduced dynamic keypad can be reduced and/or changed, the user is now enabled to access any content around (e.g. 490008 of fig. 490E) the keypad, enabling the user to scroll/move said accessible (e.g. screen) content of a touch screen device in a way that the device or pertinent application allows. The keypad removes a significant limitation of ordinary (e.g. QWERTY, and QWERTY-like) keyboard, namely enabling (e.g. tough simple/convenient interaction with the keypad) the user to access any of said content.

It must be noted that said actions for manipulating the size, position, mode, features, etc. of the dynamic reduced keypad may, preferably, also be applied in the case of any keypad such as, preferably, a semi-precise keypad.

According on one embodiment of the invention, the size of the keypad may be reduce/enlarged by using a predefined means such as providing one or more predefined interactions with the keypad. For example, touch a specific point of the keypad and dragging in the horizontal plane, may enlarge/reduce the keypad in the horizontal plane. Similarly, for example, an interaction in the vertical plane, may accordingly enlarge/reduce the keypad in the vertical plane.

Accordingly, a diagonal gesture from a specific point of the keypad, may preferably enlarge/reduce the keypad in both the horizontal and vertical planes, preferably simultaneously.

As mentioned before, the/a keyboard used by the system may include a broadly ambiguous zone that can be located anywhere on the screen (e.g. preferably between the split keys of a keyboard such as the/a keyboard of the invention (e.g. zone 490007 of fig. 490F). According to one embodiment of the invention, (e.g. preferably, when the split keys are very closed to each other, the broadly ambiguous zone may be located outside the other letter keys of the keypad. As an example, Figs. 490F to 490H show exemplary keypads/keyboards of the invention wherein the exemplary broadly ambiguous zones 490007, 490107, and 491207 are respectively located on different locations relating to the other letter keys 490001-490004 of a keypad/keyboard of the invention. Note that in Fig. 490H, the space and backspace keys are also relocated. In Fig. 490H, the exemplary gesture 490011 preferably correspond to interacting with the keys/zones 490002, 490207 and 490004.

According to one embodiment, when the keyboard is relocated/moved on the screen, the wordlist is located in a location on/near an edge on the screen. Said location may preferably be a location on that edge with a predefined relationship relative to the keyboard (e.g. word list moves up or down on an edge if the keyboard is moved up or down anywhere on the screen). Fig. 490K shows a keyboard of the invention relocated on the screen and the word list 490008 is-shown/remains on a predefined location relative to the keyboard on the right side.

According to a preferred embodiment, when the keyboard is relocated/moved on the screen, the wordlist is also relocated on the screen such that the words being shown near the keys so that the user can see them without (e.g. visual) effort. Fig. 490L shows a keyboard of the invention relocated on the screen and the word list 490018 is show/relocated next/near the keyboard (e.g. far from an edge).

According to one embodiment, when the keyboard is relocated/moved on the screen, at least some of buttons/keys/zones other than the main keys/zones of the keyboard (e.g. symbol switching icons, the few symbols button, etc.) may also be relocated accordingly on the screen. On the other hand, according to a preferred embodiment, when the keyboard is relocated/moved on the screen,

at least some of buttons/keys/zones other than the main keys/zones of the keyboard (e.g. symbol switching icons, the few symbols button, etc.) is/remains located in a location on/near an edge on the screen. Said location may preferably be a location on that edge with a predefined relationship relative to the keyboard (e.g. said at least some of buttons/keys/zones other than the main keys/zones of the keyboard are moved up or down on an edge if the keybord is moved up or down anywhere on the screen).

Fig. 490M shows a keyboard of the invention being relocated on the left side of the screen of a device and/while the symbol switching icons 490031 and the few symbols button/bar 490028 (e.g. which here is in vertical position) are shown/remained on a predefined location relative to the keyboard on their corresponding sides near the edges on/of the screen. As mentioned before a/the few symbols button 490028 may include a switching means so that to present more options/functions. In Fig. 490N the few symbols button of fig. 490M (e.g. after tapping on the + sign) is displayed in a switched instance 490038 to present other/more functions.

It must be noted that other methods of relocation of a/the split keyboard may be considered. For example, the user may use two fingers e.g. by touching (e.g. simultaneously) a key of the first portion and a key of the second portion of the split keyboard and drag (e.g. simultaneously) (e.g. each of) said two portions of the split keyboard to a desired location/s on the screen. Note that during the entry of a word the few symbols button/bar (e.g. 490028) may change its appearance by for example being reduced in size and/or functions. After the user provides an end-of-the-word signal such as pressing the space key, said bar may be enlarged (e.g. to its enlarged size and function/s).

According to one embodiment, any of the/a keyboard in precise mode and the/a keyboard in ambiguous mode used by the/a system may be relocated on the screen. According to one method, each of said keyboards may be relocated in a different location on the screen regardless of the location of the other keyboard.

According to a preferred method, when a first of said keyboards is relocated on the (e.g. touch) screen, the height of the second keyboard on the screen may be adjusted to the height of the first keyboard on the screen so that when the system is switched to the second keyboard said second keyboard is shown at the same height as the first keyboard.

Note that the/a keyboard in the precise mode may also be reduced or extended in size. As an example, Fig. 490Q shows a keyboard of the invention is precise mode located on the screen 490809 of a device in landscape mode. As an example, in order to move the keys of the left side towards the keys of the right side or in order to reduce the width of the keyboard, the user may slide from the a key such the backspace key 490805 towards right. Fig. 490R shows said keyboard after being reduced in size. Note that the key/zone 490807 is also relocated. (Now) the user may relocate the reduced keyboard on the screen 490809 by sliding from a key such as the space key 490806 towards any desired direction on the screen. Fig. 490S shows said keyboard after being relocated on the screen 490809.

In fig. 490P, the split letter keys are moved towards each other such that to be substantially adjacent to each other and form a 2x2 array of letter keys 490001 to 490004. In this example, the broadly ambiguous zone 490017 is dynamically defined to be a zone in the center of said array of keys. An exemplary alphabetical letter arrangement 490091 of the keyboard in this position is also shown for better explanation.

It must be noted that other methods for approaching, distancing, or relocating at least a portion of a keyboard such as the/a keypad/keyboard of the system may be considered. For example, according to one method, the user may provide a predefined interaction such as a predefined pressing action a a desired location on the screen, and wherein said at least one portion of the keypad/keyboard may be relocated in a predefined position relative to the pressing action on the screen.

Note that at least the letter keys of the keypad may be split in other manners such as vertically as for example shown in figs. 490I and 490J.

It must be noted that in the embodiments above, the relocation (of e.g. any portion) of a split keypad in any direction (e.g. upward, downward, leftward, rightward, diagonally) on the screen has been described such that to permit the relocation of the keypad with one finger. This is very beneficial in mobile environments wherein in many situations one of the hands of a user may provide other tasks. The data entry system of the invention where the keyboard can become very small and complete manipulation of it including fast and accurate text input can be provided by a single finger (e.g. thumb) (e.g. while holding a device is with the same hand) is a unique input technology. It must be noted that other methods of relocation of keys may be considered with one or two hands. As an example, moving a first portion of the keypad towards a second portion for a

(e.g. predefined) distance may also cause the second portion to move towards the first portion for the same distance.

According to one embodiment, upon relocation of the keyboard, at least some of the function icons may preferably be relocated accordingly and positioned near the keypad. For example, when the right portion of the keypad is moved inside the screen (e.g. distanced from the right edge), the few symbols button may be located at the right side of (e.g. adjacent to) said portion.

A method of (e.g. simple) sliding/gliding action(s) to emulate tapping/pressing actions on the keys and/or zones (e.g. of a keypad) on a touch sensitive surface may be considered. According to one embodiment, providing a gesture (e.g. sliding/gliding action) from/on a first key/zone towards/onto/traversing (e.g. partially or completely) one or more keys/zones may preferably represent/duplicate (a number of) corresponding interactions (e.g. tapping actions) with at least some of said zone/keys preferably depending on parameters such as a gesture's shape, trajectory, speed, etc. For example, providing a single gliding action traversing three zones/keys of a keypad may emulate/correspond-to pressing/tapping on said keys.

According to a preferred method, a straight gliding action beginning from a zone/key of a keypad and ending on another zone/key or traversed a last key during the gliding action, may preferably correspond to interacting with said two zones/keys of the keypad even if the gliding action traversed other zones/keys. Accordingly, if said gliding action is a complex (e.g. not straight/curved one or more times) gliding action, it may preferably also correspond to interacting with at least some of the other zones/keys on which said gliding action traversed/interacted. Preferably, said other zone/s are the zone/s on which the trajectory is angled/curved. Note that according to one method, beginning of a gliding action is where a user touches a (e.g. touch sensitive) surface and begins to provide a gliding action. Accordingly, a gliding action preferably ends upon removing the finger from the surface.

The above method may be used with a keypad/keyboard of the invention. As an example, such keyboard may have a few keys (e.g. four keys) and preferably one broadly ambiguous zone as shown in Fig. 491A. According to a preferred method, a straight gliding action departing from/on a first key and ending on or traversing a last key of the interaction with the keypad, may preferably correspond to interacting with said two keys. As an example, in Fig. 491A, the straight gliding actions 491011, 491012, 491013 respectively correspond to interacting with the keys 491001 and 491003, 491001 and 491004, and 491001 and 491002. Note that in this example, all of the gliding actions have traversed the broadly ambiguous zone 491007, but because they are straight gliding actions, they are not considered as interacting with the broadly ambiguous zone 491007. Also, as an example, the complex gliding actions 491014 and 491015 both correspond to interacting with the

keys/zones 491002, 491007, and 491003. Note that in this example, the complex gliding actions have several line segments that are either angled or curved in the broadly ambiguous zone 491007.

According to one embodiment of the invention, if a gliding action provided over the keys/zones of the keypad ends on a location outside said keys/zones of the keypad, a corresponding word of a database used by the system may be entered and a space character may be added after said word by the system. As an example, as shown in Fig. 491C, the gliding action 491016 corresponds to interacting with the keys 491002 and 491001 and wherein because said gliding action has ended on a location outside, preferably, the letter keys and the broadly ambiguous zone 491007 of the keypad (e.g. herein may be referred to as the main keys/zones of the keyboard), a corresponding word (e.g. "ha") may be entered and a space key may preferably be added after said word. Similarly, the gliding actions 491017, 491018, and 491019 ended outside the main keys/zones of the keyboard may respectively correspond to the words relating to interacting with the keys/zones 491002 and 491007, 491002 and 491003, and 491002, wherein, preferably, a space character may automatically be entered/inserted/added after the corresponding words. Accordingly, as shown in the example of Fig. 491E, the gliding action 491021 corresponds to a word relating to interacting with the keys 491002, 49003, and the broadly ambiguous zone 491007 wherein a space character may automatically be entered/inserted/added after said word.

According to one embodiment of the invention, a complex gliding action provided over two keys, and traversing outside the main keys/zones of the keyboard may correspond to interacting with said two keys. As an example, in Fig. 491D the gliding action 491023, wherein a portion of it traverses outside the main keys/zones of the keyboard, corresponds to interacting with the keys 491003 and 491004, and a similar type of gliding action 491022 provided on said two keys, but traversing the broadly ambiguous zone 491007, preferably corresponds to interacting with the keys/zones 491003, 491007, and 491002. Similarly, the complex gliding action 491025 departing from the key 49001 and ending on the same key 491001, and traversing outside the main keys/zones of the keyboard may preferably correspond to two consecutive interactions with a corresponding single key 491001. Accordingly, a similar type of gliding action 491024 departing from and ending on a same key 491002, but traversing the broadly ambiguous zone 491007 preferably corresponds to interacting with the zones/keys 491002, 491007, and 491002.

According to one embodiment of the invention, a gliding action that ends within main keys/zones of the keyboard may correspond to a one or more words of the database used by the system, where a number of said words are preferably presented to the user. Fig. 492A shows a complex gliding action 491026 corresponding to interacting with the zones/keys 492007, 492002, 492001, and 492007. A word list 492008 is presented to the user. According to one embodiment of the invention, if a gliding ends outside the main keys/zones of the keyboard one of the words

presented to the user may be entered automatically by the system and a space character may be entered/inserted/added after said one of the words. Fig. 492B a gliding action 492027 similar to the gliding action 492026 but ending outside the main keys/zones of the keyboard. In this example, the word "that" (e.g. preferably having the highest priority among the corresponding presented words) may be entered by the system and a space character is preferably inserted/added/entered after said word.

According to one embodiment of the invention, if a gliding action ends within a corresponding word list another word of the word list may be entered and a space characters is preferably added/inserted/entered after said word. In Fig. 492C, a gliding action 492028 is similar to the gliding action 492026 and similar to gliding action 492027, but ending in the word list 492008. In this example, the word "what" (e.g. having the second highest priority among the presented words) is entered, and preferably a space character is entered/added/inserted after said word.

According to another embodiment, after a gliding action exits the main keys/zones of the keyboard, the wordlist becomes available under the user's finger so that the user can select one of them (e.g. by continuing the gesture until the desired word in the list.

According to one embodiment of the invention, the input information corresponding to a word provided by a user may include a variety of interactions such as one or more gliding actions (e.g. one or more separate gliding actions, each corresponding to a different portion of a desired word) and/or one or more tapping actions on the keys of the keypad. This permits to a user to enter a word by lifting his/her finger from the corresponding touch sensitive surface between each interaction. According to one embodiment, an signal such as providing a space character, providing a special character such as "?", selecting a word (e.g. of a list of words) presented to the user, etc., may (e.g. gliding and/or tapping actions) signify the end of the entry of the input information corresponding to a desired word. As an example, Figs. 493A and 493B show exemplary steps of the entry of the word "pull". In the step of Fig. 493A, the user provides a gliding action 493029 corresponding to three beginning characters of the word "pull". The system may propose a number of words corresponding to the input information provided until then. In the step of Fig. 493B, the user provides a gliding action 493030 corresponding to the last character of the desired word. Note that, the gliding action 493030 is ended outside the main keys/zones of the keyboard, therefore preferably, the system enters/selects the word "pull" (e.g. the most probable word of the word list) and preferably inserts a space character at the end of the entered/selected word "pull".

Figs. 493C and 493D show another example of the steps of the entry of the word "pull". The step of Fig. 493C, is similar to the step of Fig. 493A. In the step of Fig. 493D, the user provides a tapping action 493032 corresponding to the last character of the desired word. The system proposes

a number of corresponding words including the word "pull" (e.g. the most probable word of the word list-of-the-word signal The user may now select a desired word (e.g. the word "pull"), and preferably provides an end-of-the-word signal such as a space character by interacting with (e.g. tapping on) the space key 493006. Note that in order to provide more accuracy, the space key 493006 of the system occupies a large portion of the keypad.

Fig. 493E show another exemplary steps of the entry of the word "pull". In this example, the user may first provide the input information corresponding to the first three letters of the desired word "pull" by three tapping actions 493033, 493034, 493035 on respectively the key/zone 493004, the zone 493007, and the key/zone 493003. He then may provide a gliding action 493036 corresponding to the last character of the desired word, wherein preferably said gliding action ends outside the main keys/zones of the keyboard so that the system enters the word "pull" and adds a space character to its end.

Note that a single compound gesture resembling to combination of two single gestures may correspond to two different input information. As an example, the compound gesture 494013 of fig. 494A corresponds to interacting with the keys 494004, 494002, and 494003. On the other hand, the two gliding actions 494014 and 494015 of Fig. 494B correspond to interacting with the keys 494004, 494002, 494002, and 494003.

According to one method, a gesture provided over a number of keys/zones may correspond to interacting with at least some of said keys/zones. As an example, providing a gliding action over a number of keys/zones may be considered as interacting with said keys and/zones if a corresponding word exists in the database of words used by the system. On the other hand, as an example, providing a gliding action over a number of keys/zones may be considered as interacting with some of said keys and/zones if a corresponding word does not exist in the database of words for interacting with all of the keys/zones being interacted. Accordingly, as an example, even if a corresponding word exists for the keys/zones being interacted, in addition to proposing said word/s, the system may also consider some of the zones being interacted and may propose additional corresponding word/s.

According to one example, when a user provides a straight gliding action over the keys/zones 494001, 494007, and 494003, may be considered by the system to two sequences of interactions respectively: the sequence of key/zone interactions 494001, 494007, 494003, and/or the sequence of key/zone interactions 494001, 494003.

Note that the predicted words may preferably be presented to a user each time the system/processor receives a new input information during the entry of a word (e.g. when the gliding action traverses a new/additional zone/key, a new tapping actions is provided, etc.).

Note that a gesture ended outside the main keys/zones of the keyboard may correspond to a full word or it may be related to the beginning portion of a longer word which both may be presented in the corresponding word list to a user. Accordingly, a word entered/selected as such may be one of of said words based on the different methods of presentation/selecting a word such as those as described in this application.

According to one embodiment, after a gliding action enters to a location outside the main keys/zones of the keyboard, the system may present the word list under the user's finger so that the user can quickly select a word in the wordlist.

According to one embodiment of the invention, after the user provides a gliding action corresponding to selecting/entering a word (e.g. the gesture ends outside the main keys/zones of the keyboard), the wordlist remains on the screen. At this time several scenarios may be considered such as:

-Scenario 1: The user interacts with the word list for example for selecting another word, scrolling within more words, etc. In this case the word list remains on the screen. In the user selects one of the words (e.g. other than the already entered word), the newly selected word preferably replaces the previously entered word. According to one method, the wordlist still remains on the screen for example for more selection, wheile according to another method the wordlist disappears. Note that after selecting a word, depending on the design of the system, a space character may be entered or not entered at the end of the selected word.

-Scenario 2: The user proceeds to a task other than interacting with the word list, such as for example proceeding to entering the input information corresponding to a next word, entering/activating a function, etc. In this case the word list preferably disappears.

Note that at least some of the words (e.g. presented in the word list) corresponding to the input information (e.g. gliding and/or tapping actions provided by the user) may be longer words (e.g. the input information corresponds to the beginning characters of said words).

Note that as shown in the above-mentioned figures (e.g. 491A), at least the space key (e.g. 491006) may preferably be a large key so that to avoid mistyping and accelerate the speed of the data entry.

As mentioned before, providing a gesture that ends outside the main keys/zones may correspond to preferably selecting a word and preferably entering a space character. According to one embodiment of the invention the keyboard of the invention may not include a space key.

According to one embodiment of the invention, when a user provides a gesture on the keypad and wherein the end of the gesture is provided outside the main keys/zones of the keypad, at this time, several scenarios may be considered such as:

-Scenario 1: if the user removes the finger from the surface on which the gesture is provided, the system preferably considers that providing the input information corresponding to a word is ended.
-Scenario 2: if the user does not remove the finger from the surface on which the gesture is provided, and glides back onto the keypad (e.g. without removing the finger from said surface), the system preferably considers that providing the input information corresponding to a word is not ended and adds the input information corresponding to at last gliding action to the previous input infoamation corresponding to the desired word.

According to one embodiment of the invention, when a user provides a gesture on the keypad and wherein the end of the gesture is provided (e.g. outside the main keys/zones of the keypad) on a zone corresponding to entering a space character, at this time, several scenarios may be considered such as:
-Scenario 1: if the user removes the finger from the surface on which the gesture is provided, the system preferably considers that providing the input information corresponding to a word is ended.
-Scenario 2: if the user does not remove the finger from the surface on which the gesture is provided, and glides back onto the keypad (e.g. without removing the finger from said surface), the system preferably considers that providing the input information corresponding to a word is ended, and providing the input information corresponding to a new word is started.

According to a preferred method, each of plurality of gliding actions corresponding to a same input information (e.g. a same key interactions) and each ending in a different predefined location preferably outside the main keys/zones may correspond to a different predicted word (e.g. of a proposed word list). For example, each of two such gliding actions wherein one ends on the upper side of the keypad outside the main keys/zones, and the other ends on the right side of the keypad outside the main keys/zones, may correspond to a different corresponding word. Preferably, a such gliding action that ends on the space key/zone may preferably correspond to a corresponding word that matches a predefined condition such as the word having the highest priority among the corresponding words.

According to a preferred method, during the entry of a word, the user may provide at least one gliding action and/or at least one tapping/pressing action on the keypad. Providing each of such interactions generally requires touching the keypad and removing the finger from the keypad. According to this method, the system combines all of said interactions and (e.g. ambiguously) relates them to one or more single words. Providing a predefined signal such as tapping/gliding on a space key may end the procedure of providing such (e.g. combined) input information corresponding to a word.

According to one embodiment of the invention, upon providing an input information by providing a first type of interaction with (e.g. tapping actions on) the keys of the/a keyboard (e.g. of

the invention or any other keyboard (e.g. a full keyboard such as a QWERTY keyboard)) the system may present the corresponding words in a first manner/order, and upon providing the same input information by providing a second type of interaction with (e.g. said interactions include at least one gliding action on) the keys of the/a keyboard (e.g. of the invention or any other keyboard (e.g. a full keyboard such as as a QWERTY keyboard)) the system may present the corresponding words in a second manner/order.

According to one embodiment of the invention, upon providing an input information by providing a first type of interaction with (e.g. tapping actions on) the keys of the/a keyboard (e.g. of the invention or any other keyboard (e.g. a full keyboard such as a QWERTY keyboard)) the system may present a first group of corresponding words (e.g. from a general database of words), and upon providing the same input information by providing a second type of interaction with (e.g. said interactions include at least one gliding action on) the keys of the/a keyboard (e.g. of the invention or any other keyboard (e.g. a full keyboard such as a QWERTY keyboard)) the system may present a second group of corresponding words (e.g. from another database of words such as a sms database, personal database, professional database, etc.).

The data entry system of the invention may be implemented into and/or attached to a wrist apparatus and/or a wristband. Fig. 495A shows a wrist device 495000 having a wrist watch 495011,its band 495014. The watch may be a traditional watch manufactured by a watch manufacturer. As an example, as shown as in fig. 495B, the bracelet of said watch may include an electronic device such as a wrist communication device 495100. According to one aspect, said electronic device may have a first portion 495111 that preferably includes a display unit 495009, and a second portion 495112 to cover said display for example when the display is not in use. The data entry system of the invention may be implemented within or used by the device. In this example, the data entry system uses an on-screen keyboard having the letter keys 495001 to 495004, the broadly ambiguous zone 495007, the space key 495005, and the backspace key 495006, which are all implemented in the display of the device which uses a touch screen. A user may use said keyboard to enter text.

In the example of fig. 495C, a substantially similar device is shown, wherein here the body 495111 of the device and the cover 495212 of the electronic device both includes a display unit, respectively 495209 md 495219. In this example, a first display 495109 is used for input and a second display 495119 is used for output.

The advantage of having two devices using a single wristband is in that a watch manufacturer can manufacture a wristwatch regardless of a device (e.g. smartphone) manufacturer may manufacturing a wrist device and wherein a single strap may be used to form a single bracelet. Said watch and electronic device may preferably be located on opposite sides of a user's wrist. Fig.

495D shows an example 495300 of such bracelet. In this example, the wristwatch 495310 is attached to an electronic device, having a body 495301 and a cover 495302, by means of a strap 495304. In this example, the inside of the cover 495302 includes a display unit. Preferably, an input interface is integrated within a touch sensitive surface (e.g. touch screen) in the body of the device 495301. Preferably both display units are used to display contents. According to one method, the input interface may be integrated within the display of the cover. According to one method, the attachments of said strap and the at least the wristwatch may preferably be used those (e.g. commonly) used in the watch industry. According to one method, the cover preferably does not include a display but preferably has a transparent/empty portion so that the user can see at least a portion of the display unit located on the body of the electronic device.

According to one aspect the strap may include a (e.g. at least one) housing so that to (e.g. preferably, removable) house the electronic device and/or the watch. Fig. 495E shows a strap 495420 having a housing 495411 to removably house an electronic device such as mobile computing/phone 495410. Said bracelet may preferably be manufactured by a watch manufacturer according to the style of a corresponding watch to which said bracelet is suitably attached. Preferably the housing may be manufactured such that to cover substantially all of the surfaces of the electronic device. According to one aspect, only the display side of the electronic device may not be covers by the housing. According to another method, the housing may also cover the display of the corresponding device preferably when the display is not in use. For example, the housing 495411 may have a cover 495412 covering the display 495413 of the device 495410 when needed and to recover the display 495413 when needed as shown in fig. 495E. Note that the housing may have any shape such as square, rectangular, oval, etc. according to a preferred method, the housing may have an easy housing/unhousing system such as a clipping feature, so that to easily permit to house or to remove the device from the housing. Preferably, the housing may include a empty/hollow base permitting to reduce the height of the housing (e.g. when it the device is inserted inside said housing).

Such (bracelet) approach may creating an enormous market for both watch and mobile device manufacturers.

The data entry system of the invention preferably having few letter keys such as four keys permits an easy and quick method of input for devices with any size of screen including devices with tiny screens. One of such devices may be a wrist mounted electronic device.

Fig. 496A shows as an example, a small electronic device 496000 (e.g. in this example being implemented/attached to a wristband 496017) having a touch sensitive surface (e.g. a touch screen) 496009. A data entry system of the invention having a keypad of the invention having few keys such as four letter keys 496001 to 496004, a broadly ambiguous zone 496007, and two more

keys/zones 496005 and 496006 preferably respectively representing at least a backspace key and a space key. The keypad of the invention is used to enter some words that are displayed on the screen. Fig. 496B shows as an example said device with a data entry system of the invention having a keypad of the invention having few keys such as four letter keys 496001 to 496004 and a broadly ambiguous zone 496007. In this example, the space and backspace functions are assigned to gestures provided on the keypad (e.g. broadly ambiguous zone 496007)/screen respectively towards right 496106 and towards left 496105.

According to one method, preferably, a few/preferred symbols button/zone and the corresponding features and interactions as described earlier may be implemented with the system. In fig. 496B, an exemplary few/preferred symbols button/zone 496101 is displayed for example after the entry of a word. methods of interaction and methods of presenting and/or hiding a few/preferred symbols button/zone has been described before.

To enhance some of the functionalities of the data entry system (e.g. interacting with a word list, activating functions, etc.) on preferably small devices different methods of interaction may be considered. As an example, providing a predefined interaction such as a gesture from each of a number of different edges of a device/screen towards inside a/the screen of the device may correspond to the entry or output of a different type of data.

According to one embodiment of the invention, during the entry of a word, providing a predefined interaction such as a gesture departing from a predefined location such as an (e.g. a predefined) edge of a device/screen towards inside the screen may result in presenting a word list having one or more words corresponding to the input information relating to a word being entered by the user. Preferably, one or more words may be shown to the user before/without-requiring providing such gesture. Preferably, the word list is shown on a new window (e.g. hereafter may be referred to a secondary window) at least substantially overlapping or replacing the window wherein a text box and/or the keypad of the invention are located (e.g. hereafter may be referred to a primary window). Fig. 496C shows as an example, the screen of the device of fig. 496A after the user provides a gesture 496108 from the edge of the device/screen towards inside the screen during the entry of the input information corresponding to a desired word. In this example, the input information being provided by the user corresponds to several words including the word “that” which had been shown before as shown in fig. 496A as the best match to the user. By providing such gesture, the system may preferably show also said word in the wordlist so that the user may select it to get longer word beginning with said word. Methods of interaction with a word list have been described before in detail. They may be applied to any wordlist such as the one of being described here. For example, providing a gesture downward 496117 or upward 496118 on the word

list may result in proposing respectively a next group of corresponding words or a group of (e.g. corresponding words previously being proposed).

Depending on the design of the system, according to one method, after providing a predefined interaction such as selecting/entering a word or providing a same type of gesture from the edge of the devide/screen, the system may switch back to the main window.

Preferably, if a word is not being entered, providing a same type of predefined interaction (e.g. such as a gesture from an edge of a device/screen towards inside the screen) may be related to another functionality such as showing another type of content on the screen.

According to one embodiment of the invention, providing a predefined interaction such as a gesture departing from a predefined location such as an (e.g. a predefined) edge of a device/screen towards inside the screen may result in switching the keyboard into the precise symbol mode wherein at least a large number of special characters are presented to the user for being selected. Preferably, the symbols are shown on a secondary window that at least substantially overlaps or replaces the primary window. As an example, Fig. 496D shows the screen of the device 496000 after the user provides a gliding action 496208 from the left edge of the screen/device towards inside the screen. In this example, two groups of symbols corresponding to the keys 496001 and 496002 are presented to the user. By providing a predefined interaction such as a gliding action 496218 rightward on the screen the system may propose more symbols as shown in fig. 496E. Providing a gliding action leftward 496228 may result in presenting the previous screen status.

According to one embodiment of the invention, providing a predefined interaction such as a gesture departing from a predefined location such as an (e.g. a predefined) edge of a device/screen towards inside the screen may result in switching the keyboard into the precise letter mode wherein at least a large number of characters mainly letters are presented to the user for being selected. Preferably, the letters are shown on a secondary window that at least substantially overlaps or replaces the primary window. As an example, Fig. 496F shows the screen of the device 496000 after the user provides a gliding action 496508 from the right edge of the screen/device towards inside the screen. In this example a groups of precise letters are presented to the user. By providing a predefined interaction such as a gliding action 496518 leftward on the screen the system may propose more precise letters as shown in fig. 496G. Providing a gliding action rightward 496608 may result in presenting the previous screen status. Note that in the examples of Figs. 496F and 496G, the (e.g. secondary) window corresponding to the precise letters partially covers the screen. The other remaining potion (e.g. respectively, 496511, 496611) of the screen is used to show (e.g. a portion of) the text box so that the user being able to see what he/she types.

Fig. 496H shows a window corresponding to the precise symbol mode shown to the user after providing the gliding action 496708. In this example, the secondary window covers a portion

of the screen and the user can see the special character (e.g. " ? ")after the word "what", which is entered by interacting with this window.

According to one embodiment of the invention, providing a predefined interaction such as a gesture departing from a predefined location such as an (e.g. a predefined) edge of a device/screen towards inside the screen may result in switching the system into the function/setting mode wherein at least a number of functions are presented to the user for being selected. Preferably, the functions are shown on a secondary window that at least substantially overlaps or replaces the primary window. As an example, Fig. 496I shows the screen of the device 496000 after the user provides a gliding action 496808 from the bottom edge of the screen/device towards inside the screen. In this example, a number of functions are presented to the user. By providing a predefined interaction such as a gliding action 496818 upwards on the screen the system may propose more functions. Providing a gliding action downwards 496828 may result in presenting the previous screen status (e.g. previous functions or the primary window).

Note that a device may have an extending display. As an example, Fig. 496J shows a device having a main display 496909. Said device has an extending portion with an integrated display 496919. As an example, providing a gliding action 496908 corresponding to switching the system to the precise symbol mode may result in presenting a number of symbols on at least one of the display (e.g. in this example on both displays). A predefined gliding action 496918 may provide more symbols on the screen/s. Providing another predefined interaction 496928 may result in presenting the previous screen/s status.

As mentioned gliding actions from (e.g. a predefined portion of) an edge of a device/screen/touch surface, etc., towards the inside of a touch sensitive surface may be related to interacting with a key of a keyboard model. According to one embodiment, a gliding action traversing one or more times with one or more predefined edges of a device may correspond to interacting one or more times with the key/s of a keypad model.

As an example, Fig. 496K shows touch sensitive surface of a device wherein (e.g. invisible) portions 496731 to 496734 and 496737 of bars/zones/lines located on the edges of the device correspond to the keys/zones (e.g. 496001 to 496004 and 496007) of a keypad model such as the keypad of fig. 496A. As an example, a substantially horizontal gliding action (e.g. 496721) provided from the upper left side of the edge of the screen towards the inside and ending inside the screen may be related to interacting with the key/zone 496001. As an example, a substantially horizontal gliding action (not shown) from the upper right side of the edge of the screen towards inside and ending inside the screen may be related to interacting with the 496003. As an example, a substantially horizontal gliding action (not shown) from the lower left side of the edge of the screen towards inside and ending inside the screen may be related to interacting with the 496002. As an

example, a substantially horizontal gliding action (e.g. 496724) from the lower right side of the edge of the screen towards inside and ending inside the screen may be related to interacting with the 496004. A diagonal gliding action 496723 provided from lower left edge towards the center of the keypad/touch surface may be related to interacting with both the key 496002 and with the broadly ambiguous zone 496007. A gliding action 496725 traversing zone/line 496737 preferably corresponds to interacting with the broadly ambiguous zone 496007. As an example, a substantially horizontal gliding action (e.g. 496722) provided from the upper right side of the edge of the screen traversing the upper-left side of the screen may be related to interacting with the keys 496003 and 496001. And so on.

Note that instead of having the keys in form of lines on the edges of the/a device, narrow keys in form of bars may be used on the corresponding locations (e.g. alongside the edges) so the user may provide either gliding actions as just described or provide tapping actions on said keys.

With continuous description of the current embodiment, according to one method, a gliding action provided from a zone/key, preferably of the keypad, in a first direction (e.g. to the right 496727) may correspond to entering a space character, and a gliding action provided from a zone/key, preferably of the keypad, in a second direction (e.g. to the left 496726) may correspond to providing a backspace function. Preferably, said gliding actions may be required to continue until the corresponding edge of the screen (e.g. exiting from the screen). By using this method, the space key and the backspace key may be eliminated from a/the corresponding keyboard.

According to one embodiment, a curved (e.g. curved upward) gliding action, provided from any predefined edge, and traversing the opposite predefined edge may correspond to interacting with the keys 496001 and 496003. A similar gliding action curved in the opposite direction (e.g. curved downward), but gliding in the same direction (e.g. from start to finish), provided from any predefined edge, and traversing the opposite predefined edge may correspond to interacting with the keys 496004 and 496002. This matter has been described in detail in previous patent applications filed by this inventor. Said details of said interactions may be applied to edge/bar type buttons and/or interactions as described herein.

According to another principle, instead of gliding actions, tapping actions on the zones/bars 496731, 496732, 496733, 496734 and 496737 may correspond to interacting with said zones/bars. Note that principles describes herein may apply to any type of device such as smartphone, tablet, smart watch, etc. As an example, preferably in devices with larger screen the bars may be longer such that interacting with a different portion of a bar/zone (e.g. 496731) correspond to an identified character assigned to said portion and preferably also ambiguously correspond to any of the several characters (e.g. including said identified character) assigned to said zone/bar. Preferably, a space bar and/or a backspace bar may also be located on the edges of the screen.

Methods of dynamically defining an ambiguous zone relating to interacting with a location on a touch sensitive surface and relating said interaction to the characters surrounding/neighboring the interaction position on the screen have been described before in patents applications filed by this inventor. According to one embodiment, the letters (e.g. and one or more special characters) of a language may be arranged on a (e.g. small) zone/surface and by considering this method and using a word prediction system using a database of words, words/text can be entered relatively quickly. Figs. 496L to 496O show as examples different types of such character arrangements on a touch sensitive surface. As an example, each of the tapping actions 496811 to 496815 provided on the keypad of fig. 496L may correspond to several characters surrounding the touching impacts on the keypad. As an example, based on a sequence of such tapping actions a word predictive system of the invention may predict one or more words, for example one or more words including the word "input". The arrangement of letters on in fig. 496O is such that the vowel characters are positioned far from each other (e.g. to augment the accuracy of the word prediction).

It must be noted that according to one method, at any moment during presentation of a secondary window, providing a gesture from one/another edge of the device/screen towards inside the screen may provide a corresponding secondary window. According to one method, two different secondary windows may be shown simultaneously on the screen.

According to one method, in the embodiments above, after providing an interaction (e.g. gesture) to so that the system to present additional secondary window/content, if there is no additional secondary window or additional content to be shown, the system may present the corresponding first secondary window (e.g. looping presentation).

It must be noted, that the principles of principles/embodiments described may be applied to devices with any size of the screen.

It must be noted, that the principles of principles/embodiments described above regarding the presentation of a secondary window may use any type of predefined interaction to switch the system to said secondary window. For example, said gestures may be provided from a zone on the screen such as preferably from the broadly ambiguous zone. As an example, instead of and/or in addition to providing gestured from four different edges of a device/screen towards inside of the screen, four gestures from a broadly ambiguous zone wherein each gesture in provided in a different direction (e.g. up, right, down, left) may provide a different corresponding window as described.

Note that, in the embodiments above regarding the sliding method from different edges of a device/screen towards inside of the screen have been described to correspond to a data entry system, it is understood that said interactions may be related to any other type of functionality/content.

Note that, in the embodiments above regarding the sliding method from different edges of a device/screen towards inside of the screen have been described to correspond different types of

functionalities, according to one embodiment, said type of gliding actions may be provided from outside of a predefined-portion/content on the screen towards inside said portion/content to provide different types of functionalities preferably related to said portion/content.

According to one embodiment, two gliding actions provided from different predefined portions of an edge of a device/screen/zone towards inside of the device/screen/zone may correspond to two different windows/functions.

The/a method of capturing a gesture interaction provides from/the the edge of a screen/device towards inside the screen has been described in different patent applications filed by this inventor.

According to one embodiment of the invention, a predefined interaction, such as a double tapping action on the broadly ambiguous zone, may preferably remove the keyboard from the screen

According to one embodiment, the ambiguous characters assigned to a key/zone may include one or more special characters. The word predictive system of the invention may consider said characters (e.g. too) when it predicts word/s. According to one embodiment, the group of special characters ambiguously assigned to a key/zone may mainly be constituted of one or more special characters of the group of special characters that, in the precise symbol mode of the system, are represented/located/correspond to the location of the ambiguous key in the ambiguous mode. This matter has already been described in detail in different patent applications filed by this inventor.

Figs 496P to 496S, show another type of wrist mounted (e.g. communication) devices. Fig. 496P shows a wrist-mounted device 496980 in form of a bracelet having a curved/flexible touch sensitive display unit 496989 wherein on which a text 496981 is presented. Preferably, the screen is large enough to circumferentially cover at least a large portion of the user's wrist. The data entry system of the invention may be used/implemented in said device. In this example, the user's arm/hand and the corresponding text 496981 are in horizontal position. Fig. 496Q shows as an example, the user's hand in vertical position. In this case, according to one method, the screen of the device may preferably automatically change the orientation of the contents printed on it. In this example, the text 496981 is shown in landscape mode. Note that, as shown in Fig. 496R, said wrist-mounted device may include attaching/detaching means (e.g. including, Velcro, hinges 496983, clasp 496984, etc.) so as to be attached/detached from the user's hand/arm. The screen of the device may include a cover 496986 (e.g. rigid, flexible) as shown in fig. 496T.

According to one embodiment, the wrist-mounted device may be in form of a strap having a communication/computing device. Said strap may be attached to a (e.g. conventional) watch. Fig. 496S, shows as an example, a wrist-mounted device 496890 having a strap 496995 including a communication device. Said strap may be (e.g. detachably or fixedly) attached to a (e.g. conventional) watch unit 496985.

According to one embodiment, providing a first type of gliding actions (e.g. gliding actions not including a press and holding action) in different predefined directions on/from a key may correspond to a first type of different corresponding symbols (e.g. mainly letters), and providing a second type of gliding actions (e.g. gliding actions including a press and holding action) in different predefined directions on/from a key may correspond to a second type of different corresponding symbols (e.g. mainly special characters). Preferably, when a key is touched, the touching point may be considered as the center of a virtual copy of the key which may or may not be shown under the user's finger.

In this example, a gliding action provided from the center of a such virtual key towards or traversing a letter/character located on said key may correspond to entering said letter/character. Accordingly, a gliding action including a press-and-holding action provided from the center of a such virtual key towards or traversing a special character located on said key may correspond to entering said special character.

Fig. 497A shows as an example, a virtual keypad of the invention located on a touch screen. Said keypad has four letter keys 497001 to 497004, the broadly ambiguous zone 497007, a space key 497006, and the backspace key 497005. Note that in this example, the character "-" 497021 along with several letters A,B,C,D, and the character " ' " 497022 along with several letters E,F,G,H are respectively ambiguously assigned to the key 497001 and 497002. The arrangement of letters on the keys of the keypad (e.g. clearly/easily) permits a user to enter a desired precise/identified letter by providing a gliding action on/from a key based on principles just described. For example, the provided gliding actions 497011, 497012, 497013, 497014, and 497015, respectively correspond to the letters -, b, i, j, and s. According to one embodiment, the letter assigned to the broadly ambiguous zone may or may not be shown on the screen but may follow the same principles for entering them precisely. Preferably, one of the characters (e.g. "t") assigned to said zone may precisely be entered by providing a press and holding action on said zone. The rest of the characters may be entered according to the principles just described. As an example, as shown in fig. 497B the letters assigned to the broadly ambiguous shown are shown and arranged such that to guide the user about the direction of gliding action to provide regarding a specific letter. As an example, the gliding actions 497111, 497112, and 497113 may respectively correspond to the letters u, x, and z. As mentioned, in this example, entering the letter 't' is assigned to providing a press and holding action anywhere in the broadly ambiguous zone 497007, therefore said letter is printed in the center of the other letters. It is understood that entering the letter "t" may be assigned to a gliding action in a specific direction such as to the rightward on/from said zone. Other methods for entering specific characters such as other types of gliding actions, and/or other

(e.g. types of) different directions assigned to different specific characters may be considered by people skilled in the art.

Preferably, the special characters ambiguously assigned to the keys of the keypad in ambiguous mode are mainly from the corresponding group of special characters printed/presented on the screen when the system is in the precise symbols mode. As an example, as shown in Fig. 497C, in the precise symbol mode, preferably, the arithmetic characters (e.g. 497121) and punctuation marks (e.g. 497122) are printed/located on the screen such that their locations on the screen respectively correspond to the location of the keys 497001 and 497002 of the keypad of Fig. 497A in the ambiguous mode.

According to one embodiment during the entry of a word, the size of the keys/zone(s) of the keyboard and/or the invisible zone around the keypad may be enlarged so as to reduce or eliminate mistyping. Preferably, the enlarged portions may be invisible so as not to obscure the visibility of the content printed/presented on the screen. Preferably this option may be activated or deactivated from a menu such as a/the settings of the input method.

According to one embodiment of the invention, a word list may include up to a predefined number of words, for example up to five words, wherein each of said words in presented or related to a different color corresponding to the colors of the keys/zones of the keypad. As such, providing an interaction (e.g. such as a gliding action) with a key/zone with a predefined color may correspond to entering or selecting the word in the word list with the corresponding color. Preferably, the gestures may be provided from the edge of the screen (e.g. corresponding to a corresponding key) towards inside the screen. According to one method, the edges of the screen may include different bars in different colors each corresponding to the color related to one of the words of the wordlist so that the sliding action being provided from a corresponding bar. Note, that different characteristics of a bar other than color may be considered.

According to one embodiment of the invention, a number of words may be entered and/or selected to constitute a phrase and be saved for example in a database and preferably later be used by a data entry system such as the data entry system of the invention. As an example, at any moment during the entry of a text a user by means (e.g. a gliding action, downwards on the right side of a keyboard) of a predefined interaction, may inform the system to record a text (e.g. one or more (e.g. preferably consecutive) words) preferably provided after (e.g. or before) said interaction (e.g. the recorded phrase may include a word being entered if said interaction is provided in the middle of the entry of a word). Said phrase may be ended by providing the same or another predefined interaction. Said phrase may preferably be recorded or saved as a 1-gram entry of a database. For example, first and last name of a person may be entered or recorded as such.

Note that during recording a text such as a word or a phrase or etc., in addition to the text input information (e.g. characters) corresponding to said text, other input information corresponding to said text (e.g. herein may be referred to as text characteristics) such as one or more functions such as at least one editing function (e.g. Enter (e.g Next Line (e.g. \n))Function, color, font, etc.) or other functions corresponding to said phrase provided during the entry of said phrase may be recorded too. As an example, the input information corresponding to a phrase such as "best regards, John" to be printed in two lines "Best regards," and "John" may be entered by:

a) providing a gliding action informing the beginning of the entry of a phrase to be recorded/stored.

b) Typing the words "best regards,"

c) Pressing the Enter/NextLine key

d) Typing the word 'John'

e) Providing a gliding action corresponding to the ending of input information and/or recording of said phrase.

The/a corresponding entry of a database, may include all of the input information provided for a corresponding recorded phrase.

According to another embodiment, for the purpose of recording a phrase, for each word of the phrase, the user may provide a predefined interaction such as a gliding action as described.

Note that as an example, during an entry of a text, a gliding action (e.g. 488223 of fig. 488D, or 488224 of fig. 488E) provided downwards from right keys/zones/side of any keyboard such as the split keypad of the invention and/or a precise keyboard such as a QWERTY keyboard, may correspond to informing the system that the words (e.g. preferably including a word being entered) provided from that moment may be recorded and saved as a phrase as just described,

According to one embodiment, the words of a database of words used by the system may include text characteristics (e.g. font, color, size, etc.). In this case, as an example, two similar words each having a different text characteristic may be considered as being two different words by the system. As such, the input information provided by a user for creating and/or searching a text (e.g. word, phrase) may include one or more of said characteristics. As such, during the entry of a text by a user, in addition to the text input information provided by the user, the system also considers the corresponding text characteristics (e.g. the user provides the input information corresponding to a word/phrase after selecting an italic font) and responds accordingly. For example, after receiving the input information (e.g. including text input information and text characteristic information) corresponding to a word, according to a first method, the corresponding words (e.g. "*this*") of the database having the provided text characteristics may be considered by the system with higher priority over the corresponding words (e.g. "this") without having said text

characteristics. As an example, in this case, the system may preferably give priority of presentation/proposing to the corresponding text including said characteristic. According to a second method, the corresponding words without having said text characteristics may not be considered by the system.

According to one embodiment, in the word list, tapping on a word/stem may enter said word/stem and preferably may result in adding a space character at the end of the entered word. Accordingly, providing a gliding action (e.g. rightwards) on/from a word of the word list may select said word, and the system may propose more longer word(s)/stem(s) beginning by the selected word/stem.

It must be noted that the term 'word' used through this application may be considered as a word, a gram of an entry of a database of words, an entire entry of a database of words, compound word, composite word, phrase, a character, etc., creating and/or entering such a word may be herein referred to as creating and/or entering a text portion.

As mentioned before, when a keyboard is in its precise/enlarged mode, the left and right keys can be distanced from each other, while the bottom key(s) may or may not (be) moved, as shown in Fig. 499A wherein the multi-mode keys/zones 499001 and 499003 are distance from the multi-mode keys/zones 499002 and 499004, and the multi-zone key/zone 499007 is preferably situated under the distanced keys and preferably close to the center of the keyboard. In this example, the zone 4990071 (e.g. herein may be referred to as a/the 'neutral zone') between the distanced left and right keys may be used as a function zone/key, such as, for example, a space key. This is beneficial because as mentioned earlier, in a precise/enlarged mode, a user may tap anywhere on a multi-mode key/zone. Preferably, for one hand (one thumb) use of a keyboard, in order to not excessively move his/her finger, the user may preferably tap on each of the multi-mode keys close to the center of the corresponding keyboard, and in this case, having the space zone 4990071 in the center of said keyboard may be beneficial for comfortable and/or fast typing. Note that more than one neutral zone may be included/used with a keypad. For example, as shown in Fig. 499A1, two neutral zones 4990071 and 4990072 may be used to provide any of the functionality of the space and backspace keys/zones of the invention, respectively. Note, any combination whether including or excluding any number of keys (e.g. space or/and backspace keys) may be used by people skilled in the art. For example, in Fig. 499A1 space key/zone 499006 and backspace zone/key 499005 may be excluded from the keypad.

According to one embodiment, providing a predefined interaction such as a gesture towards the left on the zone 4990071 may correspond to changing the functionality of said zone to the backspace function. After such interaction, tapping actions on said zone correspond to backspacing. Accordingly, providing another predefined interaction such as a gesture towards the right on zone

4990071 may correspond to changing the functionality of said zone back to the space function. Note that, preferably, any of such gestures may also provide respectively, a backspace function and a space function.

Fig 499B, shows another example/arrangement of the multi-mode keys/zones of an enlarged keyboard of the invention. In this example, multi-mode key/zone 499007 is positioned on the right side of the keyboard while the space key 4991071 is positioned in the center of the keyboard, and the backspace key 499005 is position on the left side of the keyboard.

Fig. 499C shows another example/arrangement of the multi-mode keys/zones, space key, and backspace key of an (e.g. enlarged/precise) keyboard.

The zone 4990071 may also correspond to mouse (e.g. navigation) functions as described throughout this and previous patent applications filed by this inventor (e.g. by providing gestures in predefined directions, wherein said gestures preferably include a long-pressing action).

Note that, preferably, upon interaction with multi-mode key/zone, said key/zone may be highlighted.

According to one embodiment, a keyboard (e.g. of the invention) in any of its modes and/or orientation (e.g. relating to a device) may be resizable. Any means for such purpose may be used. Said means, herein referred as 'resizing means', for example, may be a slider, a interaction such as a pinch (e.g. on a touch screen), etc. Said resizing may be stored/memorized for any state of said keyboard. A stored state may be recalled when the system is in a corresponding mode and/or orientation. A keyboard may be displayed according to its state and/or orientation. The resize function may be limited to a predefined number of states or sizes, or it may be unlimited to any size as may be controlled by a user. Preferably, at least the space and backspace keys may be limited to a minimum size so as to be useable.

According to one embodiment, a resizing means may be a predefined gliding action provided on a bar such as the 'few symbols button/bar'. As an example, a gliding action upwards on said bar enlarges the keyboard in its corresponding mode, while a gliding action downwards on said bar reduces the size of the keyboard in its corresponding mode.

In the example of 499A, providing an predefined interaction such as a gesture upwards or downwards from the zone 4990071, may respectively correspond to increasing/decreasing the height of the corresponding keyboard, preferably according to the (e.g. length of the) gesture. Accordingly , providing a predefined interaction such as a gesture in a diagonal direction upwards or downwards, may respectively correspond to increasing or decreasing both the height and width of the corresponding keyboard, simultaneously and proportionally to the angle and length of said gesture.

Accordingly, providing a predefined interaction such as a gesture leftward and rightward may set the keyboard to a corresponding first and second size.

Fig. 499D shows an exemplary keypad of the invention having four (e.g. ambiguous) keys/zones 499001-49004 and a broadly ambiguous zone 499007. In this example, the broadly ambiguous zone 499007 partially occupies the area between the first group of keys/zones 499001, 499003, and the group keys/zones 499002, 499004. The rest of the area 499008 is assigned to (e.g. other) functions/symbols such as space and backspace functions. Preferably, the area 499008 is primarily used as a space key/zone 499006. Preferably, a predefined interaction such as a gliding action (e.g. 499018) provided from said zone 499008 towards for example the left may correspond to a backspace function. Preferably, after providing such predefined interaction, (e.g. in addition to a backspace) the functionality of said area is changed to backspacing function (e.g. 499005 of Fig. 499E) such that, for example, a tapping action on said area may preferably correspond to a backspace function. Said functionality may be switched to a space function by providing a predefined interaction such as a for example a gliding action towards right from said zone, or (e.g. automatically) upon said user's interaction with any other keys/zones, for example, for typing a character. Note that all/some of the functionalities assigned to the space and/or backspace keys/zones as described in this and previous patent applications may be assigned to said area 499008 in a corresponding mode. For example, when said zone 499008 has space functionality, an interaction such as a gliding action including a press and holding action provided from said zone in any direction may move the keypad on the screen in said direction. For example, when said zone 499008 has backspace functionality, an interaction such as a gliding action including a press and holding action provided from said zone in any direction may change (e.g. increase or decrease) the distance between the keys/zone 499001, 499003 and the keys/zones 499002, 499004. Note that the corresponding key/zone may present to the user an icon representing the current mode of said zone/key. For changing the size of the keys, a means such as predefined interaction (e.g. pinching with two fingers) may be provided on the keypad.

The keypad just described above, can be extremely minimal in size while being comfortably for typing, for example, even for people who have large fingers. As an example, as shown in Fig. 499F, such keypad may be integrated in a small device such as for example, a smart watch 499111, smartphone, a pendant-type device, etc. In Fig. 499G, said keypad is shown in its invisible mode.

Different methods of using sweeping/swiping actions (e.g. gestures) corresponding to interacting with more than one key and/or more than one time with a key (e.g. combined with/without tapping actions on the keyboard) have been described before by this inventor. According to one method of the invention, the enlarged/precise keyboard preferably having a neutral zone may be used with such gestures so as to provide an easy, quick, and accurate text entry

method. Having a neutral zone with a keyboard may permit consecutive interactions with one or more keys/zones (e.g. multi-mode keys/zones) without the need for the user to traverse an undesired key/zone since the user's gesture may traverse from any key to any key (including the same key), through a/the neutral zone if needed (e.g. because by traversing a/the neutral zone may preferably not be considered as interacting with a key/zone relating to character(s)).

Figs. 500A to 500H demonstrate an exemplary embodiment of such method which preferably includes multi-mode keys/zones, preferably a touch sensitive surface 500009, for example, a touchscreen. Note that the number designations for key/zone and for the neutral of Fig. 500A also applies to keys/zones and neutral zone of Figs. 500B to 500H. As shown in Fig. 500A the gesture 500011 corresponds to interacting with the keys 500002, 500001. The gesture 500012 corresponds to interacting with the keys 500002, 500003. The gesture 5000013 corresponds to interacting with the keys 500004, 500007. The gesture 500014, traversing the neutral zone 500071, also corresponds to interacting with keys 500004 and 500007.

In Fig. 500B the gesture 500021 corresponds to interacting with the keys 500002 and 500004. The gesture 500022 corresponds to interacting with the keys 500002, 500004, and 500007, while the gesture 500023 corresponds to interacting with keys 500002 and 500007 because traverses the neutral zone 500071. Although the departure and destination keys/zones of the gestures 500022 and 500023 are identical, the corresponding input information are not identical because the gesture 500022 also traverses the key 500004 while the gesture 500023 traverses the neutral zone 500071.

In Fig. 500C, the gestures 500041, 500042, and 500043 begin on key 500002, traverse the neutral zone 500071, traverse the key 50003 and respectively end on the keys 500001, 500007, and 500004 to respectively correspond, for example, to the words 'use', 'tax', and 'tag'.

In Fig. 500D, the complex gesture 500031 corresponds to interacting with the keys 500002, 500001, 500003, and 500002, corresponding to a number of words such as the words 'left', 'text', for example. Note that a back and forth gesture provided on a key/zone or from a key/zone towards a neutral zone and back to the same key may preferably correspond to consecutive interactions with a/the same key. As a first example, the gesture 500032 corresponds to interacting with key 500004, the neutral zone 500071, and the key 500004 corresponds to two consecutive interactions with the key 500004, corresponding to the words, for example, 'go' and 'ok'. As a second example, the gesture 500033 corresponds to interaction twice with the key/zone 500007.

As mentioned earlier in this application and previous applications, the gestures may be combined with tapping actions for entering a word. Also, multiple separate gestures, each corresponding to a different portion of a word may be used to enter a word. Also, an auto-spacing system or a manual spacing may be used at the end of the input information (e.g. gestures and/or

tapping actions) provided by the user for the entry of a word.

With continuous description of the current methods and embodiments, if a gesture is ended in a neutral zone, the system may enter a word and the system may preferably append a space character to the end of said word. The complex gesture 500051 of Fig. 500E corresponds, for example, to input information corresponding to the word 'that'. According to one method, the system may not automatically provide an end-of-word signal such as an auto-space, because, for example, the system may expect further key interactions. The complex gesture 500052 of Fig. 500F also corresponds to the word 'that', for example, but in this case the gesture is ended in the neutral zone 500071 which preferably corresponds to an end-of-word signal such as a space character. In this case, preferably the word 'that' is entered and a space character is appended to the end of the word. In the case that the system enters a word (e.g. into a text field), with or without a space character, the system may also propose other corresponding words so that in case the user selects one of said proposed words, the system replaces the entered word by the selected proposed word. However, if the user does not select any of the other proposed words, and for example, proceeds to entering further input information, the system cancels said proposed words (e.g. removes proposed words from the screen of a touchscreen).

In the example Fig. 500G, the input information corresponding to the word 'that' is provided by two consecutive gestures 500061 (corresponding to interacting with the keys 500002 and 500004) and 500062 (corresponding to the keys 500003 and 500002). In Fig. 500H, for example, the gestures 500081 and 500082 correspond to entering the word 'that' but in this case the gesture 500082 is ended in the neutral zone 500071.

According to a preferred method, a complex gesture can be provided anywhere on the keyboard (e.g. of the invention, preferably having a neutral zone as described herein), regardless of interacting with the corresponding keys/zones. As an example, according to this method, the system may easily relate the complex gesture 500051 of Fig. 500E to, for example, the word 'that', even if it is not provided on the corresponding keys/zones. The shape of such complex gesture is considered as input information, and such input information may recognized by the system as interacting with the correspond keys/zones (e.g. and neutral zone) of the keyboard. According to a preferred method, the system dynamically analyzes the shape of the gesture to related it to the corresponding key interactions. According to another method, the system search for a resembling pattern in a database of gestures.

According to one embodiment of the invention, if a gesture is a straight gesture beginning from a first key and ending and a last keys, and traversing one of more middle keys, the system may or may not consider said middle keys. Preferably, if said gesture is a non-straight gesture such that

it changes direction on each of the middle keys, then preferably said middle keys may also be considered by the system.

Note that some or all of the methods/features/aspects/principles/embodiments of interaction with more than one key and/or more than one time with a key (e.g. combined with/without tapping actions on the keyboard) as described through this application and previous application filed by this inventor, may be combined.

According to one method, the size of the keys and the displayed characters on said keys may be such that to enable the user to view the characters while providing a gesture on the keys/zones.

According to one method, upon providing a gesture over one or more keys, the system may relate said gesture to interacting with one or more multi-mode keys/zones, the system may also relate said gesture to a number of precise characters (e.g. including its neighboring characters) on or near where (e.g. the path of) a gesture was provided, or near where the acceleration and/or direction of said gesture changes, etc.

Preferably, a substantially straight gliding action (e.g. 500011 of Fig. 500I) traversing at least 2 keys may correspond to interacting with source and destination keys/zones (e.g. keys/zone 500002 and 500007, e.g. of a keypad of the invention in split mode). If a user desires to also interact with any of the others keys in addition to source and destination keys/zones (e.g. said other keys/zones may herein be referred to as middle keys/zones), the user may change a feature of a gliding action for each of said middle keys/zones, for example, change of speed, direction, pressures, etc. For example, the gliding action 500012 of Fig. 500I may correspond to interacting with the keys/zones 500002, 500004, and 500007. Fig. 500J shows the same interactions on a keypad of the invention in a non-split mode. Accordingly, the gliding actions 500051 and 500052 respectively correspond to interacting with the keys/zones 500003, 500004, and the keys/zones 500003, 500007, 500004 of the minimal keypad of Fig. 500M.

Providing a gliding action on a single key/zone may preferably correspond to two interactions (e.g. two tapping actions) on with said key/zone. Preferably, the order of presentation of the corresponding letters on the key/zone corresponds to the direction of the gliding action. For example, as shown in Fig. 500K, the gliding 500031 provided on the key 500002 may preferably correspond to the word “up” and the gliding action 500032, provided on the same key, may correspond to the word “it”. Note that, such a gliding action may correspond to a portion of a word. In this case, in addition to considering to ambiguous interactions with the corresponding key, the direction of such gliding action preferably restricts the number of choices. For example, a tapping action on the key/zone 500003 and providing the gliding action 500031, may preferably correspond to the word “ail”, while the tapping 500003 and the gliding action 500032 may preferably correspond to the word “fit”. Note that the direction defined by two or more predefined actions

(e.g. tapping actions) on an identical key/zone may correspond to a gliding action (e.g. simple or complex) on said key in the corresponding direction.

A gliding action ending outside the letters keys/zones of a keypad may correspond to entering a precise character and/or a function. For example, the gliding action 500041 starting and ending on two letter keys/zones 500001, 500003 may correspond to interacting with said two keys, and a gliding action 500042 provided from the key 500001 traversing the key 500003 and ending outside the keypad of the invention, may correspond to the Spelling Help feature/function of the invention.

According to one embodiment of the invention, during the typing of a word, if a character being typed is a (e.g. precise) special character and no corresponding word(s) are found in the database of word used by the system, a word corresponding to the input information excluding said special character may be entered. Preferably, said special character is also added to the end of the entered word.

Note that (e.g. in addition to letters) the special characters entered ambiguously and/or precisely by in interacting with a key/zone during the entry of the input information corresponding to a word, may be considered by the system to predict a word. Note that one of the zone/keys of a keypad may be assigned to mouse functions as described before.

Note that the input means of the keypad of the invention may be implemented in various technologies, by those skilled in the art. For example, the keypad of the invention may be implemented on a touch sensitive surface such as a touchscreen or touchpad, in the air detected by a motion sensor(s), on physical keys of a physical keyboard, etc.

The prediction of the words using the data entry system may dynamically vary based on some parameters. According to one embodiment of the invention, based on users' interaction with the keyboard during the entry of a chain of characters such as a word, the system may automatically use various methods of prediction.

According to a first procedure, during the entry of a word if two impact point(s) on a predefined area (e.g. the right side or the left side of the keyboard, preferably defined by a line that separates the right and left keys/zone) of a keyboard are located within the same (e.g. preferably vertical) axis, where said axis has a predefined width, may preferably inform the system that each of the input signals, of a corresponding impact, ambiguously corresponds to any of the characters assigned to the corresponding key/zone (e.g. herein may be referred to an ambiguous input signal). As an example, in Fig. 501A, tapping on twice on the letter 't' 501011 may ambiguously correspond to several words, such as, 'it' and 'up'. As another example, tapping on the letter 't' 501001, 'g' 501012, 'g' 501012, may ambiguously correspond to several words, such as 'too' and 'log'.

According to a second procedure, during the entry of a word if two impact point(s) on a predefined area of a keyboard are not located within the same (e.g. preferably vertical) axis, may preferably inform the system that each of the input signals, of a corresponding impact, precisely corresponds to an identified character on and/or near which the impact was provided (e.g. herein may be referred to an unambiguous input signal). As an example, in Fig 501A, tapping on the letter 'u' 501021 and the letter 'p' 501022 may precisely correspond to the word 'up'. According to another example, tapping the letter 'h' 501031 and the letter 'i' 501032 may precisely correspond to the word 'hi'. Note that the system may use a word completion software to (e.g. also) predict longer words including one or more identified characters. Note that, preferably, one of the words predicted as such, may be entered by providing a preferred interaction, such as pressing the space key.

Note that in the first procedure, preferably, in addition to relating the impacts to ambiguous input signals, the system may also relate said interactions to unambiguous input signals and propose a corresponding chain of unambiguous characters. Note that in the second procedure, preferably, in addition to relating the impacts to unambiguous input signals, the system may also relate said interactions to ambiguous input signals and propose one or more corresponding words.

According to one method, upon determining a procedure, the system may preferably first propose one or more words based on said procedure. If needed, the system may (e.g. further) propose one or more words based on another procedure (e.g. the other procedure).

Note that the first and second procedures may be combined to predict one or more words. As an example, during the entry of a word, one or more impacts may be related by the system to ambiguous input signal(s) and one or more impacts may be related to unambiguous input signal(s). As an example, during the entry of a word, if the majority of impacts are provided within the same (e.g. vertical) axis, and one or more other impacts are provided outside said axis, the system may preferably relate the impacts inside said axis to ambiguous input signals and may preferably relate those impacts outside said axis to unambiguous input signals. The system may propose one or more words accordingly.

The procedures described above/herein, may be used with any of the other methods of the word/text prediction systems. As an example, said procedures may be used/combined with the Spell Help methods of the invention.

Note that the procedures described above, are exemplary procedures. More procedures based on user interaction/behavior may be considered by those skilled in the art. As an example, during the entry of a word, (e.g. preferably, if one or more of the impacts is provided outside an axis in which a number of impacts are provided), the system may propose one or more words based on the following considerations: (1) the system considers all of said impacts (e.g. N impacts) as

unambiguous input signals, (2) the system considers at least one of the impacts as being an ambiguous input signal (e.g. from 1 to N impacts). A such ambiguous input signal may preferably be related either to the key/zone on which the impact is provided or it may be preferably related to one or more character(s) on or located nearby said corresponding impact. Optionally, said ambiguous input signal may be related by the system to any character.

Note that based on user behavior such as typing with one or two hands the system may or may not relate the impacts to corresponding to ambiguous and/or unambiguous input signals. As an example, in Fig. 501B, the impacts 501111, 501112, and 501113 the system may not be able to relate said impacts to a first or a second procedure because if said impacts are provided by one finger they preferably should be related precise characters (e.g. only to the word 'can'), while if the impacts are provided by two hands then the user may have been related to ambiguous input signals. In this case, preferably, the system may consider each of the corresponding procedures to predict one or more words. In Fig. 501C, in addition to the impacts 501111, 501112, and 501113, the user has provided two more impacts 501114 and 501115. In this case, the system may preferably, at first, relate said impacts to unambiguous input signals because the left impacts 501112 and 501114 are provided on different vertical axis.

Note that, according to one method the system may use various means of recognition to recognize the intention of the user regarding typing precisely or ambiguously. Such means of recognition may be defined regardless of the consideration for the axis of typing as described above.

As mentioned before, during an instance of the data entry corresponding to a word, the system may relate/correspond the interactions such as tapping actions on a zone/key to both precise and/or to ambiguous input signal(s) (e.g. precise/identified and/or ambiguous characters). According to one embodiment, if a sequence of such input signals related by the system to precise characters correspond to a word and/or a stem (e.g. preferably corresponding to the beginning characters of a (e.g. one or more) word/s of a database of words used by the system), then said said identified chain of characters may be considered as having the highest priority for that instance and may be considered as the current word being entered. Accordingly, preferably, said word may be entered and/or presented as the first choice. According to one method, more words (e.g. word candidates) beginning with said chain of characters may be presented to the user. Optionally, (e.g. preferably, if none of the proposed words is the desired word), the system may also propose words relating/corresponding to (e.g. considered) ambiguous input signals. If such input signals are not related to a word and /or a stem of the dictionary, the system may propose words based on ambiguous input signals.

As an example, by considering the keyboard of fig. 501A, if the user taps anywhere on the keys 501001, 501004, 501003, and 501002, and the corresponding precise chain of characters (e.g.

EHDY) the system may propose ambiguous words 'what', 'whale', 'rofl' and 'whatsoever'. On the other hand, if said pressing actions correspond to tapping precisely on the letters W, H, A, T the system may relate said chain of characters WHAT which is a worked of the database and also corresponds longer words that begin with said chain of characters. As an example, in this case, the system may relate said interaction to the words WHAT, WHAT'S , WHATSOVEVER, WHATEVER, WHAT'D, etc.

Note that, according to one method, the user interactions corresponding to entry of information corresponding to a word may be considered by the system to include ambiguous and/or precise input signals. As an example, an auto-correction system such as the ones described herein may be used with the system to propose a word(s) that may be considered by the system to include some (e.g. one or more) of the input signals as precise characters and one of more of the input signals as ambiguous (e.g. in case the system does not find a word in the word database if the system relates all the input signals to precise characters). The system may propose one or more words (e.g. short and/or long words) accordingly.

Preferably, the principles just described may be applied to the words having at least a predefined number of characters (e.g. preferably at least 3 or at least 4 characters).

The principles described above may be used with any technology such as those described in this and related applications. As an example, these principles may be used with the Spelling Help system (e.g. relating the precise and ambiguous interactions to the beginning and ending characters of a word) of the invention.

Note that, for the word list of the invention has been described in detailed before, preferably upon display of said word list, a group of one or more keys/zones (e.g. herein referred to as word list keys/zones) may be displayed (e.g. next to and/or immediately underneath the word list). Upon actuating (e.g. tapping, gliding, etc.) a key/zone of said group of keys/zones, word(s) in said word list may be modified, preferably adding an additional character corresponding to a key/zone of said group of keys/zones to the end of at least one word in said word list. Preferably, when the word list is not displayed, the word list keys/zones are not displayed.

The description regarding positioning and resizing (e.g. splitting, changing the size of the keys, moving the keys) of a keyboard have been described herein. As described, according to one embodiment, providing a predefined interaction such as a gliding action provided in a predefined direction from a key such as a backspace key may correspond to a function such as splitting or unsplitting the keyboard of the invention such as those splitting functions described throughout Figs. 490K to 490S. According to a preferred method, a gliding action corresponding to a splitting/unsplitting action may include a press-and-holding action. Preferably, such gliding actions not including a press-and-hold action may correspond to changing the size of the keys of the

keyboard (e.g. increasing and decreasing the size of the keyboard). As an example, as shown in fig. 490T, providing a gliding action 490911 without including a press-and-hold action from the backspace key 490905 leftwards may correspond to increasing the width of the keys of the keyboard (e.g. see enlarged/increased keyboard of Fig. 490U), providing a gliding action 490921 without including a press-and-hold action from the backspace key 490905 rightwards may correspond to decreasing the width of the keys of the keyboard (e.g. see reduced/decreased keyboard of Fig. 490V), providing a gliding action without including a press-and-hold action from the backspace upwards may correspond to increasing (e.g. or decreasing) the height of the keys of the keyboard (e.g. preferably, upwards). Providing, for example, a gliding action without including a press-and-hold action from the backspace key diagonally towards the upper-left may increase/decrease the one or both of the width and the height of the keys of the keyboard (e.g. preferably, towards upper-left direction increases both height and width of the keyboard, and towards lower-right direction decreases both height and width of the keyboard. Also as an example, towards the upper-right increase the height and decreases the width of the keyboard. Other combinations of changing the height and/or width of the keyboard according to a corresponding predefined action may be considered by those skilled in the art).

Preferably, providing a gliding action without including a press-and-hold action from the backspace downwards may correspond to decreasing (e.g. or increasing) the height of the keys of the keyboard (e.g. preferably, downwards), and providing a gliding action without including a press-and-hold action from the backspace key diagonally towards the lower-left may increase the both the width and height of the keys of the keyboard (e.g. preferably, towards lower-left).

Preferably, a predefined action such as a press-and-hold action (e.g. and removing the finger) without providing a gliding action on a predefined zone such as the space key and/or the backspace key may correspond to resizing and/or repositioning the keyboard in a predefined/default instance. According to one method, said predefined/default zone may be a predefined instance of the keyboard (e.g. position and/or size, etc.) or another instance such as an instance defined by a user (e.g. the/a previous instance of the keyboard).

Preferably, if a first gliding action provided in a predefined direction is assigned to a first function (e.g. increasing the size of the keys/keyboard), a second gliding action provided in another (e.g. substantially opposite) direction may be assigned to another function such as preferably opposite/complementary function (e.g. decreasing the size of the keys/keyboard).

Note that, the interaction corresponding to splitting and/or resizing the keys of the keyboard may be interchanged.

According to one aspect of the invention, preferably, resizing of the keyboard resizes some of the (e.g. ambiguous letter/character) key(s)/zone(s) of the keyboard (e.g. preferably the

keys/zones that are (e.g. preferably ambiguously) associated with a group of characters (e.g. letters)).

According to one aspect of the invention, preferably, some of the button(s)/key(s)/zone(s) (e.g. preferably button(s)/zone(s)/key(s)) of the keyboard are not resized and maintain a predefined size, when the keyboard is resized. As an example, the keys/zones that contain punctuation characters (e.g. period, comma) may have a fixed size while other (e.g. ambiguous letter) keys/zones may be of any size corresponding to the size of the keyboard.

According to one aspect of the invention, some key(s)/zone(s)/button(s) of the keyboard may be resized such that their size is bound by a predefined limited (e.g. key(s)/zone(s)/button(s) are not a size that is unusable (e.g. too small to use reliably, comfortably, confidently)).

According to one embodiment of the invention, key(s)/zone(s)/button(s) that are not (e.g. automatically) resized or resized to predefined limit (e.g. as just described) (e.g. according to the size of the keyboard) may contain characters (e.g. special characters) and/or, preferably, functions (e.g. mode keys, shift function, enter function), herein referred to as function buttons.

According to one embodiment of the invention, a portion of a function button may be visible while another portion of said function button may not be visible (e.g. displayed). According to one method, the portion not displayed may be delimited/indicated/highlight by one or more outline(s), preferably on at least one boundary/border of said function button or of said not display portion of said function button (e.g. 490971 to 490974 in Fig. 490Z1).

According to one preferred method, for a function button that may have a portion that is or is not displayed, said function button may be displayed as a bar (e.g. 490971 to 490974 in Fig. 490Z2), herein referred to as a bar function button. Preferably, said function button displayed as a bar may be activated/actuated (e.g. provide the system with an activation signal) by a predefined interaction such as a tapping action or a gesture interaction (e.g. sliding or gliding from the edge of the device/input means as already described). Displaying a function button as a bar the size of the input method may be reduced (e.g. the space occupied by the function button of the input method is reduced).

According to another preferred method, for a function button that may have a portion that is or is not displayed (e.g. said portion may be invisible), said function button may be a line (e.g. 490971 to 490974 in Fig. 490Z3), preferably displayed as a line (e.g. optionally not displayed), herein referred to as a line function button. Preferably, said line function button may be activated/actuated (e.g. provide the system with an activation signal) by a predefined interaction such as a gesture interaction (e.g. sliding or gliding from the edge of the device/input means as already described). Displaying a function button as a line function button the size of the input

method may be reduced (e.g. the space occupied by the function button of the input method is reduced).

According to one method, the function button(s) may be located on the sides of the input means, such as a touch sensitive surface (e.g. a touchscreen), and preferably said function buttons may be located above the (e.g. ambiguous letter keys/zones 490901 to 490904) key(s)/zone(s) of a keyboard. In the example of Fig. 490W, keys/zones 490971, 490972 and 490973, 490974 associated with special characters and/or functions, are displayed on the sides of the screen 490909. Keys/zones 490971 and 490972 are displayed on the left side of screen 490909, and keys/zones 490973 and 490974 are displayed on the right side of the screen 490909.

Furthermore, according to another method, upon resizing (e.g. reducing the width of) a keyboard, function button(s) may (e.g. automatically) be positioned at a location of substantially the same height of at least some of the (e.g. ambiguous letter) (e.g. ambiguous letter keys/zones 490901 to 490904) key(s)/zone(s) of the keyboard, while being located on the side(s) of the input means, such as a touch sensitive surface (e.g. a touch screen). In the example of Fig. 490Y, keys/zones 490971, 490972, and 490973, 490974 associated with special characters and/or functions, are displayed on the sides of the screen 490909. Keys/zones 490971 and 490972 are displayed on the left side of screen 490909 at the same height of the keys of the keyboard, and keys/zones 490973 and 490974 are displayed on the right side of the screen 490909 at the same height of the keys of the keyboard.

According to one method, function button(s) may be located on (e.g. attached to) the (e.g. outer (such as the left most side and right most side) side(s) of key(s) of a keyboard. Preferably, upon resizing (e.g. reducing the width of) a keyboard, function button(s) may (e.g. automatically) be positioned/attached at the side(s) of the (e.g. ambiguous) keys of the keyboard. In the example of Fig. 490X, keys/zones 490971, 490972, 490973 and 490974 associated with special characters and/or functions, are displayed on the sides the keyboard. Keys/zones 490971 and 490972 are displayed on the left side of the keyboard, and keys/zones 490973 and 490974 are displayed on the right side of the keyboard.

According to one embodiment, substantially all of the side bars may be located on one edge of the screen.

According to one embodiment, a predefined interaction with a key such as a gliding action in a predefined direction such as upward from a key (e.g. of an ambiguous or precise keyboard) may be related to a Shift function. Preferably such interaction may also be related to typing/entering a corresponding character in the corresponding Shifted Mode. Preferably, if said gliding action includes a press-and-holding action it may activate the capslock function.

According to one embodiment of the invention, the (e.g. system) resources (e.g. input means and/or screen areas of an input interface such as a touchscreen) allocated/assigned to an input method (e.g. a native keyboard of an operating system/device) such as an input method of invention may be utilized by and/or made available to an executable object/component (e.g. such as a computer software/application), preferably in addition to the input method (e.g. alone), herein referred to as extra input method resource(s). Since the input method of the invention may be reduced in size and/or, for example, made invisible, the screen area(s) usually allocated to a full-sized input method/keyboard (e.g. that occupies a predefined area of the screen allocated by a (e.g. operating) system/device to an input means such as a keyboard) (e.g. considered larger than a input method with reduced size) and under control of the input method may be made available to another application. As another example, the extra input method resources such as a screen area may contain a chat application, such as, for example Skype, image editing method/application of the invention (described herein), video chat application, while a regular application area (e.g. all related operating system and device resource e.g. such as a touchscreen device/resource) of an operating system may be occupied by other application(s), such as, for example WhatsApp. According to the current embodiment, an input method such as the input method of the invention may (e.g. simultaneously) interact with applications in the extra input method resource or in the regular application area of an operating system.

Several advantages of such principles relating to current embodiment follow, as an example: (1) the user can chat on an instant messaging application(s) with other users, for example, on WhatsApp, Skype, Facebook, and at the same time the user can for example, send pictures, edit pictures (e.g. using the image editing method/application of the invention) from the application(s) operating in the extra input method resources (e.g. under control of the input method). Optionally, the user may share pictures with other users through any application(s). For example, an picture edited as such may be share through a chat application such as WhatsApp preferably operating in the regular application area of an operating system. (2) a user can chat with a first group of users by using an instant message application as described, and in the extra input method resource area a user may video chat with a second group of users.

Note that, in the current embodiment, according to a preferred method, upon an interaction with an area corresponding to an application running in the regular application space of an operating system (e.g. touching the screen in the area assigned to said application), that application gains focus of the input method. Similarly, upon an interaction with an area corresponding to an application running in the extra input method resource (e.g. touching the screen in the area assigned to said application), that application gains focus of the input method. Alternatively, the input information provided by the input method is provided to both applications.

According to one embodiments of the invention, On the word list:

-Sliding in a predefined direction such as upwards may cause the system to propose more words corresponding to the input information provided by the user.

-Sliding downwards removes the word list and preferably deletes the word being entered.

-A gliding action including a long-press preferably corresponds to moving the wordlist (e.g. on the screen)

-A long pressing action on a word/stem may preferably cuses to provide/present by the system more words/stems beginning with that word/stem.

As mentioned before, the input information provided by a user may be provided through any input means. As an example, interacting with the (e.g. 5 letter) keys/zones of the/a keypad (e.g. model) of invention may be imitated by interaction (e.g. tapping/gliding) of (e.g. 5) fingers of a user on a touch sensitive surface such as a touchscreen. As an example, a user may lay at least one (e.g. preferably all five) fingers (e.g. of one hand) on the surface so that to permit to the system to approximately localize the locations of the corresponding fingers to hit the screen during a text entry session. Each of said fingers tapping on the corresponding localized location may imitate the input signal providided by interacting with the corresponding key of the (e.g. imaginary) keypad (model) of the invention. As such the user may enter text preferably anywhere on the screen without preferably having a user input interface on the screen. For some synbols/fuctions (e.g. such as spacing, backspacing, fucnctions, special characters, etc.) input other means (e.g. side bars/buttons, gliding actions, etc.) may be used.

According to one embodiment, the broadly ambiguous zones (e.g. the zone between the 4 letter keys of the invention) may be divided in at least two subzone, one subzone corresponding to the letters/characters assigned to said broadly ambiguous zone, and the other subzone corresponding to the space and/or back space fucnctions as described previously in this application. Such a keypad may herein be referred to as “mini keypad). Fig. 502A shows as an example, an exemplary 4-key mini keypad, wherein the subzone 502007 is used for a group of (e.g. ambiguous (e.g. may also type identified letters by typing precisely on the letters)) letters, and the subzone 502008 is used by spece and/or backspace as described before in this application (e.g. see descriptions related to Figs. 499A to 499E).

With continuous description of the current embodiment, according to one method such the space and backspace keys (e.g. 502006 and 502005) of the keypad may be removed/excluded to provide an extremely small input interface. Such a keypad may herein be referred to as “super mini keypad). Fig. 502B shows as an example, an exemplary 4-key super mini keypad of the invention based on the mini keypad 502A with the difference that here the space key 502006 and the backspace 502005 key are removed/hidden.

Preferably, a switching method/means may be used to switch between the mini and super mini keypads. As an example, a predefined interaction such as a gliding action (e.g. upwards or downwards, or etc.) provided from/on the sub-zone 502008 corresponding to the space/backspace may be used to switch back and forth between said mini and super mini keypads. Fig. 502C shows as an example, an exemplary small and split 5-zone keypad of the invention selected 502012 among others from a menu bar 502011 which was displayed (e.g. on the screen) by providing a predefined interaction on the space key 502006. As mentioned, a predefined interaction such a gliding action provided on a key (e.g. upwards on/from the key 502005) may switch the keyboard to a/the full-size keyboard of the invention.

According to one embodiment, the system may include a next word prediction method based on at least one predefined/target word (e.g. at least one of the last words being entered, a selected word, etc.). The next word(s) predicted as such may be presented to the user preferably in a word list. According to one method, the predicted words may be used in an auto-correction feature such that if a word is being typed by the user (e.g. if a user begins to type a word), one or more of said predicted next words corresponds to the input information provided by the user with (e.g. preferably minor (e.g. one, two, etc.) mistyping the system also proposes said said one or more predicted next words.

According to one one embodiment, a correction means may be available to the user during the entry of a word, so that the user can ask the system to correct (e.g. propose words by considering/assuming that the user has mistyped on at least one key/zone). For a better prediction, according to one method, the user may be authorized to make less/few mistypes (e.g. 1 to 2) for short words and more mistypes (e.g. 1 to 4) for longer words.

According to one embodiment, if th*e keypad (e.g. herein may also be referred to as "keyboard") of the invention is located in a predefined location on the screen such as adjacent to an edge of the screen, the (e.g. a portion of) content displayed on the screen may preferably be located/relocated at a location on the screen (e.g. and/or in an area or portion of the screen) such that the keyboard does not cover (e.g. a portion of) the content. For example, if the keyboard is located adjacent (e.g. no distance between said edge and the keyboard) to at least on one of the (e.g. predefined) edges (e.g. top, bottom, left, right, a corner, etc.) of the screen, a/the content may be located/relocated as explained. Preferably, when/if the keypad and an (e.g. a predefined) edge of the screen are spaced by at least a predefined (e.g. size of) distance (e.g. 1 screen pixel), then the keyboard may cover at least a portion of the content of the screen. According to one embodiment, relocating the keypad on the screen as such may (e.g. automatically) relocate and/or resize the (e.g. or a portion) content on the screen accordingly.

According to one method, a predefined interaction such as a gliding action (e.g. including and/or excluding a long pressing action) from/on a portion of the keyboard such as for example a key of the keyboard (e.g. used for the data entry (e.g. a letter key, the/a space key, etc.)) may be used to relocate the keyboard on the screen. As such, preferably the form factor of the keyboard and/or preferably the size of the keyboard is not changed when such interaction is provided and/or when the keyboard is moved as such). According to one embodiment, (e.g. when a/the content on the screen and the keyboard are located on separate (e.g. distinctly different) portions of the screen) relocating/separating the keyboard from an edge of the screen (e.g. detaching/separating the keyboard from said edge by a distance) may automatically cause the system to enlarge the size of the content on the screen such that to occupy a larger portion (e.g. preferably all) of the screen such that at least a portion of the keyboard occupies/overlaps at least a portion of the content. As an example, if the keyboard is adjacent to a predefined edge of the screen such as the bottom edge or the top edge of the screen, moving it on the screen such that to detach it from said edge (e.g. such as to relocate the keyboard some predefined distance from said edge) may cause the system to automatically allocate a larger portion (e.g.by preferably including a portion of the screen previously occupied by the keyboard) of the screen (e.g. the whole screen) to the content such that the keyboard overlaps/covers a portion of the content.

With continuous description of the current embodiment, moving the keyboard (e.g. by a means such as the gliding action as described) on the screen such that to become adjacent to a predefined edge of the screen may automatically cause the system to reduce the size of the content on the screen such that preferably the keyboard does not cover the content (e.g. the portion of the screen used by the keyboard and the portion of the screen used by the content are/become separated from each other).

According to one embodiment, if the size of the keyboard is less than a predefined size (e.g. its width and its height are respectively less than the width and the height of the screen) moving the keyboard (e.g. anywhere on the screen including positioning the keyboard on/near an edge) on the screen preferably does not (e.g. automatically) affect the size and/or the location of the content on the screen.

With continuous description of the current embodiments, as an example, if the keyboard is adjacent to the bottom of the screen and the content is located above it, providing a gliding action from a key (e.g. the space key) of the keyboard in an upwards direction, for example, may move the keyboard upwards such that to get separated from the bottom edge of the screen. At this time, preferably, the size of the space assigned to the content (e.g. herein may be referred to as the size of the content) enlarges to preferably include more information on the screen. As an example the size of the content may be enlarged to also occupy (e.g. at least a portion of) the space that was allocated

to the keyboard when it was adjacent to said edge. In this case, preferably, the keyboard overlaps the content. Accordingly, moving the keyboard as explained, towards the bottom of the screen such that to become adjacent to the bottom edge of the screen may preferably cause the content to be resized and/or relocated in its original/previous (e.g. previous location before attaching the keyboard to bottom edge in this example) location (e.g. above the keyboard). Note that the bottom edge of the keyboard is used to describe this example. The example described may be applied to any other edge of the screen such as the top, left or the right edge of the screen.

Note that, (e.g. when the keyboard is overlapping the content on the screen) by moving the keyboard on the screen by interacting with a portion (as described) of the keyboard enables a user to position the keyboard very close (e.g. to even 1 screen pixel) to an edge of the screen, without resizing/moving the content on the screen.

According to one method, a predefined interaction such as a quick gesture (e.g. from a key such as the space key) may preferably relocate/move the keyboard on/to an edge of the screen preferably the edge of the device towards which the gesture is provided. In this case, according to one method, the content on the screen may (automatically) be relocated and/or resized accordingly.

Preferably, the automatic relocation and or/resizing of the content relative to relocation of the keyboard as explained may become effective or non-effective by using a switching means for example a button of the settings of the system.

Note that in the description herein the “content” generally refers to as the information displayed or to be displayed on the screen regardless/excluding (e.g. if the keyboard was not displayed) of the keyboard. Also note that, “enlarging” or “reducing” the size of the content is preferably referred to resizing the content (e.g. of the screen) and/or adding more information to the content or removing a portion of the information of the content (e.g. of the screen).

According to one embodiment, a predefined interaction (e.g. a gliding action (e.g. upwards) on/from a key such as the backspace key (e.g. 502005)) may switch between at least two types/sizes of the keyboard of the invention (e.g. from the full-sized keyboard to the slpit/4-key keyboard, etc.)

Relating a Swiping/gliding actions provided on/over one or more zones/keys to interacting (e.g. tapping) on said keys have been described before. According to one embodiment, a short gliding action provided from/on a first key/zone towards another (e.g. an adjacent) key/zone may correspond to interacting with said first key/zone and an adjacent key/zone located in the direction of the gliding action. Preferably, a long gliding action provided from/on a first key/zone towards another key/zone may correspond to interacting with said first key/zone and another key/zone (e.g. located in the direction of the gliding) preferably the key/zone located after a key/zone adjacent to said first key/zone. In both cases, the gliding action may end at any location (e.g. on or outside) said another key/zone.

According to a preferred method, any of said short and/or long gestures are preferably ended on the keyboard. Accordingly, any gesture from the keyboard upwards and ending outside the keyboard may be related to a shift function. Note that, during the entry of the input information corresponding to a word, preferably if a gesture ends on a space key, the system may enter a space character after said word.

Note that according to a preferred method, a tapping action on a key may correspond to one interaction with said key, a gliding action beginning and ending on a key may preferably correspond to two interactions with said key, and a complex gliding action (e.g. a back-and-forth gliding action) having a N number of gliding actions separated by a characteristics such as the change of direction/angle, pause, etc., between the simple (e.g. substantially straight) gliding actions (e.g. constituting a/the complex gliding action) wherein said complex gliding action begins and ends on a key may preferably correspond to N+1 (e.g. in this example, three) interactions with said key, and so on.

According to one method, in addition to relating a gliding action to an ambiguous zone, the system may also relate the gliding action to the letters on/near which the gliding action begins, ends, and/or changes its characteristics such as the change of direction/angle, pause, etc.

According to one embodiment, providing if the trajectory of a swiping action provided from a first zone to a second zone travels extensively over any of said zones, said swiping action may be related to interacting at least two times with the zone on which the swiping action has travelled extensively, and accordingly at least one time with the other zone key/zone (e.g. also depending on the length of the of the trajectory of the swiping action on said key.)

According to one embodiment of the invention, the word list of the proposed word list may include one or more advertisement (e.g. ads) banners/icons. Said ads may be presented to the user based on a context such as, for example, the geographical location of the device of the user, the text that the user is entering, the text that is printed/displayed on the screen of the user's device, the information (e.g. birthday) of the an entity such as a person (e.g. the user, his/her friends), etc.). Preferably said ads are small in size, and upon interaction with an ad the ad may be enlarged.

According to one method, the one or more advertisements are preferably displayed when there are not enough predicted word choices in the word list.

According to one embodiment, a first (e.g. type of) interaction such as a first tapping action on (e.g. any location) a word (e.g. in a textbox) may be related (e.g. by the system) to selecting said word for any purpose such as editing/correcting said word. A second (e.g. type of) interaction such as an another/additional tapping action on (e.g. any location/position) of said word may preferably correspond to positioning a cursor in a location/position of said word, for example, for insertion (e.g. or a letter) or vice versa. Note that the first and second interactions may be other types of

interactions, for example the first interaction may be a tapping interaction and the second interaction may be touching said word at a first location and then gliding to a second location in said word.

According to one embodiment, the system may include at least two types of corrections of words: An auto-correction system, and a correction-on-demand system as described before.

Preferably, during the entry of a word, both systems may be available. Preferably, the auto-corrected words related to the auto-correction system may be automatically proposed if the system does not have enough words relating to the (e.g. exact) input information provided by the user relating to a desired word.

In figures 503A-503C, three types of keyboards of the invention are proposed (e.g. to prevent or reduce mistyping) without affection performance of the system and/or user. As an example, if the user types with one finger, in Fig. 503A, the letter keys are arranged such the letter keys (e.g. any letter key) may be accessed without the need for the user to traverse a finger over another (e.g. letter) key. Preferably, the zone corresponding to the space and backspace key, as described before, is located between (e.g. in the middle of) the letter keys. In Fig 503B, the keyboard is a separate keyboard resembling the keyboard of 503A, but the keys are represented by circles shapes, forming a circle of keys (e.g. a center zone with keys/zones located around said center zone). The keyboard of Fig. 503C, resembles that of 503B, with the difference that the a separate zone is provided to the backspace function, and the center zone is allocated to the Space key. Note that these are only examples, and other modification and other allocations of keys/zones may be considered by those skilled in the art. Note that in the examples above, a qwerty arrangement is used, and other letter arrangements may be considered by those skilled in the art.

According to one embodiment, at least one of the keys may include at least one special character. As an example as shown in fig. 504A, the key 404004 includes the apostrophe in the first layer (e.g. in order to enter the word “it’s”, the user may tap on the keys 404002, 404002, 404004, 404003.)

According to one embodiment, the side icons/icons (e.g. 405011) may exclude background so that to improve the visibility of the content on the screen.

The system may include one or more space and/or backspace keys. According to a preferred embodiment, the at least one of the space and the backspace key may be implemented such that to by easily reachable by the user (e.g. herein may be referred to as additional space and/or backspace). Preferably said key(s) are presented to the user when necessary. As an example, after a user selects a proposed word, said space and/or backspace key may be presented to the user (e.g. preferably together with the special bar character but preferably being independent from said bar (e.g. scrolling the special characters bar may preferably not scroll the space and/or backspace key.

Preferably, at least the space key is presented in a large form factor to be easily reachable. Also preferably, the space key may be located on/in approximately the same location as the location of the first choice word (e.g. the word having the highest priority) in the word list so that when the user selects said word the space word can be reachable without relocating the finger on another location on the screen to reach the space key. Preferably the first choice word is also printed/presented in a large form factor/background so that to be reachable easily. Preferably, said space and/or the backspace remain on the screen after interacting with them. Preferably, the special character bar and said space and/or backspace keys are removed from the screen upon a predefined interaction such as interacting with a/the main space bar 504006.

Fig. 504B shows as an example, a keypad of the invention having a space key 504006 and a backspace key 504005. In this example, in addition the system also includes an additional space key 504016 and an additional backspace key 504015, in this example, as described. When a user types a text (e.g. with one hand), he can select a word (e.g. most of the time the first choice word 405013) from the word list 504008 and then if necessary he can provide space(s) 504016 or backspace(s) 504015 easily.

According to a preferred embodiment, the additional space and/or the backspace key/zone may be available on the screen when a text (e.g. a word) is being typed. Said space and/backspace key/zone may be removed from (e.g. not available) the screen when no text is being typed. According to one method, said space and/or backspace key may be visible or invisible to the user. If any of said keys is invisible, preferably an icon may be shown on the screen at the location of any of said keys. Preferably, said space and / or the backspace keys are presented above the keyboard (e.g. preferably above the word list) closed to the keyboard so that permit an easy access. As an example, Fig. 506A shows a keyboard of the invention having an additional space key/zone 506016 as described located above the keyboard. In the exemplary Fig. 506B, a such additional space key 506016 and an additional backspace keys 506015 are shown above the keyboard.

As mentioned before, the keyboard of the invention having few (e.g. 5 keys/zones) may have any kind of letter/character assignment to the keys. As an example, figs. 405A-405D show the keys of the keyboard to form a single (e.g. horizontal) zones of keys, and accordingly, the letters are QWERTY arrangement being divided vertically into said 5 zones. As an example, in Fig. 505A, the qwerty keyboard 505000 is divided into 5 zones 505001-505005. Said line of zones may have any height. As an example, keyboard of fig. 505A has a reduced height to form a narrow keyboard. Figs. 505B-505E show different layouts of keyboards based on the principles described, as an example.

According to one embodiment, the keys of the keyboard may be designed such that to permit reducing mistyping while interacting with them. Fig. 507A shows an exemplary keyboard of the

invention preferably when user uses one hand/finger to type. Fig. 507B shows an exemplary keyboard of the invention preferably when user uses two hands/fingers to type.

According to one embodiment, the keys/zones of the keypad may be invisible so that to permit to view the content on the screen under the said key/zones. Preferably, at least a portion of the borders of the keys/zones may be shown on the screen. According to one embodiment a switching method such as preferably an interaction (e.g. a gliding action) from a key/zone (e.g. from the backspace key/zone) may be used to switch the keyboard back and forth between visible and invisible modes (or vice versa). Fig. 508A shows an exemplary invisible keyboard of the invention.

According to one method, the letters of the keys may preferably be printed in small font in a location/portion of a/each key/zone such that to significantly occupy a small portion of a/each key. The rest of the keys may preferably be invisible/transparent as described. The letters may be printed at any preferred location on the keys. for example, they may be printed as shown as an example in fig. 508B (e.g. reminding the QWERTY arrangement) or they may be printed on the sides of keys near the edges of the screen, etc. According to one embodiment, the space and backspace keys may be located at different preferred locations. As an example, in fig. 508A, they are respectively (e.g. 508006, 508005) located at the bottom of the keyboard, and in fig. 508B, they are respectively (e.g. 508106, 508105) located on the sides of the keyboard, Note that the space and/or backspace keys/zones may be marked/presented (e.g. by the corresponding icon(s)). In fig. 508C, the space key 508206 is located on the right side the keyboard, and the backspace key 508205 is located in the bottom of the keyboard next to (e.g. on the right side of) the letter zone 508007. For left handed people, the space key may be located on the left side of the keyboard, and the backspace key may be located at the left side of the zone 508007, etc.

According to these principles, a keyboard with large keys but visually occupying at most a very small portion of the screen may be provided.

According to one embodiment, each of the zones/eys may be presented with a different background color. Preferably, the keys/zones may be presented in an alternate manner by two different colors. This may permit to provide some degree of transparency to the keyboard and see the content under the keyboard but still being able to visually differentiate the keys/zone from each other. According to one embodiment, the letters/characters of each zone/key may also have some degree of transparency such that enabling the user to enter precise characters when needed.

According to one embodiment, the side bars/icons may be relocated (e.g. preferably upwards or downwards preferably on the edge/s of the screen) on the screen (e.g. preferably, by dragging a predefined or any of the side bars/icons).

According to one embodiment, when the user enters a text, the user generally types on a same zone on the keybosrd. According to one method, if the user types one or more times out of said zone, the system may consider that the user intnds to type precisely on corresponding letter/s. In this case, the prediction procedure may consider said interactions as an attempt to type one or more precise characters, and may predict words accordingly (e.g. by considering the letter/s on and/or near the impact area.

According to one embodiment, a gliding action provided from an edge (e.g. a first edge) of the screen towards inside the screen may correspond to reducing the size of the keyboard (e.g. on the screen). Accordingly, a gliding action provided from an edge (e.g. a second/opposite edge) of the screen towards inside the screen may correspond to enlarging the size of the keyboard (e.g. on the screen). Alternatively, a gliding action provided from the keyboard towards a predefined direction may (e.g. back and forth) reduce and/or enlarge the size of the keyboard.

According to one embodiment, when a user touches a location on a zone/key of the keyboard, the letter/character corresponding to said location may be highlighted/displayed/shown. Additionally, one or more letters closed to said location on said key may also be highlighted/displayed/shown. The use may slide his/her finger towards a desired character to select it. Note that upon sliding on the zone/key other characters under and/or near the user's finger touching point (e.g. on the zone/key) may be highlighted/displayed/shown accordingly.

According to one embodiment, during the entry of a sequence of key/zone interaction, the system may compare the characters of a group of corresponding words with the identified characters corresponding to the location on the keys on which the user interacts. According to one method, if at least a predefined number of characters of a word in the group is similar to a number of said identified characters (e.g. preferably corresponding to the same character positions) the system may preferably allocate higher priority to said word even if said word has a lower priority (e.g. in a word list) relating to one or more words within said group (e.g. a word with originally higher priority may have lower priority within the word list.)

According to one embodiment, in the spell help procedure of the invention, after a user end the entry of the input information corresponding to the beginning and the end of a word, if any of the words proposed by the user is not the desired word (e.g. the user may inform the system by any means that none of the words is the desired word), the user may provide additional input information corresponding to one or more other characters of said word.

According to a method, the ending character/s of a word is/are preferably entered precisely. As such (e.g. in a word list corresponding to the input information provided by a user) the system may allocate higher priority to the word/s that their ending character/s is/are similar to such precise character/s.

According to one method, not all of the hidden portions of a content can be unhidden by a single receiver.

It must be noted that the exemplary keyboard of the system having five letter zone may have any key configuration. For example, any row of a regular (e.g. QWERTY) keyboard may be represented by a single key/zone.

According to one embodiment, when a user interacts with a zone, the system may consider said interaction as an ambiguously corresponding to any of a group of characters/letters assigned to said zone (e.g. first type of prediction). Upon a accomplishment of a predefined condition (e.g. such as if the user interacts with (e.g. taps on) different locations on a single key/zone or not harmonious interactions one a side of the keyboard (e.g. not typing in a single axe on one side of the keyboard) during the entry of a word), the system also may consider said interaction as precisely corresponding to the identified character assigned the interaction impact and/or ambiguously corresponding to one or more characters near the interaction impact on said zone (e.g. second type of prediction). By providing a sequence of zone/key interactions, based on these principles, the system may propose one or more corresponding words to the user. In this case, the system may first propose a (e.g. one or more) corresponding word even if its frequency is lower than the word corresponding to the input information provided by the user regardless of the impacts locations on the keys. According to one method, instead of accomplishing a condition, the user may be permitted to switch the system from the first type to the second type (e.g. and vice versa) of prediction just described.

Principles of entering text directly onto a (e.g. virtual) content has been described before in detail by this inventor. As an example, a user may take or select a photo, provide a gliding action in a desired direction on a location on said photo and start entering text. The text entered will be located in the direction of the gliding action on the content, preferably, starting from location corresponding to the beginning of the gliding action. A menu may be available to the user to select features such as font, color, size, etc. The entry of text may be through any text entry system such as a keyboard, user's speech using a speech recognition system, handwriting, etc. Preferably, upon providing the gliding action a keyboard pops up on the screen.

According to one embodiment, a word or a chain of word/s may be selected by a predefined type of interaction such as a gliding action including a holding action (e.g. glide and hold, press and hold and glide) on said word (e.g. or chain of words) or preferably near said word (e.g. or chain of words) in the direction/trajectory that said word (e.g. or chain of words) has been entered. In this case, according to one method, a press and holding action on the screen/picture may correspond to another function such as for example a horizontal trajectory for a text to be entered. A selected word may be edited. For example, the user may change the color of the word, the font, the location, etc.

According to one method, after selecting a word, other candidates corresponding to the input information corresponding to the selected word may be presented to the user.

The image editing application/functions described herein may permit providing/typing graffiti on a background image / textbox. As such according to one embodiment a social picture sharing application may be created so that user can, edit (e.g. write graffiti preferably simultaneously, an image in in a cloud server.

According to one embodiment, the image editing system may be designed such that to not allow (e.g. editing) access in a predefined location on an image, preferably unless a user has an authorization (e.g. through a password). For example, access to the bottom right of an image may be reserved to an editor's signature or an advertisement, etc.

According to a preferred embodiment of the invention, a method of applying functions to a word being entered (e.g. the current (e.g. predicted) word) or to a selected word which has been previously entered (e.g. an already previously entered word may be selected by providing a predefined interaction such as a long-pressing action on said word) (e.g. herein the current word and/or selected word may be referred to as target words) may be considered, such as:

-In the case that a word being entered, a predefined action such as a tapping action (e.g. anywhere outside the keypad and/or corresponding broadly ambiguous zone) on the screen, may display a menu.

-In the case that a previous word is selected, a predefined action, such as a tapping action, may be preferably provided not on the selected word.

-In the case of a targeted word (e.g. a word being entered and/or a previous word being selected herein may be referred to as targeted word), a predefined action such as a tapping action (e.g. anywhere outside the keypad and/or corresponding broadly ambiguous zone) on the screen, may display a menu. Said predefined action may preferably not be provided on the selected word or on a zone assigned to the selected word.

-After the menu is displayed, an interaction with a function of the menu may apply to the targeted word. Preferably, said application of the function may be executed in real time so that the use can see effect of the function on the targeted word. As an example, said function may be change of the color, font, size, font, shadow, style, etc. of the targeted word.

According to one method, functions other functions (e.g. such as those other than the functions relating to a menu) may be applied to a targeted word. For example, in the case of a targeted word on a touchscreen, providing a gesture in a direction may cause the system locate (e.g. relocate) the targeted word under the user's fingers in the direction of the gesture. Preferably, during providing such gesture, the system may show (e.g. on the fly/in real time) the corresponding word in the corresponding gesture trajectory so that the user can modify the trajectory if necessary.

Preferably, a press-and-holding action anywhere on the screen and a slide of a finger in a direction may cause to move the targeted word in said direction (e.g. preferably from the targeted words original location, or optionally under the user's finger) without changing the trajectory of the targeted word itself. Note that said press-and-holding action with gesture may also be provided on the targeted word itself.

With continuous description of the current embodiment, according to one method, a tapping action on a selected word unselects said selected word. Additionally, in case of a targeted word and during the display of a menu on the screen, according to one method, a predefined action (e.g. such as a tapping action anywhere on the screen (e.g. preferably not on the targeted word)) may hide the menu.

According to one method of the invention, a gliding action on the screen may cause the system to display the keyboard on the screen without a menu being displayed on the screen.

According to one method of the invention, when a gliding action is provided on the screen, the trajectory is shown to the user preferably in the form of a line. In the case of a targeted word, according to one method, in addition to said trajectory or in replacement of said trajectory, the targeted word is displayed.

According to one embodiment of the invention, a complex gliding action such as a sequence of continuous gliding actions may be provided on the screen before enter several words. After entering said several words, the system may preferably display said several words according to the trajectory of the complex gliding action on the screen. According to one method, the system may assign each of the gliding action trajectories of said complex gliding action to each word of said several words. Optionally, the system may assign trajectories to the whole of said complex gliding action, and adjust the trajectories of each word accordingly.

According to one embodiment of the invention, a long pressing action on a selected text (e.g. one or more words) may preferably release (e.g. unselect) said text. According to this approach preferably a tapping action anywhere on the screen (e.g. preferably outside the broadly ambiguous zone, if a (e.g. corresponding such) keyboard is poped up one the screen) including on a selected text may correspond to displaying the/a menu and/or a/the keyboard. In this embodiment, a tapping action on the/a selected word may preferably not unselect said word.

According to one embodiment of the invention, the system may enable the user to identify/select one or more portion(s) of an image (e.g. whether edited or not) and share it with one or more party/parties. According to one method, the identified/selected portion(s) of the image, may be the only portion(s) enabled for editing (e.g. entering text/graphic elements, etc.). According to a second method, the identified/selected portion(s) may be the only portions of the image that are not enabled for editing. According to one embodiment, the principles just described may be used in

an application (e.g. having the data entry system of the invention and) using a server that may be employed to control the said enablement/disablement of editing an image. According to another method, some portion(s) may be enabled for editing, and some (e.g. one or more) portions (e.g. of the same image) may be disabled for editing. According another method, any of enablement and/or disablement may be alternated/switched. According another method, more portion(s) may be added at any time, and any of exiting portion(s) may be removed.

As an example, Figure 441A shows an image 44100 wherein the portions 441001-441005 are selected by the user for editing purposes. The rest of the image are disable from an editing action. For selection/identification purposes, a means, preferably in a menu, may be available to the user so that by using said means the user may select said one or more portion(s) of the image. As an example, the user may draw may a shape/form (e.g. a square or other shape) as shown in Figure 441A to identify/select said portions. According to one method, said selection procedure may be provided without interacting with a means in a menu, while according to another method the user may interact with a means in a menu before providing shape/form. Said means in a menu may define enabling/disabling purpose of the selected portions. Preferably, for each of enabling and disabling purposes, a different means in a menu is designated. In the example of Figure 441A, the selected portion(s) are designated to be enabled for editing, and the rest of the image is disabled for editing. In figure 441B, the portions 441103, 441104, and 441105, which are edited, correspond to the selected portions 441003, 441004, and 441005 of Figure 441A, respectively. Other portions are not yet edited.

Figure 442A shows a selected portion 442001 of an image 442000 wherein said portion is disabled for editing. The rest of the image is enabled for editing. In this example, several comments/texts are edited into the image by one or more users. In this example, a split comment, having two portions 4421011 and 4421012, is a single comment that was typed on the image but was (e.g. manually or automatically) split because the portion 442001 prevented it from being printed in a continuous area where portion 442001 was located.

With continuous description of the current embodiment, note that in a preferred method, when a user shares an image having selected portions, said portions are marked by some means, for example, by a line/contour. After editing content in said portion(s), said marking means may disappear. According to a method, in order to have access to a selected portion (e.g. or the rest of the image if the selected portion is disabled for editing) for editing, the editing party (e.g. someone who receives said image) may require an access control means such as a login (e.g. username and/or password) to edit said portion(s)/image. For monetizing purposes, in some cases, the provision of said access control may require payment.

With continuous description of the current embodiment, any portion of an image may be shared separately from the rest of the image with a designated user, and access control, defined herein, may be applied to that portion. Such portion(s), after being edited by the designated user, may be transmitted to a (e.g. remote) server which may assemble the received portions into a (e.g. single) image(s). According to one method, the assembled image may not include the portions that may not yet be edited. While, according to another method, the assembled may also include the non-edited portion. Any of said assemble images, may at any moment be accessed by any user. According to one method, a user may identify themselves as the editor of any portion of an assembled image. Note that, one or more portion(s) of said image may be edited by the user who shares said image. According to one method, each of said portions may be auctioned (e.g. online) and preferably control by some access means. Figure 443A shows an image 443000 that is partitioned (e.g. manually by a user or automatically) into several portions (e.g. 443001, 443002, 443003, and others not numbered in the figure). In Figure 443B, the portions 443001 and 443003 are edited, while the remaining portions are not edited, but users can see the entire image at any moment. In figure 443C, only edited portions are shown to a user(s).

Note that, according to one embodiment, all the principles just described above concerning the selection and/or definition a/any portion of a content, such as an image, for example, for editing purposes, may be applied in such a way the user receiving said content. For example, a user that receives an image from another user (e.g. a sender that controls access), may define and/or request from the sender of the image to define a portion of the image to be edited by him. As mentioned before, for monetizing purposes, in some cases, the provision of said access control to a portion defined by a receiver of content may require payment.

Note that a selected portion of an image may include a part of the image, parts of an image, or the entire image.

Virtual walls such as a facebook walls and/or feeds, are very popular today. In such so-called "walls" the content such as text and user identification pictures are provided on different text fields or other corresponding image backgrounds that have no relation with a wall that we are used to image. The image editing principles described in this application may allow typing on images in form of a wall and/or forming a wall. As an example, a user may post a subject (e.g. including text) on an image and said image may be shared (e.g. provided/sent to) with other/s on a page such as a web-page. Other users may comment/respond to the posted subject on preferably similar image. The similar image may be provided by the user posting the subject by a third party such as a server sharing/providing images such as the server controlling the page. The image of the posted subject and/or the images including comments to the posted subject may be positioned next to each other on the shared page. Preferably, the posted subject and/comments may be positioned in a linear manner,

preferably, vertically. In this case, as an example, they may form/construct at least a substantially single image. If each of said images is the image of a wall (e.g. China's, Berlin, or a building wall), the combination of said images on the shared page may form a single wall with many comments making it a pleasant and fun. It also may permit better visualization of the comments. According the one embodiment, any location on the constructed image (e.g. wall) may be accessed freely or by means of permission (e.g. as described before) for posting a comment.

Fig. 444 shows as an example, a "wall" in a current social application such as Facebook using the image editing principles/application as described. In this example, a user 444011 has typed a subject 444007 on an image 444001 such as the image of a wall and shared in his facebook page. In this example, the image of the user himself and/or his corresponding personal information are located outside the image (e.g. because Facebook application requires it). In this example, under said image, posts 444002, 444003, from other user 444012, 444013, responding to the posted subject image 444001, are positioned in a vertical manner. The overall page/wall substantially forms a single image/wall with a single debated subject with a small gap between each image.

In a preferred embodiment, the information corresponding to the poster (e.g. user who provides) of the subject and the responding users may be positioned/printed on their corresponding images so that to at least minimize the gap between images. In the example of Fig. 444A, each of the images 444101, 444102, and 444103, include information from its respective poster, 444111, 444112, or 444113. In this example, a very reduced gap separates the images, while in Fig. 444B, no gap is provided between image and they form a single image 444200.

According to one embodiment, the images posted by users may not resemble each other, but preferably may have common characteristic(s). In figure 445, a portion 445002 of the wall 445000 has the image of a wall which may be different from other portions (445001 and 445003) of the wall 445000.

The principles of commenting on a subject while constructing an image such as a wall may be used with/in any type of (e.g. social) application and/or platform/service such as Facebook, YouTube, etc.

According to one method, a single image may be divided into pieces, preferably linear (e.g. vertical or horizontal) pieces and the pieces may be shared with a number of users. Note that, preferably, each of said pieces may have a different portion of the image which may not necessarily resemble another portion of the image. Because a single image is divided into several portions, the number of portions is generally limited to fixed predefined number. In order to divide an image into several portions, a means such as those described before or some (e.g. automatic) means may be used. As an example, the user may divide the image by drawing lines on the image or the user

may instruct the system to automatically divide in to a random number or desired number of portions.

According to one method, an admin, defined herein, user may share any of the portion(s) with other users by the admin user's control of the image, or the admin user may allow other users to select a portion available (e.g. from an entire image and the corresponding portions that may be shown to a user, for example, on a web page) to edit, by preferably sharing the entire image.

According to one method, the portions of a divided image may be available in a linear sequential manner. Preferably, the first portion may be edit by the admin user or another user and the next (e.g. second) available portion is preferably the portion adjacent to the first portion, and the third available portion is preferably the portion adjacent to the second portion, and so on. As mentioned before, according to a preferred method, at least one of said portions may be available to a user by means of access control (e.g. that may be defined and/or granted based on monetary system such as a credit/point/reward system, or payment system). As such, advertisers, celebrities, corporations, consumers may use these principles to monetize and/or market and/or advertise their brands, products, services, etc. through images.

As an example, figure 446 shows an image 446000 divided into five portions by means of drawing lines such as the line 446001. The portion(s) of the image may be available to some users as described before. In this example, the first portion of the image is edited by the admin user. Figure 446A shows a comment/post on the second portion of image provided by a user acquiring control of the second portion. According to one method, the combined edited portions 446100 may be provided on a page, such as a web page, so as to be seen by others, as shown in figure 446A. In Figure 446B, a third comment/post provide by another user and the combined three portions 446200 are shown. In Figure 446C, the whole edited image 446300 including all of the portions including all the comments/posts provided by several users is shown.

Note that, as shown, the divided portions may have different size.

By using the methods/principles of providing information corresponding to the (e.g. related layered) graphical presentation of text (e.g. herein referred to as graphical text) and/or related content and meta data (e.g. such input information may herein be referred to as scene information) to provide text on a content (e.g. a picture/image, video, blank picture/form) described throughout this application, a new protocol/system/method of messaging/communicating (e.g. email, IM, SMS, etc.) may be developed. The advantage of such system is in that the user can express himself/herself (e.g. instantly) through a colorful text, various fonts, text in various directions, corresponding image(s) (e.g. if any) on which the text is to be presented/shown (e.g. anywhere on an image), etc. This preferably eliminates or at least may reduce the need of using text input controls which are mostly related to a restricted text manipulation/processing functionality. According to one method,

a (e.g. remote) server may organize/manage/process the scene information relating to a user's activity received from a user (e.g. and other sources related to the user's activity). The server may also transmit/receive such information to/from a destination/source. According to one method, all information (e.g. scene information) such as the history of the messages (e.g. and/or user's activities related to said scene information) may be saved/recorded/stored in a (e.g. remote) server. Said information may be accessible by one or more user(s) upon predefined user interactions and/or (e.g. system) conditions.

According to one embodiment, such information may be transmitted from a user (e.g. fixed/mobile device) to another user (e.g. fixed/mobile device) without the use of a server (e.g. peer to peer).

Note that reference to server herein may refer to a network cluster of servers, whether centralized, distributed or otherwise configured.

The scene information, such as history of messages of a user, may be stored and/or accessed as text and processed (e.g. sorted) accordingly. The procedure of processing may be executed on a server and/or in a user's device.

In the current embodiment, according to one method, the graphical presentation of the scene information may include an attachment such as a picture, a textual document, other types of information, etc. According to a preferred method, the scene information may be printed/presented to a user in the form of a single document/presentation element (e.g. audio and/visual output). Note that the scene information may include one or more image(s). Any portion of a text (e.g. provided as such by a user) may be displayed on one or more of said image(s). Fig. 451 shows as an example of text/graphic messaging as just described above. In this example, on the screen 451000 of a (e.g. mobile) device text is present on/over an image (e.g. several texts are presented on/over several images may also be considered as forming a single image). In this example, the first message "Long time, no see? Where are you? Jack" is presented over an image 451001 that resembles a wall (e.g. note that the image is only an example, and any image may be used, whether from the sender, receiver or another source). The reply to this message is the second message 451002, which contains two sections (451002/1 and 451002/2). The section 451002/1 on which the message is "I'm having great time. See my new house! Tom" is presented on/over an image and attached image 451002/2 is presented, with text written over it, namely "I am here". The reply to this second message 451002 is "Love it! See you soon. Jack" where each part of this third message 451003 is presented at various positions and angles on/over the image of a wall (e.g. this is a exemplary image but it could be any other image as already described). Note that, in this example, all the messages together may be considered as a history of messages (e.g. a conversation). Also, note that, in this example, the wall/background image of Tom's message is the same as the image of

Jack's messages, however, this is only optional, as a user (e.g. Tom, and or Jack) could select any image as a wall/background image for messages at any time.

According to another method, the attachment may be presented on/in a separate document.

The principles of providing scene information by a first party and/or presenting said scene information to a second party, as described throughout this application, may transform network, social, telecommunication protocols and systems such as email, instant messaging (e.g. Whatsapp, ICQ, MSN, AOL Messenger, Instagram, etc.), short message service (SMS), social networks (e.g. such as Facebook, Twitter, LinkedIn, Pinterest, etc.), etc. where a user can express themselves by eliminating/reducing text boxes and using graphical text and/or content, preferably provided on images.

Preferably, at least a portion of text included in scene information may be treated as text (e.g. not graphical information). As such, functions such as text searching, text sorting, copy, paste, cut, select, etc. may be applied to such text.

According to one embodiment, a scene information (e.g. may exclude an image and) the presentation of at least a portion (e.g. at least a portion of a graphical text) of said scene information on a (e.g. remote) receiving device may be presented on/with a content (e.g. such as an image) on a (e.g. remote) receiving device (e.g. a mobile device, server, desktop, etc.).

According to one embodiment, preferably, the scene information may be contained/found on a (e.g. remote) server wherein at least some of said scene information may be processed (e.g. associated with other information, incorporated into a collage of other scene information, classified according to predefined and/or dynamic parameters and/or classification systems). According to one method, the server may provide at least a portion, preferable at least the last message sent by a user, to a destination. In such case, if the receiving destination/party desires to have more scene information, more information may be sent to the receiving destination on demand. According to one method, the receiving destination may process at least some of scene information.

With continuous description of the current embodiment, (e.g. rendering) information (e.g. transmitted to a destination), may by presented/displayed on and/or over any content such as an image, video, text box, email, etc.

According to one embodiment, in the picture editing application/embodiments, the system may include a means (e.g. from a menu) to define a zone of/on an image on which a text may be wrapped when typing a text. For example, the user may be allowed to define such a zone on the picture by drawing a zone after providing an interacting with a section of an appropriate menu relating to the activation of such function.

According to one embodiment of the invention, a secured method of identification of the signature of a user may be created. When a user signs on a touch sensitive surface such as on a

touch screen, his/her graphical signature may be considered/memorized by a system. When user provides a signature, the gliding action corresponding to the signature on said surface also provides a (e.g. complex) sound. Said graphical signature and said sound may be transmitted to a destination (e.g. another user's device, a server, etc.) for authentication. Said destination may already have stored a correct version both the graphical and sound of the user's signature. By comparing said the combined information with the stored information, the user's signature may be authenticated.

Note that, for the entry of text, no text box is used and/or required. The text provided as such may be presented over any content such as an image, a text box, video, etc. without necessarily being integrated with the content.

According to a preferred embodiment of the invention, the presentation of text on a (e.g. receiving) device may stop after a predefined lapse of time, or by instruction of the a user, or (in the case of a video) after a fixed number of frames. Optionally, said text may be saved (e.g. for several purposes such as reviewing content, for example, related to and/or including said text at a later time) on a remote/local server and/or on a receiving device.

According to one embodiment, a photo sharing/editing application such as the photo editing application of the invention may include a store (e.g. online store such as an Internet based store), where goods/contents such as fonts, photos, smileys, etc. may be presented for sale/rent to users. According to one embodiment, photos owned by a party may be proposed in the store to the users in a manner not be used more than a predefined number of times such as, preferably, one time. For such purpose, after a user selects/purchases a content such a photo, the photo may be presented with and/or amended by a security element such as a watermark (e.g. text and/or signature of some kind, preferably substantially visible). After a user edits a photo (e.g. types/writes at least a predefined number of characters on the photo, preferably at least a predefined number characters being entered in a location far from an edge of the photo, such that the photo may not be duplicated as an original), providing a predefined interaction such as for example saving or sharing the photo, may preferably result in removing said security element by the system and/or by a third party such as the provider/owner of the photo from the edited and shared/saved photo. According to another method, upon a predefined condition such as at after a user edits a photo (e.g. types/writes at least a predefined number of characters on the photo, preferably at least a predefined number characters being entered in a location far from an edge of the photo, such that the photo may not be duplicated as an original), the security element may be removed (e.g. by the system and/or by a third party such as the provider/owner of the image/photo) from the edited and shared/saved photo. Said security element may preferably be inserted/added/put on/appended by the system on the presented and/or purchased photo. Note that in the example above, a content such as a photo was used in the example, it is understood that any other content such a video, music, etc. can be used through the

principles described. In the embodiment/principles as being described, the user preferably does not purchase a photo rather than a copy of it for use (e.g. editing such as texting on it) (e.g. herein may be referred to as the right of use).

According to one method, the/a user may purchase the right of use (e.g. editing) of a (e.g. an original) picture for a predefined number of copies/times (e.g. 1, 2,5, 10, etc.) against payment. In this case, preferably, for each case/session/download of use, the user may preferably download a single copy of the picture/photo.

This manner of selling content allows the owner of the content to keep the original version of the content while monetizing said content through the store. In this case the photo is preferably presented/proposed at an inexpensive price.

The revenues of the store may be shared with the suppliers of content and the owner of the photo editing application.

Note that, the principles of editing (such as typing text/comments) and sharing pictures/images as described throughout this application may use any type of keyboard such as the keyboard of the invention having few keys such as four keys (e.g. and zone outside of said keys) or a QWERTY-like keyboard.

According to one embodiment of the invention, providing (e.g. first predefined) gesture(s) to the system, in a (e.g. horizontal) plane may preferably control the display and/or access to information of the history relating to the content (e.g. message/image which is one content in a discussion/channel/topic/thread) on which the user provides said gestures. Such gestures can, for example, be leftwards and rightwards gliding gestures. For example, if the user glides to the left on an image, the system may display a previous/initial/earlier content relating to said image given the present content displayed at that time. If the user glides to the right on an image, the system may display a next/last/later content relating to said image given the present content display at that time.

Preferably, providing (e.g. second predefined) gesture(s) to the system, in a (e.g. vertical) plane may preferably control the display and/or access to information of the history relating to the sequence of content (e.g. message(s)/image(s)) in a discussion/channel/topic/thread on which the user provides said gestures. Such gestures can, for example, be upwards and downwards gliding gestures. For example, if the user glides upwards on a discussion/channel, the system may display a previous/initial/earlier message content (e.g. in some predefined rendering state) relating to said discussion/channel given the present message content displayed at that time. If the user glides downwards on a discussion/channel, the system may display a next/last/later message content (e.g. in some predefined rendering state) relating to said discussion/channel given the present message content displayed at that time.

According to one embodiment of the invention, the public sequence of content (e.g. message(s)/image(s)) in a discussion/channel/topic/thread may be controlled by access control mechanisms (e.g. such as allowing unauthenticated users) to view and manipulate (e.g. add, modify, etc.) new and/or existing content(s) in a sequence of content. Such access controls may, preferably, be setup/controlled/manipulated by one or more authenticated users, and at least, initially, by the initial user or group of users who established (e.g. setup and enabled access to) the said sequence of content.

According to one embodiment of the invention, the private sequence of content (e.g. message(s)/image(s)) in a discussion/channel/topic/thread may be controlled by access control mechanisms (e.g. such as allowing to only identified and authenticated users or groups of user) to view and manipulate (e.g. add, modify, etc.) new and/or existing content(s) in a sequence of content. Such access controls may, preferably, be setup/controlled/manipulated by one or more authenticated users, and at least, initially, by the initial user or group of users who established (e.g. setup and enabled access to) the said sequence of content.

According to one embodiment of the invention, the person-to-person sequence of content (e.g. message(s)/image(s)) in a discussion/channel/topic/thread may be controlled by access control mechanisms (e.g. such as allowing only two identified and authenticated users) to view and manipulate (e.g. add, modify, etc.) new and/or existing content(s) in a sequence of content. Such access controls may, preferably, be setup/controlled/manipulated by the (e.g. two) authenticated users who established (e.g. setup and enabled access to) the said sequence of content.

According to one embodiment of the invention, providing an interaction, preferably a pressing-and-holding action on a content, such as an image, may preferably display said content without any additional content such as said text (e.g. on it).

According to one embodiment of the invention, providing an interaction, preferably such as a gliding action on a content (e.g. such as an image), may preferably display additional content relating to said content (e.g. image). Said additional content may be one and/or a combination of other contents such as: images, text, hypertext links, audio, link(s) to other content(s), or a link(s) to another sequence of content.

Entering text with many different characteristics such as different colors, fonts, sizes, text location (e.g. on/in a document such as on an image), directions, text orientation, and/or in/on different context (e.g. backgrounds such as an image, background color of the image, etc.), audio, video, application, communication channel, etc. may be used in an application/function such as a search application/function to provide additional information to said application/function for faster and more accurate/relevant search results (e.g. such a type of searching method may herein be referred to as complex search) . As such, databases used by such a search application/function, may

preferably include text and at least some of such different characteristics. As an example, if desired information such as a document (e.g. picture that includes a color text with words displayed in different directions, Internet web page, Internet website, an x-ray scan including text), it may be searched by providing a keyword(s) that may include one or more words of the text printed in the relevant, one or more colors, one or more directions, one or more fonts, one or more sizes, etc. According to one method, said search may also include an image (e.g. used as a background image to the keyword). Note that the relationship between the location and/or characteristics the word(s) in the keyword may define the search criterion(a). According to one method, the relationship (e.g. coefficient, etc.) of the characteristics of a (e.g. text) keyword(s) between each other, and the relationship of the (e.g. text) characteristics between each other of the corresponding result may preferably define the result.

Note that in a search, one or more of the characteristics as described above may provide sufficient information for a desired result. Also, note that, the characteristics provided for a search may be approximate (e.g. near) to the exact characteristics. For example, typing a word included in a keyword may result in searching any corresponding data/document that includes any corresponding word that is written in any kind of yellow color. Accordingly, as an example, if the keyword includes as word written at an angle (e.g. on a slope, such as 60 degrees) the system may search the corresponding words written in a predefined slope close to said angle (e.g. 50 degrees to 70 degrees).

As an example, fig. 473 shows a search input (e.g. keyword) as described above. In this example, preferably the keyword 473000 provided relates to searching for a corresponding image. The keyword is preferably in the form of an image having a Yellow background color 473008 that indicates the approximate background color characteristic (e.g. color, average color, most of the image having said color, indicating the general color, etc.) of the corresponding image to be searched. The image to be search also preferably includes:

-the text 473001;

- said text is preferably written in the color Red;
- said text is preferably located in the (e.g. approximate) location in the image as indicated in the keyword 473000;
- said text is preferably written at the (e.g. approximate) angle in the keyword 473000; and
- the relative size of said text in the image to be searched is preferably similar to the relation of the size of the text 473001 to the size of the keyword 473000, etc.

Note that, preferably, the results of the search may include from all to at least one of the characteristics described/shown in the keyword.

According to one embodiment of the invention, the search box (e.g. field) may have the form (e.g. square, round, rectangular, oval, etc.) of the frame and/or the main object (e.g. person, hand, a type of animal, a tree, etc.) of the content (e.g. the photo) to be searched. Said search box may be drawn by a user and/or it may be provided by the searching system/application/engine. For example, a search application may presente to the user different templates as the/a search box.

(e.g. Contrary to the traditional messaging systems,) the image editing system of the invention permits to type a message, post comments, include contents such as tags, user's identification (e.g. name, small icon/picture), etc. at any location within a messaging history regardless of some constraints (e.g. the date of a previous posted message). This is possible the background of the history of the messaging between one or more people may be graphical visible surface (e.g. an image) or an invisible/transparent window/surface (e.g. such background/window may herein be referred to as graphical surface). As described and shown before, a new message/text typed on an image may be written on the top of a graphical surface such that a user viewing said graphical surface may first see said message before seeing the other message(s) written below the new message on said graphical surface but being written prior to said new message.

According to one method, the system may permit a user (e.g. to type a new message on a new graphical surface/image and) to insert a (e.g. the edited) new graphical surface within an already existed graphical surface/image. According to one method, said inserted graphical surface/image may split or not split the original graphical surface/image

Different methods of interaction in the image/photo/video/etc. editing (e.g. texting on an image) application/system (e.g. herein may be referred to as image editing system/application) have been described before. According to a preferred embodiment, an/the image editing system may preferably use at least one (e.g. preferably all) of the following principles (e.g. when an image is being edited, on for example a touch screen):

- Upon providing a predefined interaction such as a tapping action on an image (e.g. on a touch screen), different scenarios may be considered such as:

Scenario 1: if the menu is displayed (e.g. shown) on the screen, preferably after providing said tapping action the menu will/may be removed (e.g. or hidden) (e.g. by the system) from the screen. Also preferably, if the keyboard is NOT displayed on the screen, after providing said tapping action the keyboard will/may preferably be displayed on the screen (e.g. upon said tapping action, if the keyboard is displayed on the screen it will remain on the screen).

Scenario 2: if the menu is NOT displayed on the screen, after providing said tapping action the menu will/may preferably be displayed on the screen. Also preferably, if the keyboard is displayed on the screen, after providing said tapping action the keyboard will/may preferably be removed (e.g. or hidden) from the screen.

- Upon providing a predefined interaction such as a gliding/gesture action (e.g. corresponding to a word to be entered, or to a word which is being entered, or to a selected word (e.g. for relocating said selected word (e.g. on the/a touch screen), etc.) on the (e.g. touch) screen, different scenarios may be considered such as:
    - If the/a keyboard is not displayed on the screen, the keyboard will/may preferably be displayed on the screen. And/or
    - If the/a menu is not displayed on the screen:
        - According to a first method, the menu will/may preferably be displayed on the screen. (e.g. upon said tapping action, if the keyboard is not displayed on the screen, it will remains not displayed).
        - According to a second method, the menu will/may preferably be displayed on the screen unless if the menu will/may cover at least a (e.g. predefined) portion (e.g. a/the beginning portion) of the gliding/gesture action.
- Preferably in all cases, if the/a menu is displayed on the screen and the user start to type a text (e.g. a character, a word), the menu will/may preferably be disappeared/removed/hidden from the screen.

Note that a predefined interaction such as a tapping action (e.g. relating to displaying the menu on or removing the menu from the screen) may not affect the location and/or direction of the current (e.g. last) gliding action (e.g. and the corresponding word/text) provided/shown on the screen.

If an interaction such as a tapping action regarding displaying or removing the/a menu from the screen is provided when a current word is being typed/entered or when a (e.g. previous) word is selected, preferably, said word may remain on the screen and may preferably keep at least some, preferably all, of its characteristics (direction, color, etc.).

Note that principles of functions and/or interactions in an image editing system such as the principles described herein may be used with any keyboard such as a keyboard of the invention, a QWERTY keyboard, etc. As an example, the keys/zones of a keyboard used by the system may (e.g. mainly) from one, two, three, or four rows of keys/zones respectively located next/closed to one, two, three, or four edge(s) of the surface of the/a corresponding touch sensitive/screen used by the system. The keys/zones of such rows may be of any kind. For example, a zone may correspond to one identified character or it may ambiguously correspond to any of a plurality of characters. A zone may be a fixed zone, or it may be a dynamic zone as described in detail before. As an example, the system may have two rows of zones, each representing several characters and wherein being located on opposite sides on the corresponding screen. according to another example, the keyboard may form only one line of zone (e.g. including or excluding the space and/or the

backspace keys) and being located on one edge of the screen for example on the edge opposite to te menu bar. Different methods of arrangements of letters on keys/zone and /or different mays of arrangements of said keys/zone have been described throughout this application. Many others may be considered by people skilled in the art. Said keyboards may be used by the image editing system of the invention and be located on the screen according to principles described or according to appropriate manners preferably in a manner to minimize the interference with the image to be edited and/or with the menu, etc.

As an example, figs. 481A to 481C show three exemplary such keyboards. In fig. 481A, shows a keypad of the invention in alphabetic order as was shown before, but wherein here the letter keys 481001 to 481004 are split in two groups and displayed on opposite sides closed to/adjacent to the edges of the touch screen 481009. In this example, the space key 481006 and the backspace key 481005 are also on opposite sides of the screen. The keys are arranged such that when the menu 481011 is displayed on the screen, the keypad and the menu preferably do not cover each other. In this example, the broadly ambiguous zone include is shown in two locations 481007 and 481017 (e.g. although it may be made of a single (e.g. continuous) zone, or three or more zones).In the example of fig. 481B, the keyboard is made of a single line/zone 481101. This keyboard may be a precise keyboard wherein an interaction on a (zone corresponding to a) letter/character may enter ir precisely and/or it may be a dynamic keyboard as described before (e.g. an interaction with a zone of the keypad may ambiguously correspond to several (e.g. neighboring) characters/letters.

In the example of fig. 481C, a keyboard having three portions 481201 to 481203. The interaction with the keyboard may be based on the principles described regarding to the keyboard 481B.

As mentioned before, these keyboard when used with the image editing (e.g. texting) systems may give them a lot of advantages by minimizing the interference with the image, menu, etc.

It must be noted that these are only exemplary keyboards and methods of interaction and/behavior of the system relating to such interaction. (e.g. based on the principles described) Other types of keyboard, other types of arrangement of characters (e.g QWERTY), other types of the behavior of the system regarding the interaction may be considered.

Note that according to one embodiment, when the user desires to enter identified characters, the system may show the character/letters around the screen (e.g. near the edge of the screen). According to one aspect, when the system is in ambiguous mode, the keypad may be a keypad having four ambiguous letter keys/zone, and when the system is in precise mode, the keypad may be a keypad wherein at least each of its letter keys represent a single character and the keys are arranged around the screen (e.g. the keypad of fig. 482A).

Note that although in many embodiments interactions (e.g. tapping, gliding) with a (e.g. touch sensitive/screen) surface are being used to describe the principles of data entry of the invention, it is understood that said interactions and said surface may be of any kind. For example, said interactions may be provided in the air/space and said surface may be a remote surface of any kind. According to one method a remote detecting means such as a camera, sensor, etc., may be used to detect the user's interactions (e.g. tapping, gliding, etc.). In this case, according to one method, a surface may not be needed.

The principles described may provide an extremely user-friendly method of interaction for editing (e.g. typing on) a picture. As an example, while a keyboard is covering at least a portion of an image, if a user desires to type a text under the keyboard, or if he desired to relocate a text being typed/selected under the keyboard, when/if the menu is not displayed on the screen (e.g. if the menu is displayed on the screen, the user may remove it by providing a tapping action on a predefined location such as outside the keyboard (e.g. on the screen)) the user may provide a tapping action on a predefined location such as outside the keyboard (on the screen). In this case, the system may preferably remove the keyboard from the screen (e.g. and preferably the menu pops up). Now, the user may provide a gliding action from a desired location (e.g. in s desired direction) on the portion of the screen that the removed keyboard was covering. Upon providing such a gliding action (other) different scenarios may be considered such as:

-1st scenario: if a word/text is being typed/selected, upon providing a gliding action (e.g. anywhere on the screen), said word/text may preferably be relocated on the screen according to said provided gliding action (e.g. location, direction).

-2nd scenario: if a word/text is NOT being typed/selected, upon providing a gliding action (e.g. anywhere on the screen), said gliding action may preferably define the location and direction of the/a next/new word/text to be entered.

Note that, after providing the/said gliding action the keyboard may be re-displayed on the screen and the user can/may be able to, respectively, start modifying (e.g. appending characters, deleting characters, changing the color, etc.) of the word being entered/selected and/or he may type a new word/text, under the displayed keyboard according to the provided gesture.

Note that in at least some (e.g. preferably, all) of the embodiments/descriptions of the invention regarding an image editing application/system, the principles corresponding to a word being entered may preferably also be applied to a word being selected, and/or vise versa.

It must be noted that principles described above (e.g. regarding displaying/removing a menu and/or a keyboard, typing, keyboard usages, menu usage, etc.), may be applied to and/or used with any content printed on a screen (e.g. and not only to an image). For example, said content may be a text box, a video being played on a screen, an invisible content displayed on the screen, etc.

according to one method, the screen on which the image editing system is used may have no content (e.g. except a keyboard and/or menu that may be displayed or removed). In this case, for example, a text being typed/created as such may (e.g. be saved and) be printed on any content, such as for example, on a remote content or on a content that may be displayed later on a/the screen.

It must be noted that the descriptions and drawings provided throughout this application are brought up to describe and/or demonstrate the principles of the data entry system and/or the image editing application of the invention. Other descriptions, examples, modifications, etc., may be provided by people skilled in the art based on the principles of the data entry of the invention. For example, instead of or in addition to a keyboard, any other input systems (e.g. voice recognition, lip reading recognition, handwriting, handwriting recognition, (e.g. gesture) interactions in the air, etc.) may be used/combined with the picture editing system and/or its principles (e.g. a user may provide a gliding action in a direction on a photo (e.g. printed on a touch screen) and (e.g. then) speak a text. In this case, the spoken text may preferably printed on the photo according to said gliding (e.g. preferably starting at the beginning of the gliding action and/or according to the direction of the gliding action)), and the data entry systems of the invention, as described throughout this and previous patent applications.

According to one embodiment, some predefined texts (e.g. word(s), phrases, sentences, paragraphs, etc.) may be pre-stored in the database used by the system. They may be entered by using the data entry system of the invention by using any of the input means used by the system. For example, they may be entered by using the word/sentence predictive system of the invention or by using a speech (e.g. voice) recognition (e.g. command-and-control) system. According to one method, the user may be enabled to add her/his own such text(s) to the database used by the system.

According to one embodiment, at least in the image editing system, a user may be enabled to relate-to and/or include a content such as an edited image (e.g. that includes a text (e.g. preferably entered by a user)). Said content may be of any kind such as a audio (e.g. music), a video, a text, a list of information, etc. By providing a predefined interaction such as for example a tapping action on a location on said image, said content may be activated and/or become available. As an example, when a user edits a picture by typing a text on it, he may speak (e.g. what he types) and/or he may add a music. Said speech and/or music may be played by an interaction with the image locally or remotely. As an example, after an editor of an image (e.g. hereafter may be referred to a s editor) shares the image with a friend or others, the receiving party may provide a predefined interaction such as for example, touching a/the (e.g. portion of the) text written on the edited picture to listen to the speech and/or music and/or video that the editor of the image has been included or related to. Different other methods may be considered. According to one method, a predefined interaction such as a sliding action over at least a portion of a text (e.g. one or more words) may result in playing the

audio corresponding to said portion or to all of the related text. The speed of the audio may be related to the speed of the sliding action.

Note that the content combined and/related to an edited image may be or may not be related to, a text typed/included/corresponding to an edited image.

According to one embodiment of the invention, users can share a content/background such as an (e.g. remote) image (e.g. including relating contents such as audio, speech, video, etc.), a video (e.g. streaming/being played, etc.), a textbox, an invisible/virtual background/surface (e.g. on a screen) etc., and edit it (e.g. type text (e.g. in deferent location(s) and/or direction(s) on it) preferably, at least substantially, simultaneously, preferably, by using the principles of the data entry system of the invention and/or the principles of the image editing application of the invention.

According to one embodiment of the invention, each interaction (e.g. taping action) with a location on a zone having a number of characters such as letters (e.g. a zone may include all of the letters of a language (e.g. zone 478101 of the keypad of fig. 478D) or it may have some of the letters of a language (e.g. zone/key 479001 of the keypad of fig. 479A having five/keys zones) a/the word predictive data entry system of the invention may dynamically relate some (e.g. one or more) of the characters/letters related to (e.g. an example of related characters is described in this application) and/or closed to the interaction location (e.g. tapping impact on the zone) and upon receiving one or more of such interactions the system may preferably predict one or more words from a database used by the system. This method of word predictive system may be used by any keyboard/keypad such as those described and shown in this and previous patent applications filed by this inventor.

According to one embodiment of the invention, a first predefined interaction such as short gliding action may preferably select a predefined portion of an already entered text such as a word (e.g. a consecutive number of characters), and a second predefined interaction such as a longer gliding action may select another predefined portion of a text (e.g. a character, a line of text (e.g. corresponding to a/the corresponding gliding action, a paragraph, the whole already entered text, etc.)

According to one embodiment of the invention, at any moment during the entry or editing of a text providing a predefined interaction such as activating the Enter/Return key (e.g. by providing a predefined interaction) results in locating at least the next line of the corresponding text (e.g. already typed and/or being typed and/or to be typed) in a direction parallel to the direction of the gesture (e.g. that was) provided on the screen/image corresponding/relating to a predefined line of the corresponding text (e.g. the next line of text will be show/displayed parallel to the gesture corresponding to the first line of the corresponding text). Note that the/said corresponding text may be a block of text such as a phrase, paragraph, whole text of a text field, etc.

According to one embodiment of the invention, the system may include a means such providing a predefined interaction, wherein after providing a gliding action corresponding to the direction of a text, providing said means, the system preferably adjusts the direction of said gliding action to a predefined degree on the screen (e.g. the closest 45 degree).

According to one embodiment, the photo/image editing application may include a means such as a button such that to enable the user to share said photo with/in another social application.

A method of editing an image is described. According to one embodiment of the invention, a portion (e.g. herein may be referred to as image/subject frame) of box (e.g. a background image, application, etc.) (e.g. on a display or touchscreen surface, etc.) may be defined by a user or by a system to display/present/store a content such as an image (e.g. one or more images (e.g. photo, video, text, etc.), a (e.g. online) game, audio content, etc. (e.g. herein may be referred to as discussion subject) on the fly (e.g. dynamically). Said content (e.g. image) may be an image sourced from a gallery of images (e.g. on a device), from a camera (e.g. immediately after taking a photo) (e.g. automatically and/or directly), or other communication or storage device/system. Said image frame may be a predefined zone on said box or it may be dynamically defined by a user or by the system depending on some (e.g. one or more) (e.g. dynamic) parameters. Fig. 498A shows an example of a box 498009 on which an image frame 498008 is defined (e.g. size, location, and orientation in the box). As an example, if a user takes a photo using a camera (e.g. a camera of the corresponding device) said photo may be directly (e.g. without user's intervention) placed into said image frame 498018 as shown in Fig. 498B. A user may provide/type text anywhere on the box and save or share said box (e.g. as an image like a postcard).

The current principles may be used in many circumstances. For example, this technology may be used to create a social interaction/discussion (e.g. texting, audio, visual, etc.), preferably including a texting application that herein may be referred to as a (e.g. virtual) forum. As an example, said box may display (e.g. contain) a group of users interacting (e.g. a (e.g. virtual) message board/forum), and said image frame 498018 may be considered as a/the subject of interaction/discussion. Preferably, the display of a device of each of the participants may display the box (e.g. preferably in a similar manner/fashion/rendering). Preferably, a server (e.g. remote computer/platform) may be used to handle the streaming/interactions of the discussion between the participants.

Note that said/the content/subject/image may be changed at any moment by any of the users or another user which may not currently be part of the said interaction/discussion so that a new discussion will be initiated (e.g. in the/a (e.g. different) box).

According to one embodiment, the history of the interaction/discussion may be stored or it may not be stored so that it may not be accessible after the interaction/discussion. As an example,

the history of a chat may be stored or it may be deleted when a subject of corresponding to an image frame is changed, or on a predefined (e.g. automatic system) events, for example, such as a period of time after a change to an image frame.

Note that the content (e.g. image) in the image frame may be the subject of discussion or it may contain a text or other information for the purposes of discussion.

According to one method, a different zone (e.g. herein may be referred to as a desk(s)) on the box may be assigned to the comments/discussion of one (e.g. each different) user. As an example, as shown in Fig. 498A, four different zones 498001-498004 are assigned to users (e.g. one or more different users), for example as shown in Fig. 498B each of the users (e.g. 498014, 498011) have commented in a zone allocated to each of said users.

Note that the box may be of any shape.

Note that user interactions may by information of any form including, for example, text, images, audio, etc. As an example the image editing system of the invention for entering text as described in detail throughout this application may be used for such purpose. In this case, the background of the box or the background of a zone corresponding to a user, may, by itself be an image.

Note that history of an image frame and/or a corresponding user may be browsed or scrolled while interacting with the image frame, such as for example providing gestures (e.g. back and forth). In this case the corresponding discussion/interaction may appear on the box/zones in the corresponding locations.

Note that the history of discussion of each user may also be browsed, for example, by scrolling on the corresponding zone (e.g. or other zone) of a user.

Note, a zone corresponding to a user may be considered as an image frame of another interaction/discussion.

It must be noted that other types of presentations and methods of discussion may be considered; for example, a (e.g. single) zone may include all of the discussions relating to said image in said frame.

Note that the frame and/or zones may have any shape, location, orientation, size, and other (e.g. graphical) attributes. For example, the size of the frame may be controlled (e.g. before, during, or after any discussion/interaction).

Note that the frame and the desks may be shown on the devices of each of the participants. Preferably, a participant may select the desk of a number of participants (e.g. to be displayed on the screen of his/her device) among all of the participants.

As mentioned, a virtual discussion may, preferably, be opened by providing a content in the frame. A group of one or more participants may participate in discussion. Different methods of creation of a such group may be considered: such as:

-The initiator of the discussion (e.g. the provider of content in the frame) may invite a predefined group of people/friends.

-The initiator of the discussion (e.g. the provider of content in the frame) may provide a public invitation for any random participant.

The initiator of the discussion (e.g. the provider of content in the frame) an invitation to a number of people to participate.

A/the (e.g. remote) server (e.g. used by the forum application) may be used to send notifications to the appropriate participants or to the general public.

Note that a remote server or online platform may be used in transmitting information related to any activity/functionality of/during the forum (e.g. among the participants). For example, a remote server communicates information from a first user/participant (e.g. user's desk) to at least a second user/participant). As another example, the server may be used by the forum administrator for activities such as sending invitations to users.

Each user may interact with a forum through one or more devices, that preferably includes a box (e.g. with which a user may interact).

A subject may have sub-subjects. For example, the subject may be a football game and a sub-subject may be a replay of a portion of a game. Note that a sub-subject of a subject may or may not be related to the main subject.

According to one method, the participants of the forum may be a group of one or more people/entities, each being represented by one or more desks (e.g. one or more (e.g. text) box/s). The participants may be invited to the forum (e.g. they may get a password for participation) or the forum may be open to any (e.g. random) participant. According to one embodiment, a participant may enter a content (e.g. text, picture, video, game, etc.) in his corresponding desk to be accessed (e.g. viewed) by one, more than one, or all participants (e.g. according to the users preference settings). According to one method said content may be available for viewing by all of the participants. According to another method, said content may be available for being viewed by a number of one or more selected participant/s. For example, a participant entering a content (e.g. in his desk) may select one or more other participants by for example, providing an interaction (e.g. such as single-tapping) on/in their corresponding desk/s, enabling them to view his/her content entered/being entered/to be entered. Said selection may be a predefined selection or it may be a selection dynamically provided during a forum (e.g. for a period of time/text entry during the forum).

Different types of participants may be considered. For example, a first type of participant may have the right to watch/view the forum but not have a desk to participate in discussion/chatting (e.g. type/write), while a second type of participant may have a desk for discussion/chatting. According to one method, having a desk may require a satisfaction of some criteria (herein may be referred to as a fee), for example, such the payment of a fee. Preferred locations regarding the desk may also require a (e.g. higher) fee. Because the screen of a mobile device has a limited size, more than one layer of boxes may be considered for more desk assignments. For example, a first layer may include a first plurality of desks and a second layer may include a second plurality of desks. A second box layer may preferably include the subject frame although according to one method, it may exclude the subject frame. The size of desks may vary, for example, based on a fee. The number of desks may vary, for example, based on a fee.

A desk may include the name or a username or some other identifying information for identification of the corresponding participant.

The content (e.g. text) inputted or outputted in desks/image frame(s) may disappear after a predefined of time given some predefined event. The history of a forum may be stored or it may not be stored.

According to one embodiment, the desk locations (e.g. in a box) may be defined by a user (e.g. such as any entity, for example an administrator or participant in a discussion) in the box (e.g. depending on the features and configuration of a forum).

Optionally, the assignment of a desk to a participant may be defined by himself/herself or by another entity such as a computer, administrator of the forum or the forum host.

According to one method, one or more of the desks may be relocated in a box. According to one embodiment, one or more desks may not be permitted to be relocated.

A participant (assigned to a desk) may be a person and/or a group of persons. (e.g. A participant may be assigned to more than on desk.)

As mentioned, a desk is preferably a content such as a text box, but may also be used to display or play other type of content such as an image, a video, audio, game, document, etc.

According to one method, the location and/or assignment of one or more desks on the/a box of different devices may not be identical. A user may be permitted to relocate a desk or change the assignment of it to a (e.g. another) participant. According to one method, a user may use a list of entities/information such as a list of contacts (e.g. email address, facebook identifier, twitter identifier, name, telephone number, etc.) in a device and may assign a desk(s) to a user/participant (e.g. by dragging a corresponding entry of the list to a desired desk). A user may also relocate a desk in the box by for example dragging it to a desired location. For example, a contact information

(e.g. displayed on a screen of a device) may be dragged in order to assign a desk to a user or to relocate a desk in a box.

Preferably, a desk may be designed to have a predefined specification (e.g. including settings, features, format). Preferably, the specification of a desk may dynamically change for example by a person or automatically by a computer/system.

If all of the desks of a forum are occupied/assigned, a/the system may create a waiting list for additional users desiring to participate in a/the forum (e.g. in case of cancellation or creations of additional desks, or in case a participant leaves the forum, etc.)

During a forum, one or more subjects (e.g. of the image/subject frame) may be discussed. A new subject may be provided by a participant dynamically during a forum. Preferably, for such action, an authorization may be required provided by an entity such as the administrator/admin of the forum (e.g. administrator (e.g. administrator in this application refers to an owner, creator, beneficiary, initiator, etc., of a forum).

According to one method, preferably, upon authorization, a user may use a predefined location in the box, such as one near the subject frame, to display a (e.g. their) desired content (e.g. such as to ask a question, display an image, video, etc.) so that other (e.g. all, some, a, etc.) participants can view desired content.

It must be noted that any type of keyboard such as for example preferably the keyboard of the invention permitting to view at least a significant portion of the screen may be used for discussion/texting during the/a forum.

Note that the displayed content in the frame subject may be modified during a forum.

Any type of forum may be considered to be used by the system/app. For example, the subject of a forum may be a scientific matter (e.g. medical), a game, a video/movie (e.g. live chat, see a video/subject then chat), a photo, a text, shopping, auction, etc. As mentioned a user may relocate the desk of the/his preferred participants to a location that he desires. For example, during a medical forum wherein participants are doctors, a user may relocate the desks of the doctors he wants to see their interactions (e.g. texting) to the first/main layer or close to the subject frame, or any other preferred location.

As an example, a forum may be created regarding a (e.g. live) football game. The admin may invite some people and the participants may watch the game while having a live chat (e.g. texting). A replay of a portion of the game may be provided (e.g. by the admin, by any of the participants, etc.). Preferably, a participant may have access to the content of the forum to view it at any moment preferably in the subject frame on his/her device, preferably while other participants continue viewing the (e.g. original) content provided by the admin.

A forum may also be used for auctions where participants type their offers for an article, for example, presented in the subject frame, and wherein people can see (e.g. best) offers in the desks of the corresponding participants in real time.

Many methods of monetization may be considered for/through the virtual forum application/system such as:

-a forum with up to a predefined number of participants may be free and beyond that number the forum will be permitted upon a fee (e.g. for a new user beyond the predefined number or for all the users).

-Attendees/participants of a forum may attend the forum upon a fee (e.g. or authorized membership).

-Advertisements during a session/forum may be displayed on the screens (e.g. or box/desk) of the participants, preferably in the image/subject frame. The advertisement may be the same for all participants or they may be different for each participant for example based on their tastes, location, or online behavior, etc.

-Preferred desks may be assigned to a participant(s) based on a fee.

-A person may purchase a desk of another participant upon a fee and the administrator/owner may take a commission or a fee for that transaction.

- A forum administrator/owner may take a commission or a fee for a/any financial transaction/exchange relating/during a forum.

- An entire (e.g. and it's history) may be transferred to another owner/administrator for a fee.

- A participant may enter a content (e.g. text, video, picture, audio) in the image/subject frame for a fee.

According to one method, a desk, a portion of discussion such as a comment, and/or a participant may be banned (e.g. restricted/excluded in any predefined way) for any reason such as bad behavior, from the box/forum.

Note that a box may include one or more subject frames at any moment.

Note that more than one entity such as an administrator may control or be assigned to manage a forum/box.

Note that a box or a portion of it (e.g. a desk) can be zoomed into or zoomed out of its display. For example, by providing a predefined interaction such as a double tapping action on a desk, the desk may be enlarged (e.g. to full screen) so that its content will be better viewed. Also for example, by providing a predefined interaction such as a double tapping action on a/the subject frame, the said frame and its subject/content (e.g. a video, a photo, a text, etc.) may be enlarged (e.g. to full screen) so that its content will be better viewed.

Note that a box display may be filtered, for example, to highlight areas of the box, or to display portions/layers of the box, etc.

Note that one or more desks may be highlighted, publically (e.g. on all participating boxes/devices) and/or locally (e.g. on a user's device/box). For example, when a participant selects a group of one or more other participants the corresponding desks may be highlighted, for example in a highlighted color.

Note that at least for a lapse of time during a forum an image/subject frame may not be displayed.

Note that text of a desk/box may be limited by being wrapped in a desk or may be limited to one line in a desk, or a predefined number of characters when displayed. Upon authorization, said limitation may be removed. A scrolling method may be used to view the history of the content of the desk (e.g. independently or in synchrony with at least some of the other desks). According to one method, the desk may be (e.g. dynamically) enlarged to view more lines of a desk.

Note that some desks may not be enabled to be relocatable/moveable in a box.

According to one method, any user (e.g. other than participants) may be able to provide/submit a content (e.g. a question) to the forum that may preferably be displayed on a location in a box (e.g. a subject/image frame, a predefined desk, etc.) for example upon authorization (e.g. if required) of for a fee.

According to one method, a forum may not have an admin.

According to one method the forum application/platform may be used for a group chat (e.g. including texting) that may be communicated peer-to-peer and/or amongst peers (e.g. without the involvement of an administrator).

According to one embodiment, an (e.g. relevant) information provided by a (e.g. any) party regarding/during a forum may be transmitted to a server and from there to corresponding/relevant devices/users. According to one embodiment an information may be transmitted to devices/user automatically by a/the server or upon a user's request.

According to one embodiment, at least one of the desks of a forum is mandatory. This means that all of the boxes used by participants of a forum preferably include said at least one desk. According to one method, a user can add one or more desks of participants of his choice into the box. The list of said participants may be provided from different sources such as by the admin of the forum, contacts list of the user's phone device, facebook friends, etc.

Note that accordingly, two users participating in a forum may have different participants' desks in their box/es.

A gaming application for providing the longest word by participants, for example, using the forum applications/platform is described hereafter. As an example, a group of participants may use

a keyboard (e.g. of the invention) wherein at least one of the keys ambiguously corresponds to a plurality of characters. Said application may use a word predictive system based on receiving ambiguous input signals provided by interacting with ambiguous keys. As an example, a user may press a desired ambiguous key for a desired word/stem. (e.g. said information may correspond to the length of the desired word, or the length of the corresponding beginning portion of a longer word that other participants may not be aware of). The content (e.g. the single word wherein its length corresponds to the input information provided until then) is presented on an image/subject frame or some other location on the participant's devices/screens. The length of the presented word (e.g. must) correspond to the input information (e.g. key interactions) provided until then. After viewing the output and by considering the output, the next participant (e.g. preferably in a predefined row of participants) may attempt to enter a next letter for a word/stem (e.g. as just described above) corresponding to input information provided until then (e.g. including the participant's current attempted input), and so on by the next participants (e.g. preferably in the row). Note that a word may be a stem of a longer word.

According to one aspect of the invention, after interacting with a key/zone of the keyboard, if there is no corresponding word in the database of words used by the system/application, the participant is eliminated. (e.g. by eliminating participants as such) the last participant providing the last word is the winner of the game (e.g. or that session of the game).

According to one method, the history the words proposed in the game by be reviewed (preferably at any moment) during/after the game. Note that preferably, a predefined lapse of time is assigned to a participant for enter the input information (e.g. corresponding to a next character) wherein upon expiration of said time lapse, when not receiving said input information, the participant may be penalized (e.g. eliminate from the game) in some manner.

As mentioned before, the history of a box/forum/frame/desk may be accessible. According to one embodiment of the invention, the history can be replayed (e.g. played back). For such purpose, according to one method, a play mechanism (e.g. a software application) may be used. Said play mechanism may include features such as play forward, play backward, stop, start, repeat, etc. A user my view an instant of a history synchronized between at least some, preferably all, of the objects (e.g. desk, image/content/subject frame, etc.) in a box. At least some of said objects may be interactable.

According to a preferred method, an instance such as a portion of the forum/box may be synchronously viewed (e.g. replayed) upon selection of a content such as a desk, portion of the content of a desk, or an image/subject/content frame, etc. Preferably, selection a content may result in playing at least a portion of the history of the forum/box/object that may include a time period before and/or a time period after the corresponding instance related to the selected content.

Note that, any portion of a forum/box may be searched according some search parameters, such as a keyword, a scrolling means, playing means, color, time/date, user, subject, etc. If the results correspond to an identified content, then the system may (e.g. automatically) view the corresponding instance as described. If there is more than one results, then the user may select (e.g. identify) one of the results and view the corresponding instance as described.

A method of simplified private and/or public communication/message is described. Said method may preferably be used by the forum application described herein. According to one embodiment, upon providing and/or selecting a content, such as recording/selecting a video, taking a photo, recording audio, generating a text, etc., said content may automatically be shared with a forum (e.g. presented/located in the frame image or a box of a (e.g. corresponding) forum).

According to one method, said selected content may be considered (e.g. by a user/provider) as public content which means that preferably said content may be automatically/manually located in the provider's desk and or image/subject/content frame (e.g. if user is so authorized), and may (e.g. preferably automatically) be viewed, respectively, in a desk corresponding to the provider in other user/s' box(es) or an image/subject/content frame. Preferably, upon such procedure, other users/participants may be informed (e.g. alerted) of the selected content so as to access said content.

According to one method, said selected content may be considered (e.g. by a user/provider) as private content which means that preferably said content may not be located in the provider's desk and or image/subject/content frame, and may (e.g. preferably automatically/manually) be transmitted to a selected number of participant's but may only be visible and/or accessible by the said selected number of participants with in their corresponding desks. Note that according to this method, the public content of a desk is the information provided by the owner of a desk, and preferably does not include the information/content received from others (e.g. transmitted/send to said (e.g. selected participant's) desk). Preferably, upon such procedure, said selected number of users/participants may be informed (e.g. alerted) of the selected content so as to access said content.

Note that the/a public method (e.g. as described in this embodiment), a user may exclude another user from viewing content in the user's desk. Such exclusion may be applied to a number of particular contents in the desk or it may be applied to all content in the desk (e.g. at any time).

According to one embodiment, upon providing and/or selecting a content, such as recording/selecting a video, taking a photo, recording audio, generating a text, etc. said content may automatically be located in a desk or an image/subject/content frame (e.g. if user is so authorized) of a user's box. Upon such procedure, other users/participants may be informed (e.g. alerted) of the selected content so as to access said content. Note that, a server may be used to provide automatically or upon a participant's request (e.g. according to a participant's settings), the content to the participants device(s), so that it may be viewed in the corresponding forum/box. According

one method, said content may be automatically transmitted to a selected number of participants as a private content, in such a way that it may not be viewed in the providers box.

According to one embodiment, if a participant provides a new content/message, the corresponding desk/message may be highlighted. Optionally, the corresponding desk/message may be shown in the first/main layer of the forum/box.

According to a first method, a content provided by a participant may be transmitted to other participants' desks. According to a second method, said content may be transferred to the desk of the provider of the content and be accessed/seen by other uses. An alert may be send to the other users to access the content.

The subject of a forum may be a game (e.g. blackjack) where participants can play against the admin or against each other.

Note that according to one embodiment, a group of participants may be dynamically defined by a user (e.g. forum provider/admin) for example based on the subject of the forum.

According to one embodiment of the invention, in the photo editing application, typing a word/text on a picture may be related to activating a function. For example, the text entered may be related to a keyword for a search function or to a url address for browsing.

Note that the methods and principles described for moving the keypad on the screen as described in this applications may be applied to any type of keyboard such as an ambiguous keypad/keyboard and/or a precise keypad/keyboard.

The picture/image editing application/method of the invention may be used for (quick) taking notes. As an example, an image/a view (e.g. in form of a plain in any color) may be used as a background of the note being taken. By using this application a user can start taping immediately in any direction on the image and save or share it. the text entered as such may be searched, sorted, grouped, pulled, etc. The application may include a means such as a zone in a menu assigned to a searching function. After interacting with said means the user may provide an input (e.g. a keyword in form of a text or in form of a complex search as described earlier (e.g. color, direction of text, etc.) to a/the corresponding searching engine. The results of the search may be considered to be presented to the user in different ways such as in text only or in form of the original images as they were entered (e.g. the same background, font, direction of text, color, etc.). In case of images, the results may be shown as a list/series of images that preferably can be scrolled, sorted (e.g. relocated in the list), etc. by the user or by the system.

According to one method, creation and search of a text (e.g. a word, phrase, etc.) systems as described may be provided through the picture/image editing application/system of the invention.

In an image editing application of the invention, typing and drawing/handwriting may be combined in order to edit an image. According to one embodiment, after providing a gesture, if a

user begins to type on the keyboard, said gesture may be related to the direction of the entry of text through the keyboard. If not, said gesture may be considered by the system as a drawing action.

The image editing application of the invention may be used for taking/sharing/interacting with notes/text. As such several backgrounds may be available to the user (e.g. during note taking). Preferably, the welcome/start/home page of the image editing application may include one or more zones to display a (automatically or manually) selected (e.g. edited) image.

Note that in image editing application/system described throughout this/previous patent applications filed by this inventor, the word 'image' may be considered as a view of the content edited by said application/system.

In the image/content editing application/system/software (e.g. of the invention), according to one embodiment at least a portion of a content (e.g. text, image, drawing, video, etc.) created, received, edited or being edited may be controlled such that it is hidden (e.g. blurred, erased, covered by another content, etc.). Preferably said at least one portion of a content may be controlled by an (e.g. predefined) event/condition or a user (e.g. preferably a content creator, a receiver, or an editor), such that said hidden portion of a content is hidden from (e.g. other/identified) a (e.g. one or more) user(s) (e.g. receiving said content). Said content may be shared with others. According to one method, a (e.g. selected, predefined, etc.) receiving/consuming party/user(s) may be enabled to unhide/reveal/access (e.g. view) a hidden portion. According to another method, a hidden portion may be unhidden by another entity such as a (e.g. another) content creator or (e.g. automatically) upon a predefined satisfying of a predefined condition (e.g. after a laps of time, after a predefined number of users opened the content, upon a court order, etc.).

According to one method, a means (e.g. such as an icon in the menu, a gesture, a password, etc.) may be used to unhide/reveal/access a hidden portion of content or vice versa (e.g. hide a portion of content).

According to one embodiment, an unhidden portion may be hidden (e.g. again) by any (e.g. predefined) event/entity as described.

Note that a content may include one or more hidden portions. A first type of interaction may unhide/reveal/access one hidden portion at a time, and a second type of interaction may unhide/reveal/access all of the hidden portions and vice versa.

Note that according to one method, the whole content may be hidden/unhidden.

According to one method, the hidden portion may be a portion of a predefined content such as a text (e.g. of several lines) typed over an image without including the portion of the image that does not include the text (e.g. the portion of the image between the lines of text) or vice versa (e.g. hiding a portion of an image but excluding the text being/having typed on that portion).

Note that hiding a portion/whole image/content may be applied to any type of image/content, to an image/content accessed in any manner (e.g. a received shared image/content), etc.

According to one embodiment, a portion of the image/content may be defined to be hidden (e.g. and again unhidden) later. Said portion may be hidden upon completion of a (e.g. one or more) predefined condition(s) such as a predefined interaction (e.g. provided by the creator or a receiver, or another party, e.g. separately or together), at a predefined time, etc. As an example, a receiving party may receive an image/a content which is unhidden but a portion of it is predefined by the creator to be hidden at any moment. According to one method, said portion may be hidden (e.g. and later unhidden) by a predefined entity (e.g. a receiver, the creator, a third party such as court, etc.)

According to one embodiment, the means to unhide/reveal/access a hidden portion of content may be in form of a virtual gum/eraser such that each gesture using said gum/eraser may unhide an area of the hidden portion or vice versa (e.g. from unhidden to hidden).

According to one embodiment, the editing of a content may comprise including any type of media within the content. Preferably, a media (e.g. an audio, video, text, etc.) may be included in a content such that interacting with a related portion of the content may activate/unhide/reveal/access said media content/media. As an example, interacting with a location of a (e.g. received) content may be related to interacting with a hyperlink (e.g. a url) such that to activate said link.

Note that the hidden portion of a content may include any media such as an image and/or text and/or video and or/audio, etc.

Common passwords/group passwords (e.g.) / automatically/interaction/identify unhidden by mark / mark visible to a user but not others upon registration / fee

According to one embodiment, a user receiving a content having at least one hidden portion (e.g. from a creator) may be provided with a means to either automatically unhide a hidden portion of said content or to manually unhide said content. Said means to unhide said portion(s) of said content may be provide by a creator/editor of said content to one or more receiving parties (e.g. within a group of users exchanging contents). For example, said means may be a password provided to one or more users of a group (e.g. during registration or at a later time, later exchanged between one or more users in a group).

According to another example, said means may be provided upon a fee to one or more users (e.g. within a private group or to anyone in the public, e.g. outside the group).

Note that a receiver of a content may editing a content (e.g. hiding a portion of content, typing text on the content, etc.) and may so be considered as a new creator of a content or editor of the content.

According to one embodiment, a portion of a content may be hidden or unhidden/revealed/accessed upon a predefined condition/interaction by a third party. As an

example, a portion of an unhidden content (e.g. content of the invention) may be hidden upon instruction the system by a party (e.g. a creator, third party, a court, etc.) to hide/reveal/access said content or vice versa (e.g. from hidden to unhidden). As an example, at least a portion of a content stored in a server used by a content creator/provider may be hidden or unhidden as described such that said portion(s) of a content may be hidden or unhidden to the users accessing said content.

Note that according to one method, a hidden portion may preferably be marked/highlight by some means (e.g. change in color, spot, outline, frame, etc.). The mark may preferably be visible to the users who have a/said means to unhide a portion of a content. Note that an unhidden portion can be hidden by a user having a hiding/unhiding means. According to one method if a content having a hidden portion is automatically unhidden to a receiver, said mark may preferably be visible to the receiver to help/assist the receiver to hide said portion by interacting with said marked portion.

According to one method, one or more users may be considered as "trusted" relating to each other such that when they hide a portion of a content and share it said trusted user/s receive said content as unhidden or as hidden but they can unhide it easily (e.g. without using a password) while other users receive said content as hidden.

According to one method, the owner of a group may designate one or more members of a group as "trustee".

According to one method, statically/dynamically, a provider of a content may designate one or more receiving parties as trusted.

According to one method, a hidden portion may be unhidden by interacting with means such a button.

The content may be hidden by other content (e.g. 'hiding content', may be a portion of a content), for example, such as emoticons (e.g. smileys), pictures, advertising, drawings, etc. The content may be opened (e.g. accessed, unhidden), preferably, for example, by removing the hiding content. Preferably, after a user opens hidden content, such hidden content is preferably removed (e.g. hidden, destroyed, made inaccessible), or hidden again (e.g. by the same and/or different hiding content) after a predefined period of time. Opening of hidden content may be opened by various methods, for example, voice recognition, speaker recognition, finger print identification, and/or other access methods/means.

According to one method, a content sent to one or more users may include the hiding element. According to another method, a content may be sent without the hiding element but the information corresponding to the hiding element (e.g. type, size, position, etc.) may be sent also. In this case said hiding element may be provided separately from another source (e.g. a server, from the receiver device, etc.)

The covering/hiding content may be composed of more than one (e.g. individual) content. In this case, according to one method, such covering/hiding contents may preferably be removed one by one by the/a user (e.g. or several/all at a time). The covering/hiding content/s (e.g. emoticon) may be resizable (e.g. by pinching).

According to one embodiment, the hiding content may be related to the hidden portion of the other content hidden by said hiding content. For example, an advertiser (e.g. a manufacturer) may provide a cover/hiding content relating to its brand (e.g. its logo) on another content to hide at least a portion of said another content, and wherein the covered/hidden (e.g. portion of said) content may be an advertisement corresponding to said advertiser.

Note that a content partially of completely being hidden may herein be referred to a as a hidden content.

According to one method, when a hidden content is shared with (sent to) trusted and untrusted parties, trusted parties may receive it unhidden while others may receive it hidden.

According to one method, a content may have several hidden portions wherein not all of them is or maybe unhidden to/by a single user.

According to one embodiment, the hidden content, such as an image or portion of an image, may preferably be hidden by another content of the same type, such as another image (e.g. blurring or semi-translucent means/content (e.g. similar image), or the image same blurring the hidden content or similar, over the hidden content).

The system described above may be applied to any type of content. For example in a texting application a portion of a text may be hidden and/or unhidden as described.

Note that the/a gesture corresponding to the direction of a text may be provided in the air. The text may be entered by any other means such as through a speech recognition system.
The methods/principles of hiding/covering and unhiding/uncovering as described may be used in many application(s). As an example, an electronic lottery application may use such methods/principles. As an example, a lottery organization may provide lottery tickets wherein the prize (e.g. sum of the prize money, gift, points, etc.) of the lottery may be hidden as described. According to a first method, the database of the lottery tickets may be accessed remotely by the users to select/purchase (e.g. by downloading) one or more tickets. According to a second method, one or more lottery tickets may be randomly or predefinely or on demand, etc., be sent to one or more (e.g. a community) of users by the lottery organization.

With continuous description of the current example, a/the user then may unhide the prize portion of a ticket to see his/her winning, if any (e.g. there may or may not be a prize hidden under the cover).

According to one embodiment, a long pressing action on a word that has been entered may select said word (e.g. for re-editing as described before). A tapping action on a selected word may unselect said word. Accordingly, a tapping action outside a selected word may result in popping up a content such as the keyboard and/or a menu, etc.

It must be noted that in different paragraphs in this application, a gliding action has been described to combine a long pressing action. It must be noted that the long pressing action can be provided at any moment such as at the beginning, in the middle, or at the end of during said gliding action.

It must be noted that in some embodiments the term "special characters" may be considered to refer to special characters and/or functions.

Note that in all of the embodiments, the type of interaction described is exemplary and may be replaced by any other type of interaction such as those described known by people skilled in the art. For example, a press-and-holding action on a key for at least a predefined of time to enter said key into a mode instance may be replaced an interaction such as pressing a second key and simultaneously interacting with said first key.

Additionally, many types of interactions with a key (of the first keypad) for assigning a different group of characters to each of them may be considered by people skilled in the art. For example, each of, touching a key and preferably touching another key, touching a key and touching a different predefined location on the screen, touching a key and touching any location on the screen, etc, may be considered as a different type of interaction with said key.

Thus, while there have been shown and described and pointed out fundamental novel features of the invention as applied to alternative embodiments thereof, it will be understood that various omissions and substitutions and changes in the form and details of the disclosed invention may be made by those skilled in the art without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto. It is to be understood that the drawings are not necessarily drawn to scale, but that they are merely conceptual in nature.

It must be noted, that any of the systems, features, means, methods, etc., described in this patent application may be used separately or being combined with systems, features, means, methods, etc., of other different embodiments of the invention.

It must be noted that the number of keys, configuration of letters on said keys, key arrangements, type of keys, etc., are being described as examples. They can be designed differently by people skilled in the art by considering the principles of the invention. It must also be noted that a touch sensitive surface may be touchpad, a touch screen, etc.

It must be noted that although in some embodiments through this application for describing the principle of the data entry system of the invention, a touch screen has been used as an example, obviously, any type of touch sensitive surface, any other type of surface, any number of said surfaces on which to which at least a portion on the input interface (e.g. the input keys/zones used by the system) may be considered for the same purpose.

Optionally all of the input interactions described throughout this patent application may be provided in the air. To intercept such interactions different types of detecting means such as camera(s), accelerometer(s), etc., may be user.

It is noted that, although according the preferred principle/embodiment of the invention a full set of the letters of a language are distributively assigned to the keys of a keypad, minor modifications/variations may be considered/provided to this principle by people skilled in the art.

The input system of the embodiments of the present invention may be used with substantially any electronic and/or computerized device, such as cellular phones, GPS devices, tablets, remote controls, handheld devices, television settop boxes and music players, cameras, etc.

It must be noted that although in this patent application "key" and "(predefined) type of interaction with key" has been used to demonstrate different embodiments and methods as described, any (predefined) input means (e.g. providing an input signal) and any (predefined) type of interaction provided through said input means to provide a (e.g. a predefined/different) input signal may be used for the same purpose.

It must be noted that the features such as keypads, key arrangements, number of keys, assignment of a set of characters of a language to each of a first and second set of keys (e.g. or to each of a second and a second type of interactions with one set of keys), type of keys, type of interactions, etc., as described and shown in this patent application are shown as examples to describe different embodiments of the invention. Obviously, other type of such features can be considered by people skilled in the art.

The term key is meant to include any device which identifies finger actuations including pressure sensors, thermal sensors, acceleration sensors, optical systems for tracking movements of the finger, finger caps and gloves with sensors.

While the above description relates to the Latin alphabet, the principles of the invention may be implemented on other alphabets such as Arabic, Hebrew, phonetic alphabets.

Note that, the term of "during the entry of a word" used throughout this application may preferably refer to a word (e.g. the current predicted word) being typed before an end-of-the-word signal such as a space character is entered at the end of the word.

It will be appreciated that the above described methods may be varied in many ways, including, changing the specific elements used and their layout. It should also be appreciated that

the above described description of methods and apparatus are to be interpreted as including apparatus for carrying out the methods and methods of using the apparatus. The present invention has been described using non-limiting detailed descriptions of embodiments thereof that are provided by way of example and are not intended to limit the scope of the invention. Many specific implementation details may be used. The above embodiments may be implemented in hardware, software, firmware or combinations thereof.

It should be understood that features and/or steps described with respect to one embodiment may be used with other embodiments and that not all embodiments of the invention have all of the features and/or steps shown in a particular figure or described with respect to one of the embodiments. Variations of embodiments described will occur to persons of the art. Furthermore, the terms "comprise," "include," "have" and their conjugates, shall mean, when used in the claims, "including but not necessarily limited to."

It is noted that some of the above described embodiments may describe the best mode contemplated by the inventors and therefore may include structure, acts or details of structures and acts that may not be essential to the invention and which are described as examples. Structure and acts described herein are replaceable by equivalents which perform the same function, even if the structure or acts are different, as known in the art. Therefore, the scope of the invention is limited only by the elements and limitations as used in the claims.

It must be noted that in some embodiments specific types of interactions such as a first and/or second types of the interaction are being used to describe the embodiment.

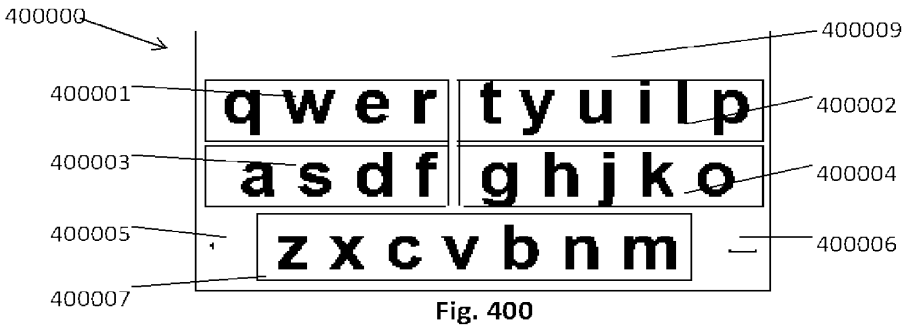


Fig. 400

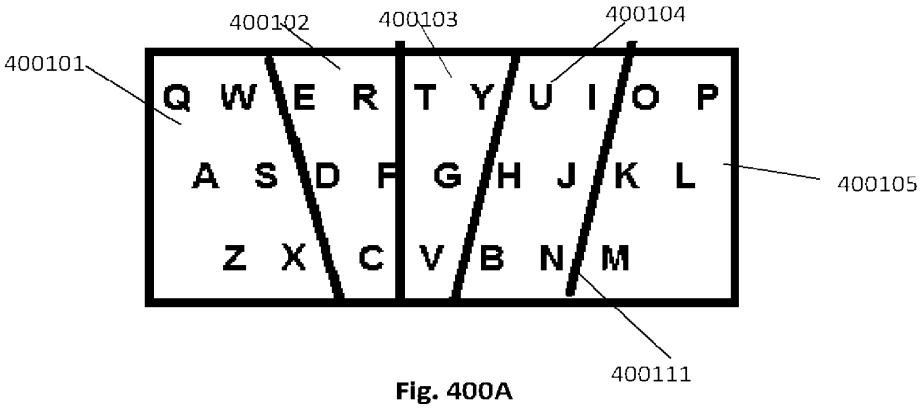


Fig. 400A

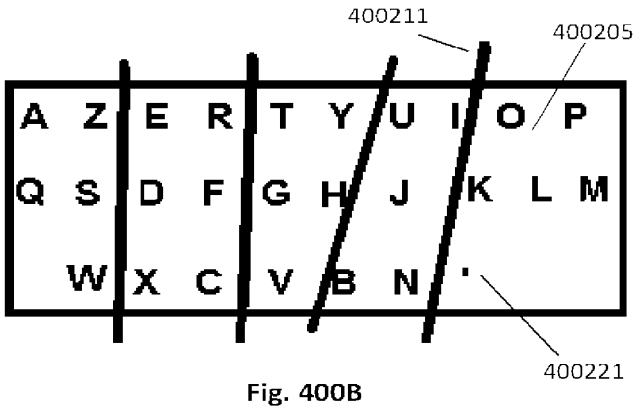
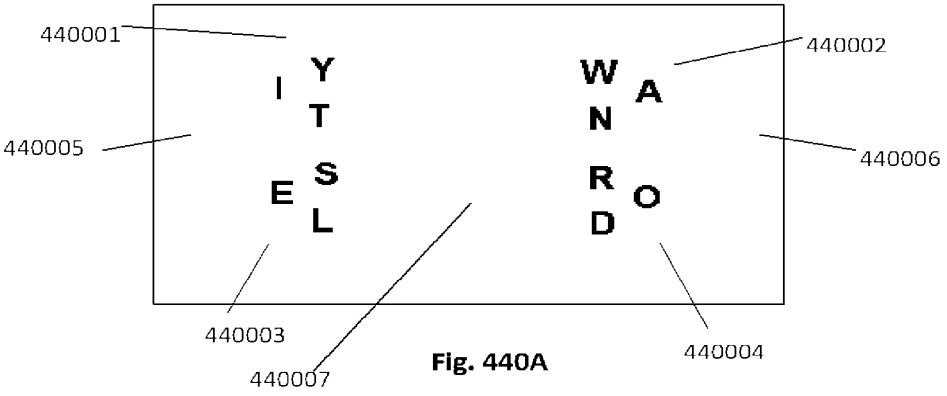


Fig. 400B



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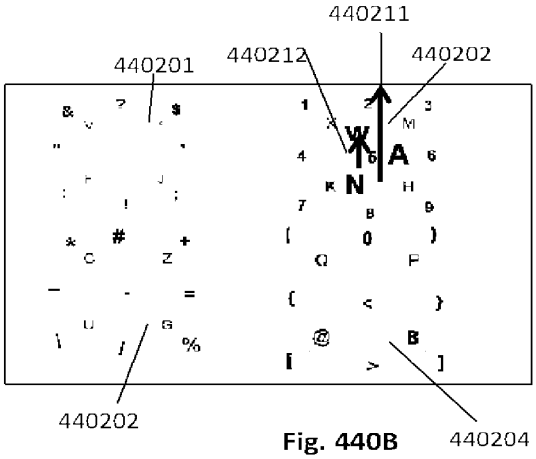
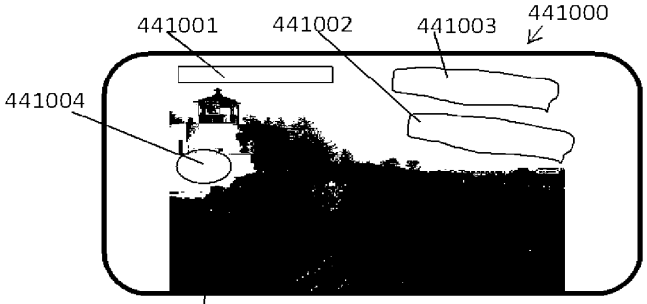


Fig. 440B



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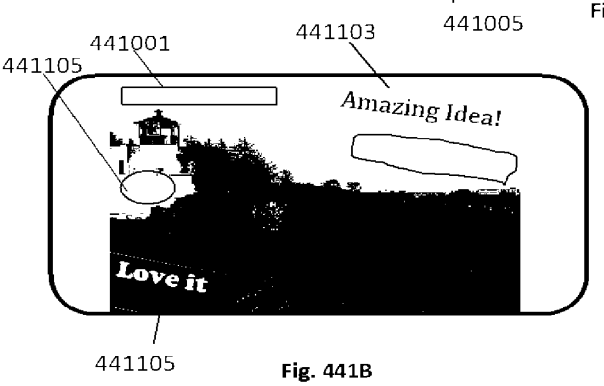


Fig. 441B

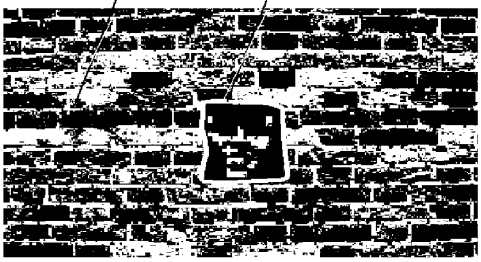


Fig. 442A

Fig. 442B

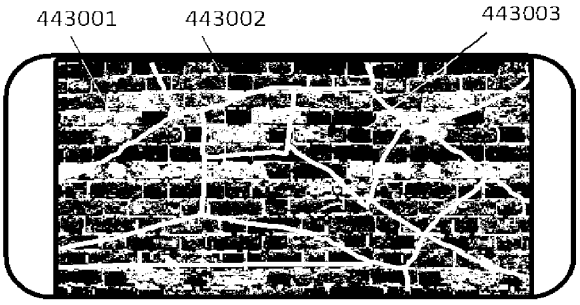


Fig. 443A

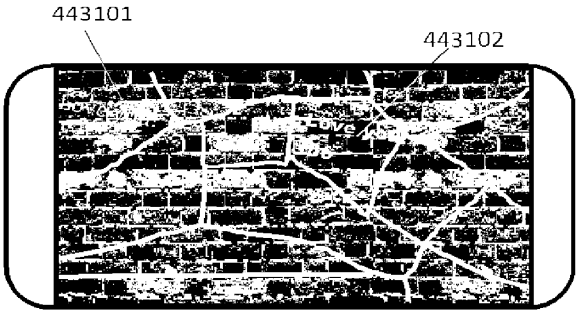


Fig. 443B

444001
444011
Express yourself on my wall!
444012
444013
Paul

Fig. 444

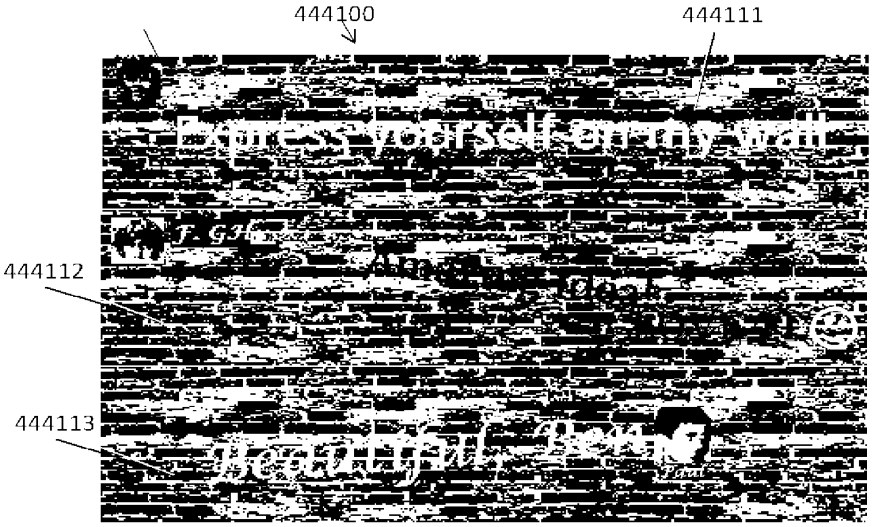


Fig. 444A

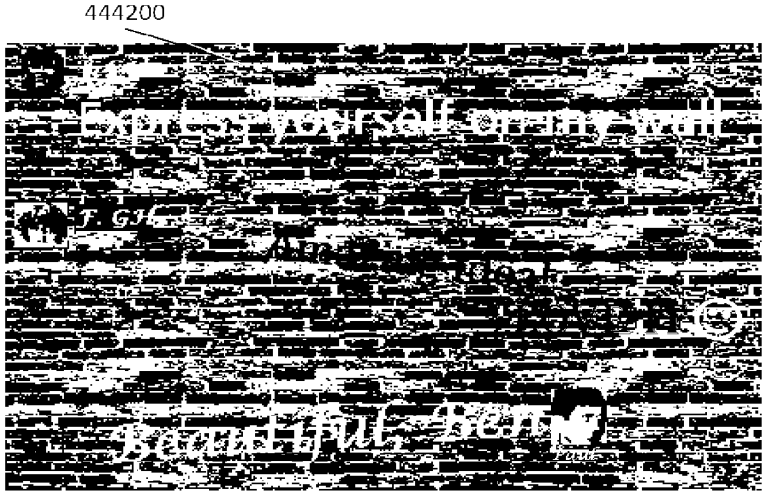


Fig. 444B

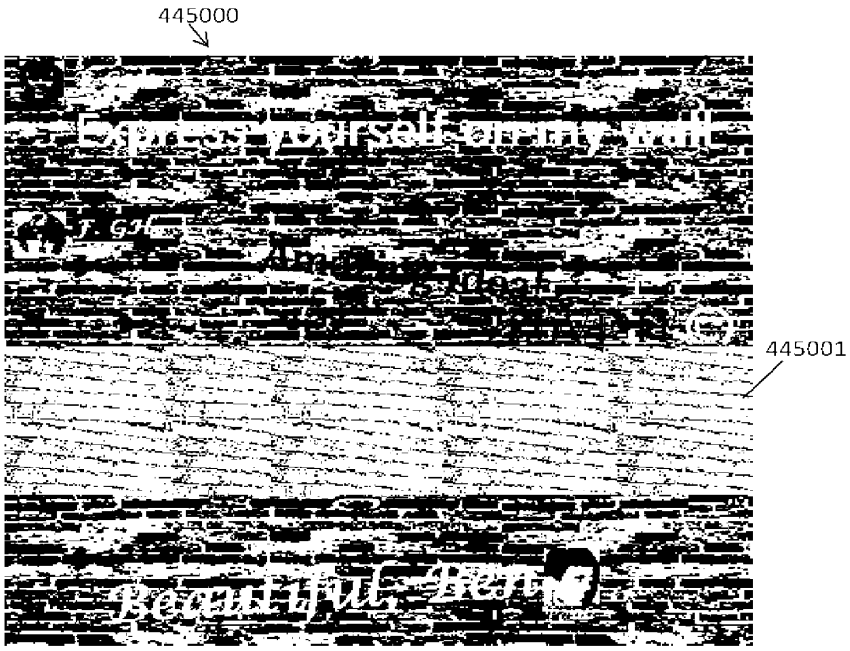


Fig. 445

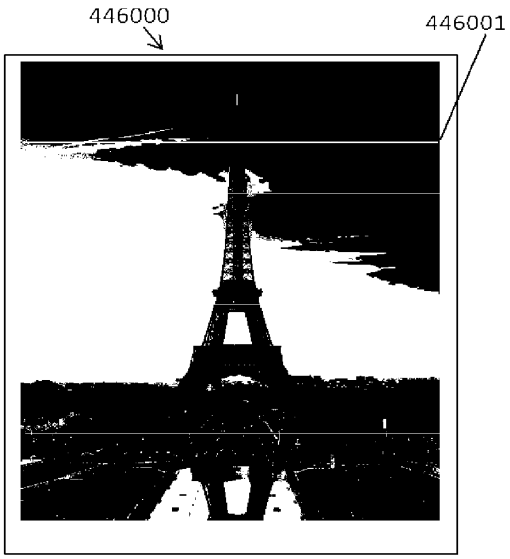


Fig. 446

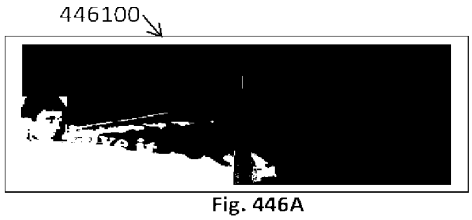


Fig. 446A

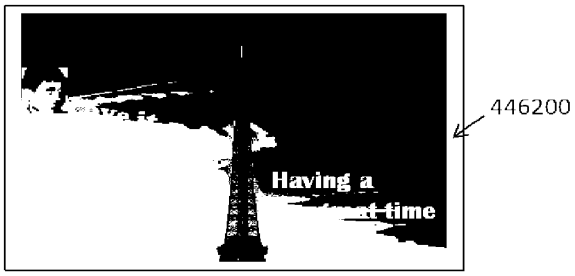


Fig. 446B

Fig. 446C

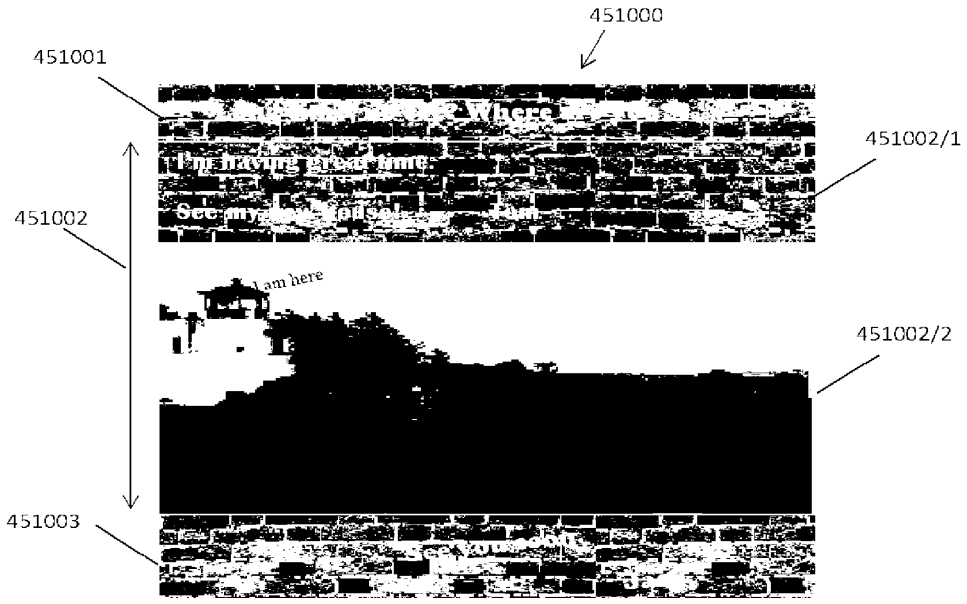


Fig. 451

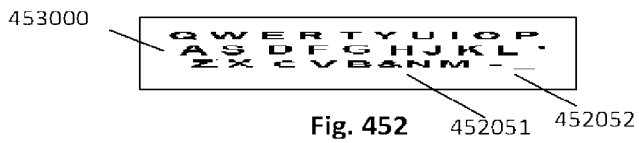


Fig. 452

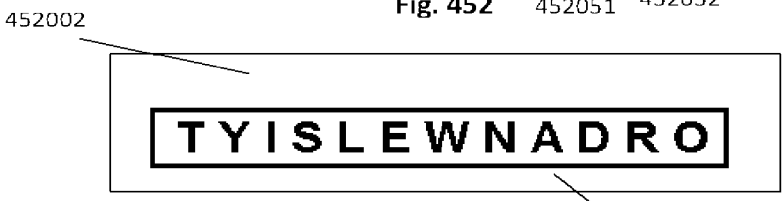


Fig. 452A

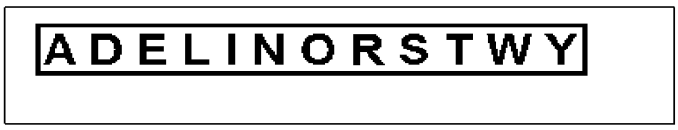


Fig. 452B

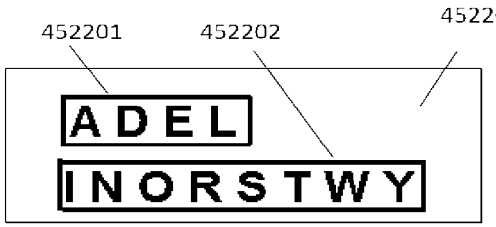


Fig. 452C

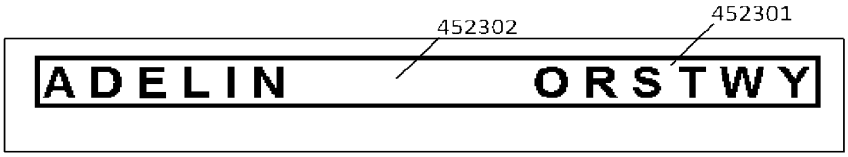


Fig. 452D

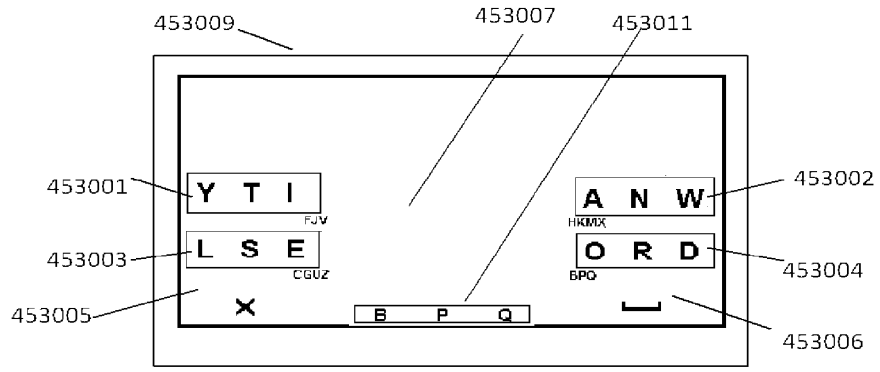


Fig. 453A

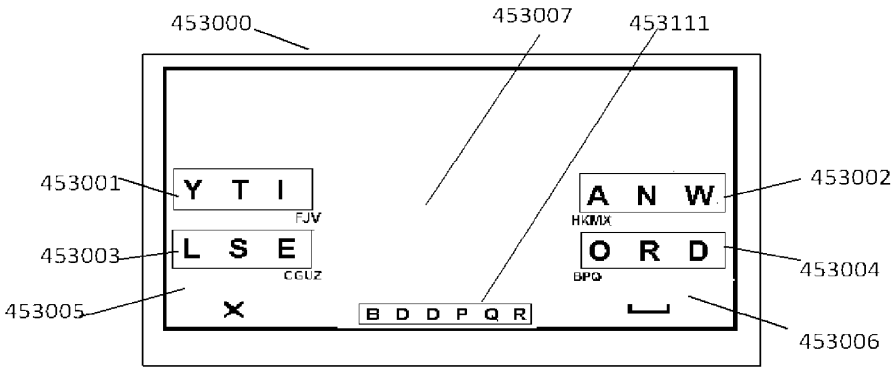


Fig. 453B

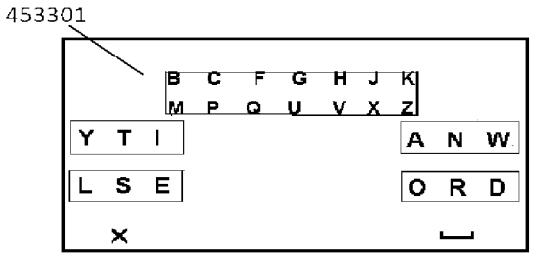


Fig. 453C

J

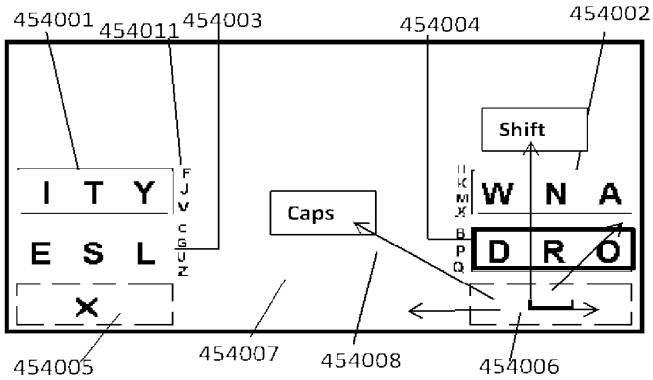


Fig. 454A

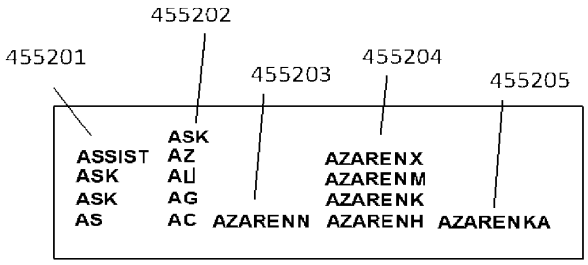


Fig. 455

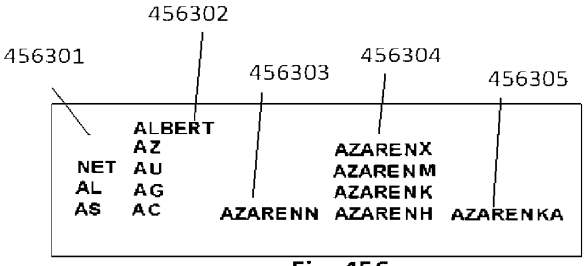


Fig. 456

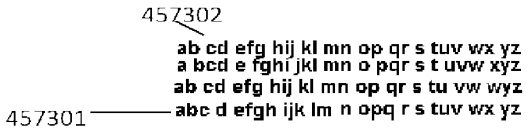


Fig. 457A

Fig. 457B

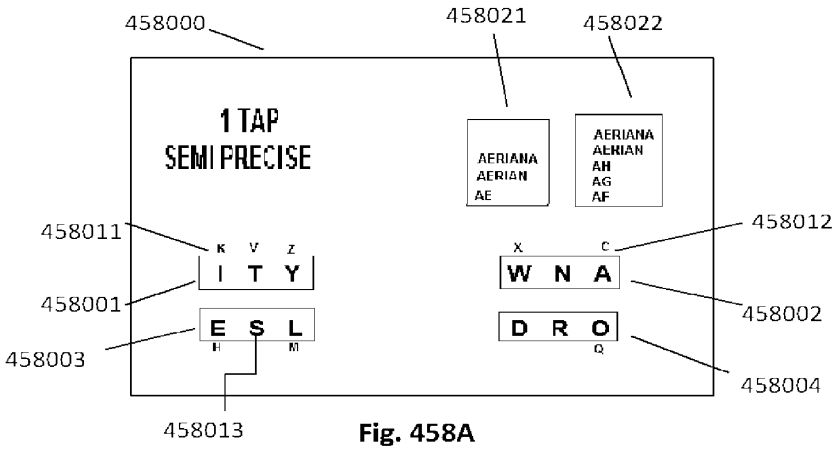


Fig. 458A

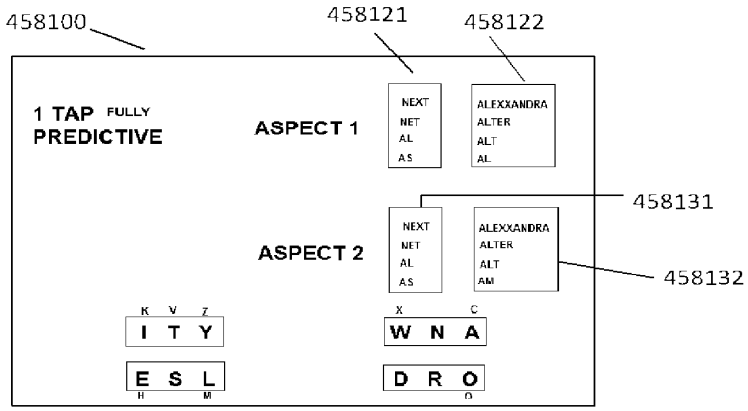


Fig. 458B

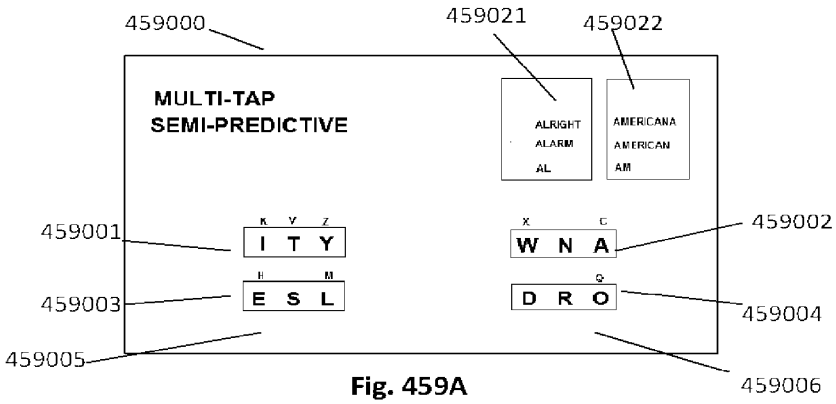


Fig. 459A

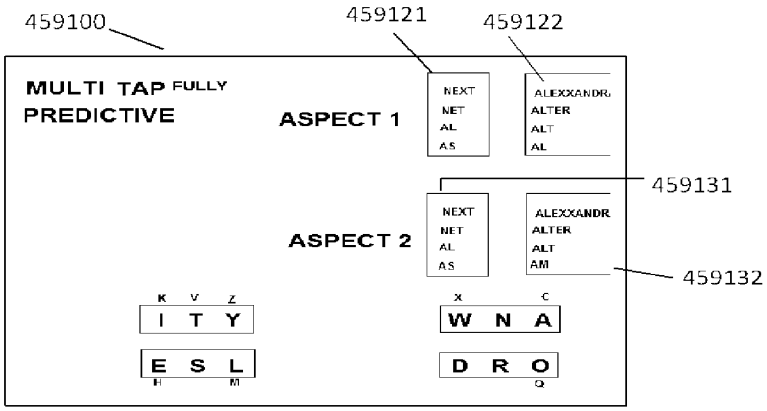


Fig. 459B

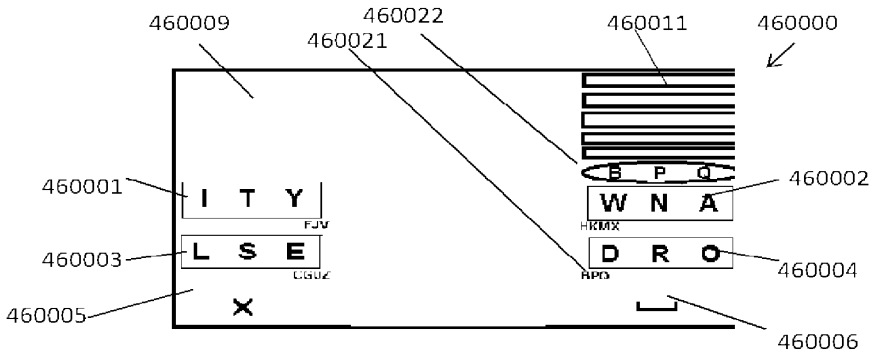


Fig. 460A

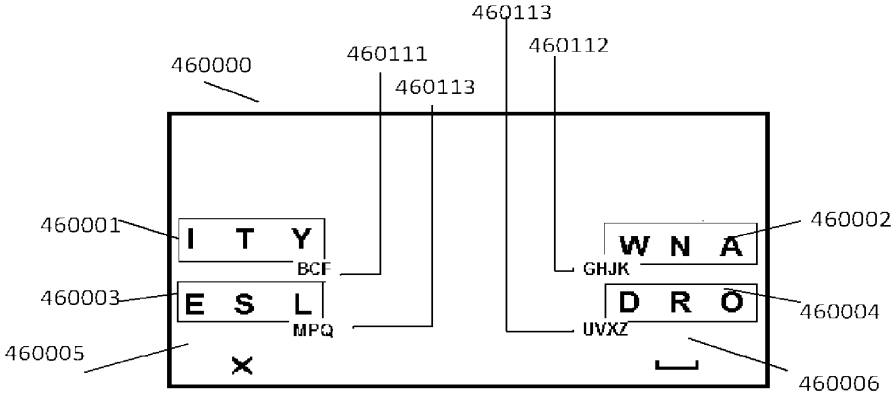


Fig. 460B

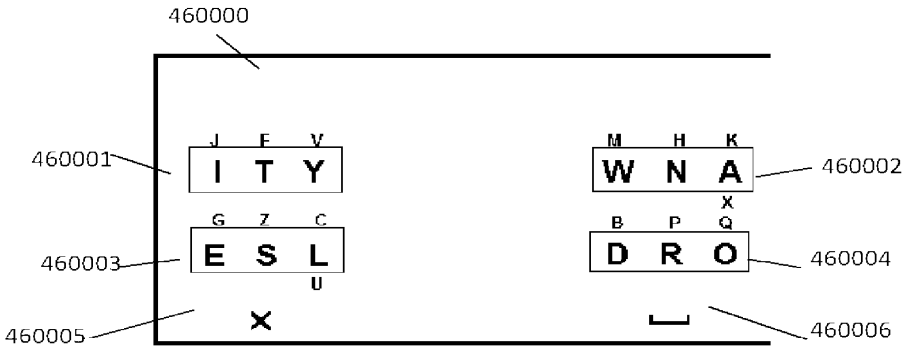


Fig. 460C

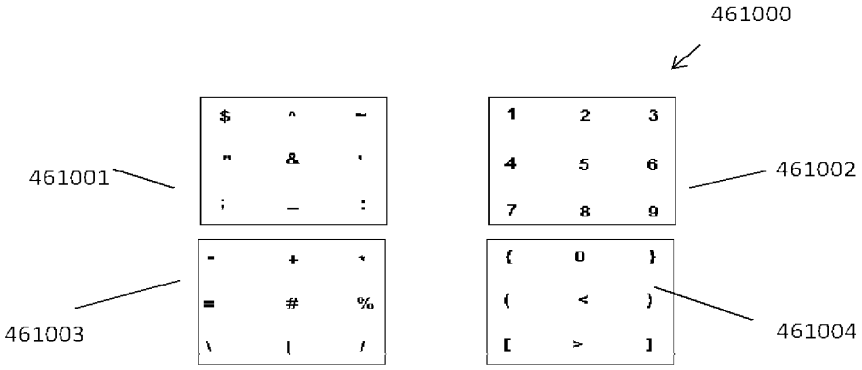


Fig. 461A

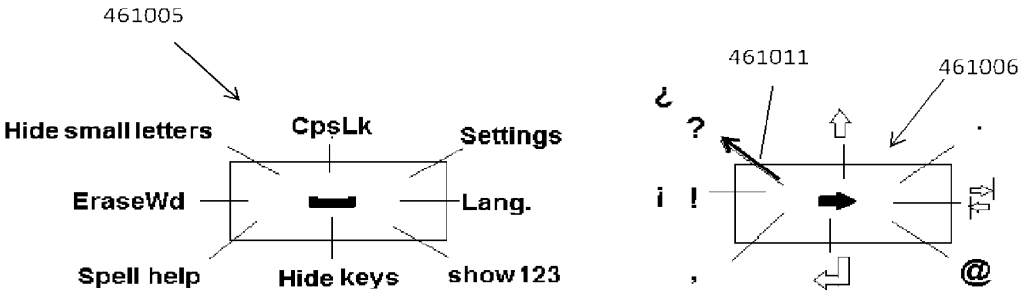


Fig. 461B

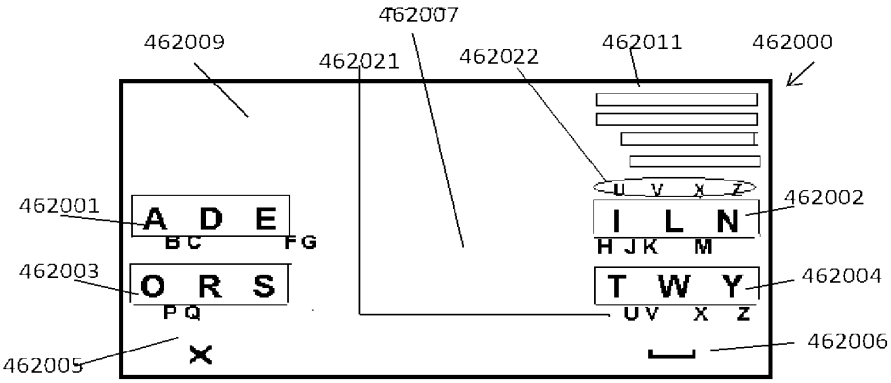


Fig. 462A

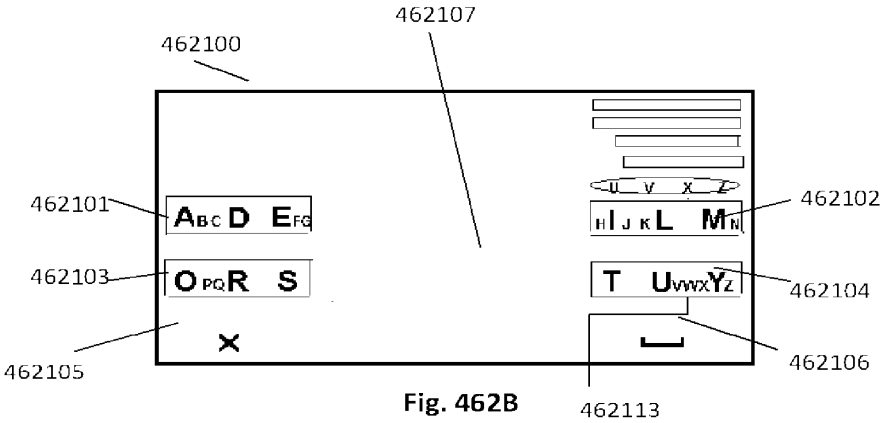


Fig. 462B

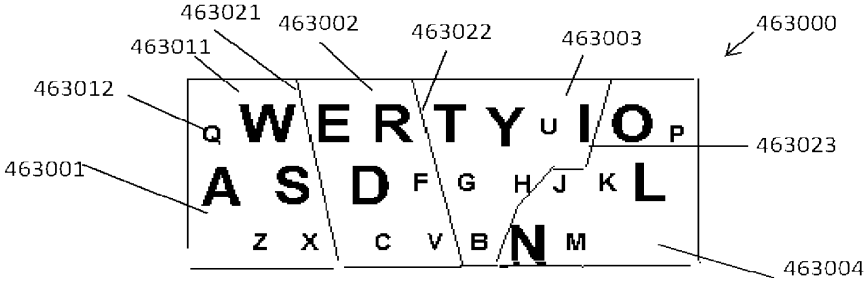


Fig. 463A

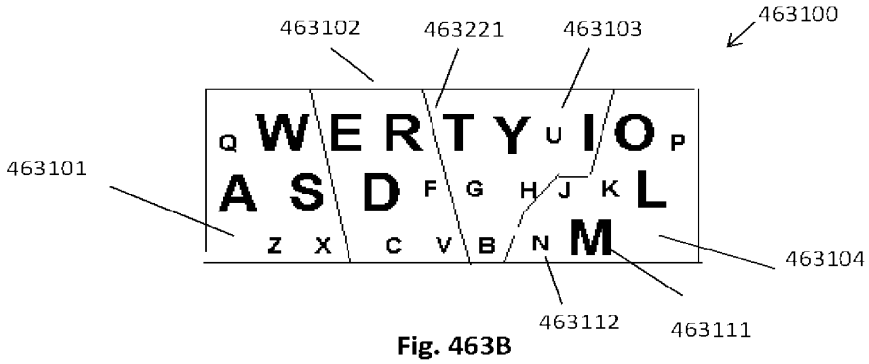


Fig. 463B

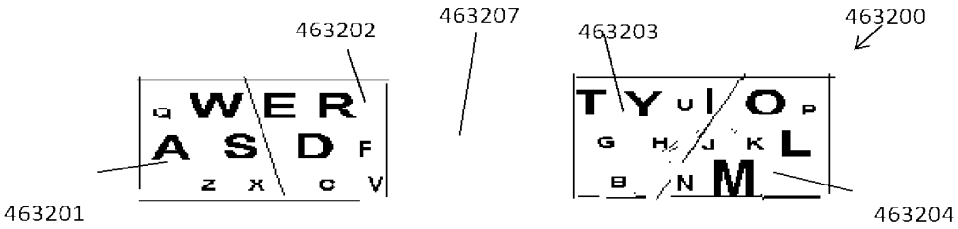


Fig. 463C

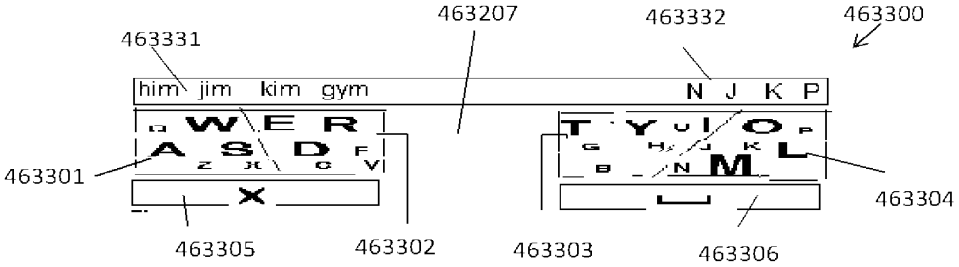


Fig. 463D

Fig. 464

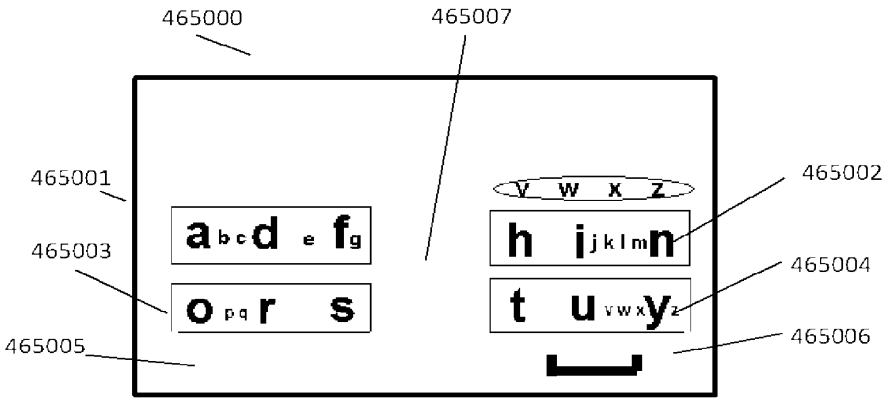


Fig. 465

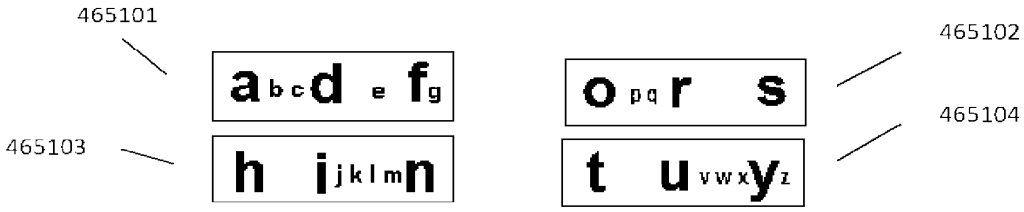


Fig. 465A

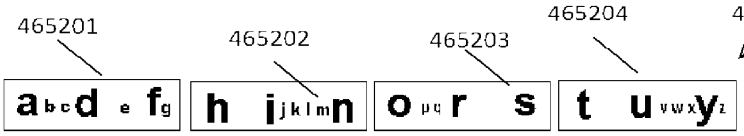


Fig. 465B

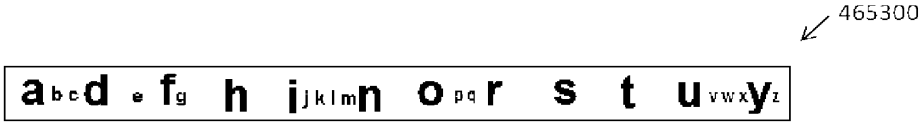


Fig. 465C

Fig. 465D

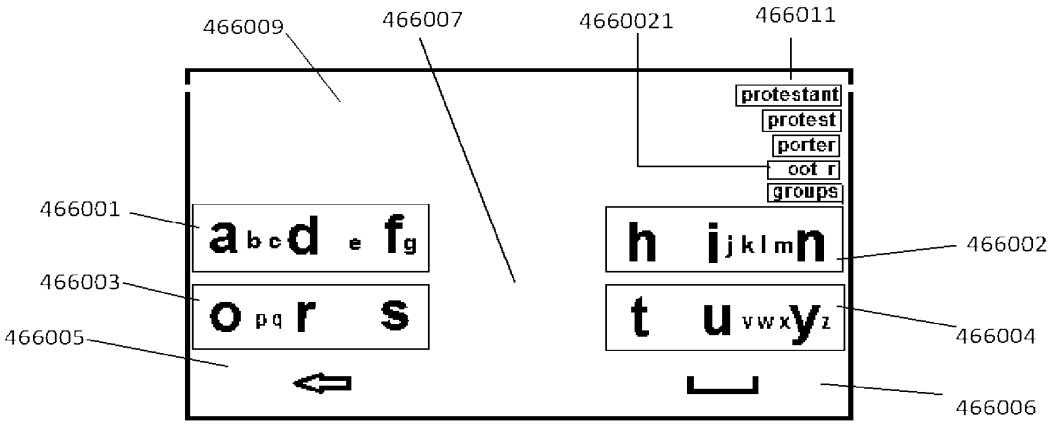


Fig. 466A

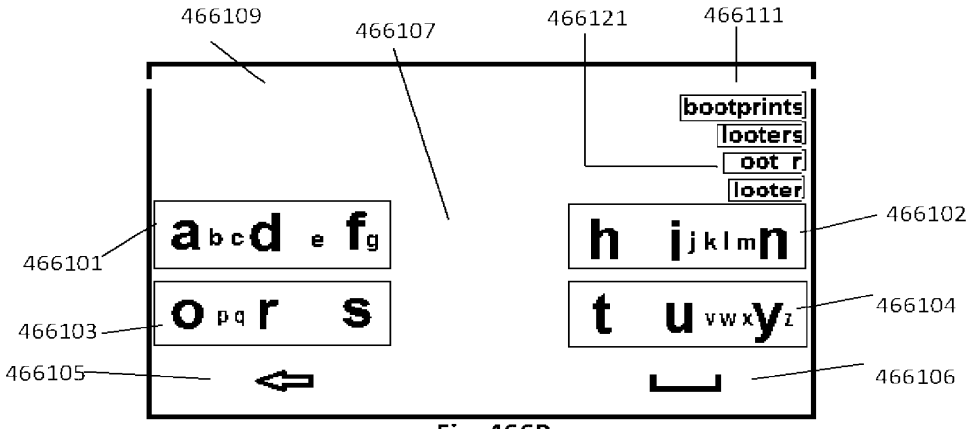


Fig. 466B

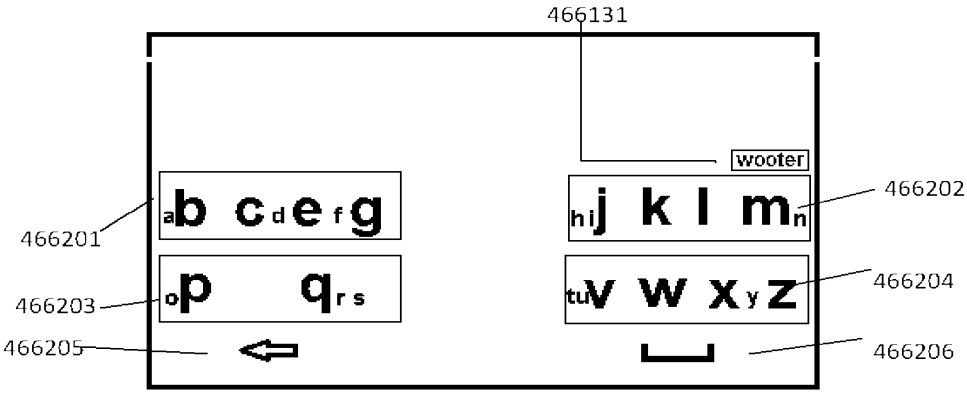


Fig. 466C

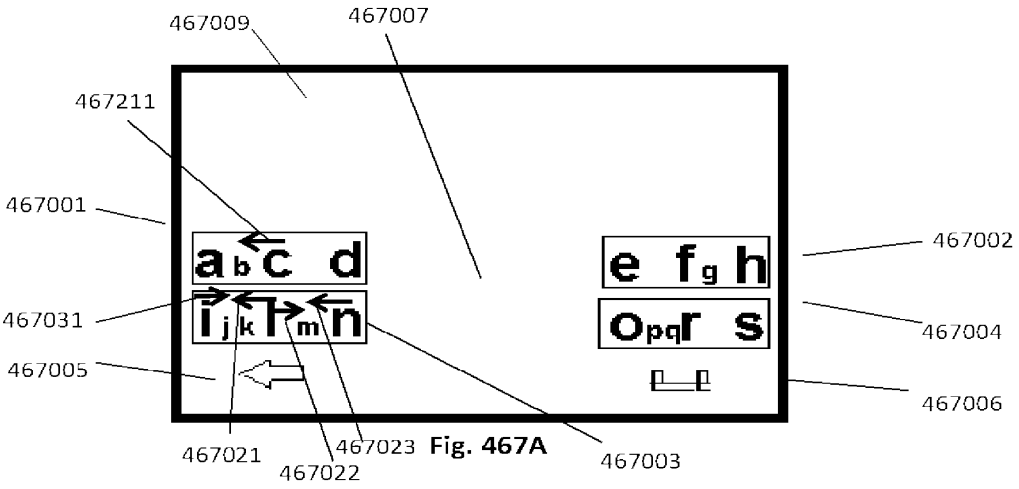


Fig. 467A

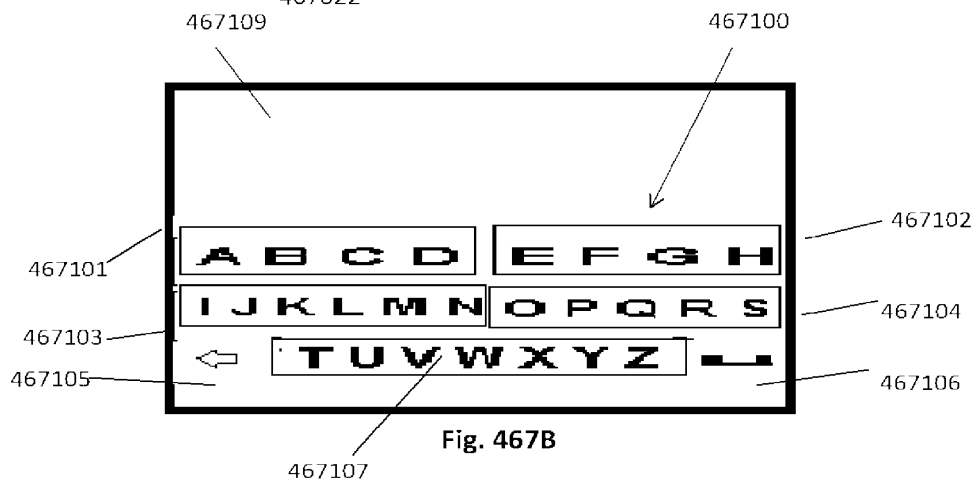


Fig. 467B

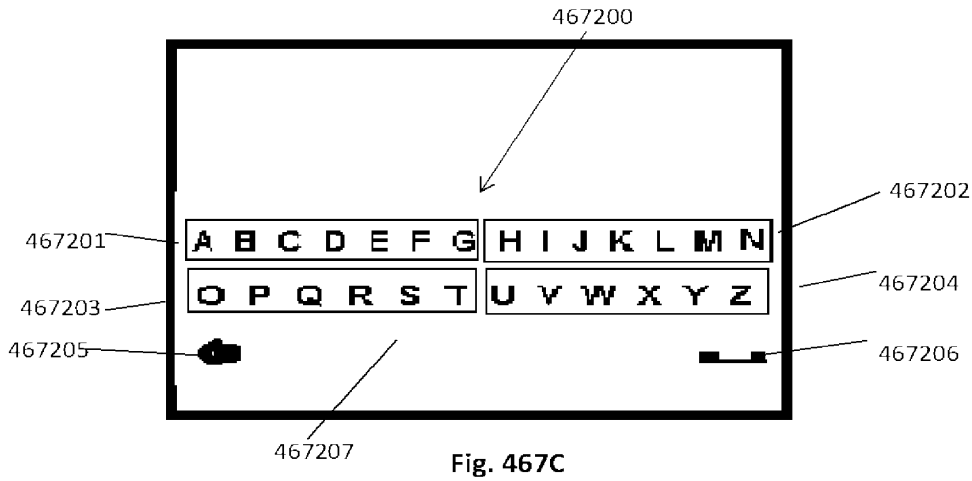


Fig. 467C

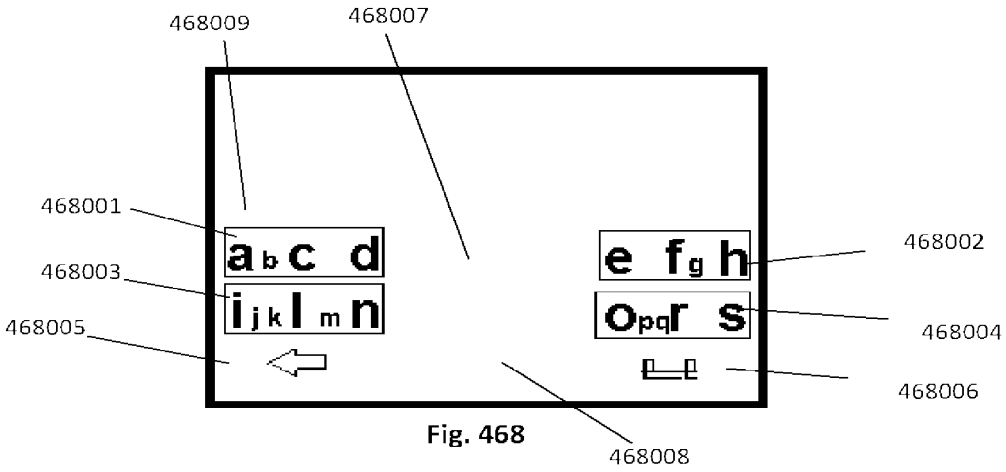


Fig. 468

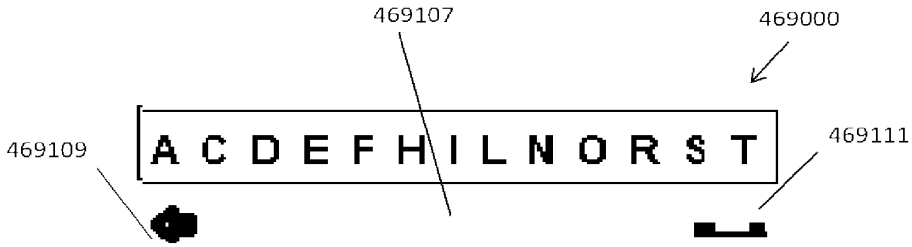


Fig. 469A

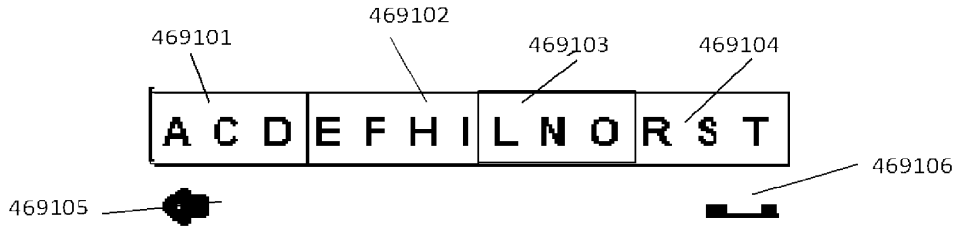


Fig. 469B

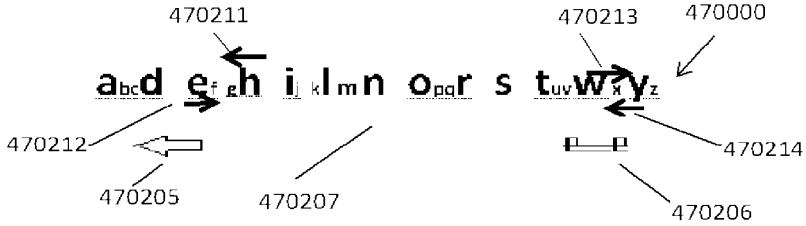


Fig. 470

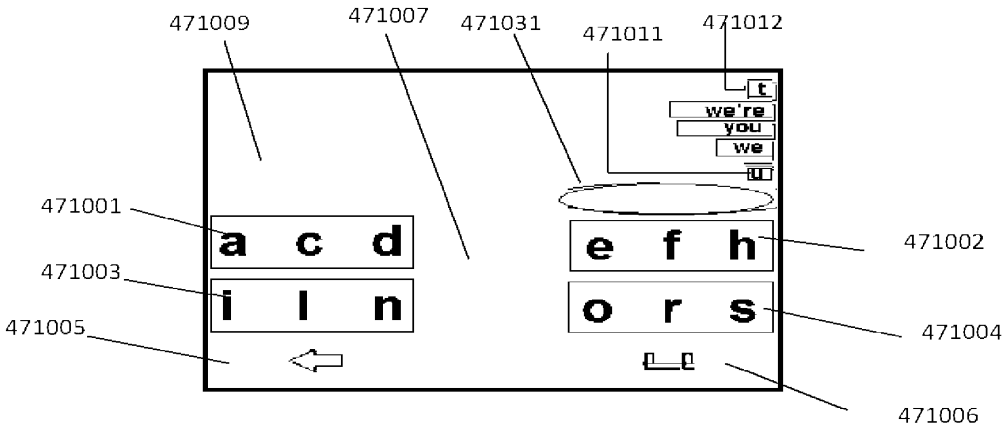


Fig. 471A

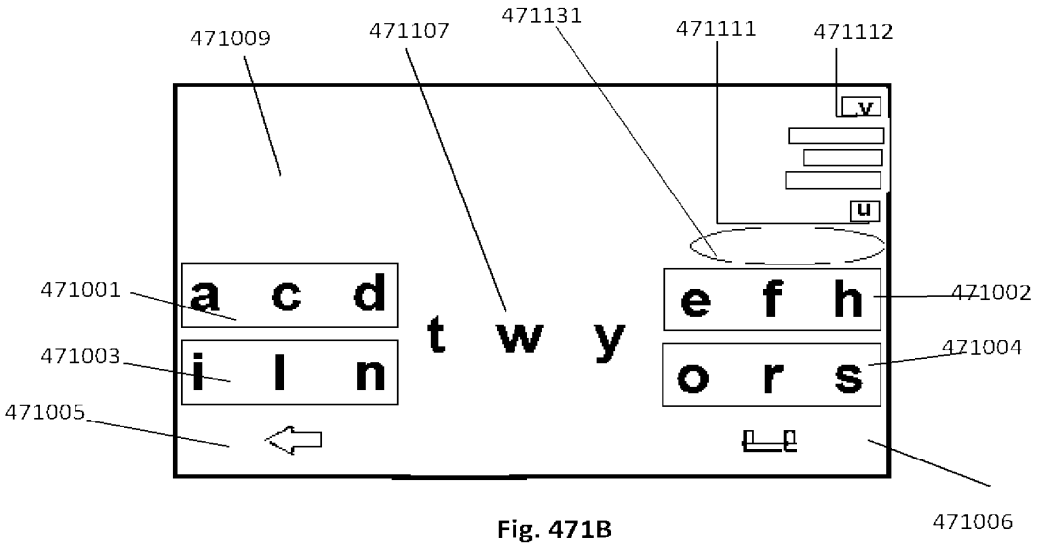


Fig. 471B

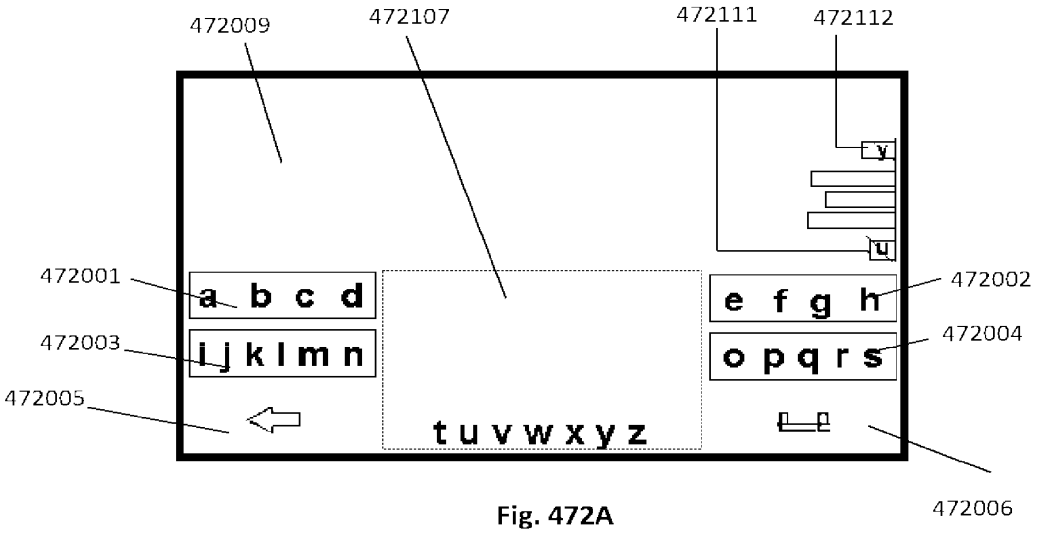


Fig. 472A

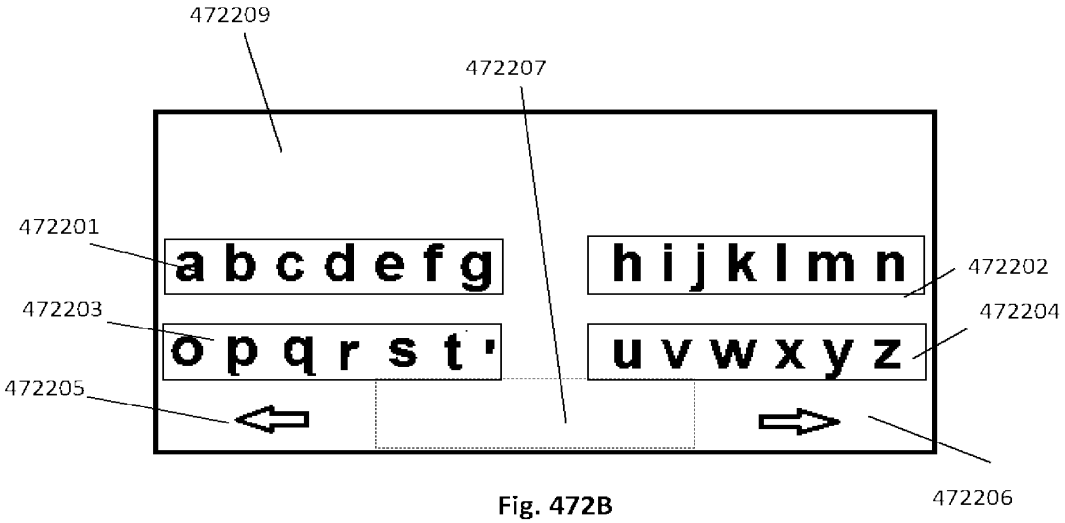


Fig. 472B

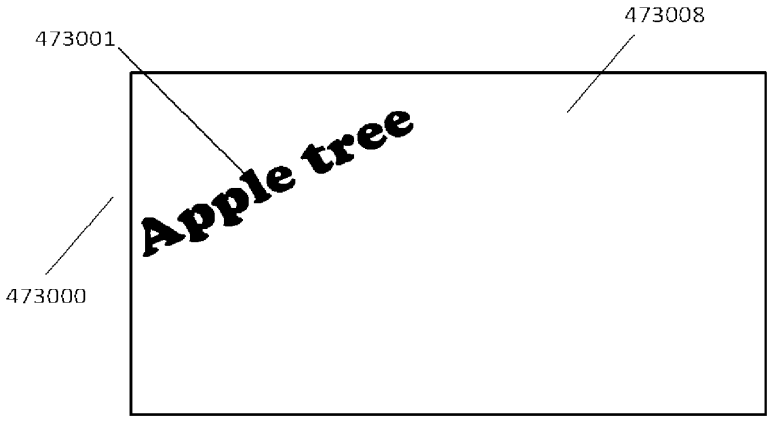


Fig. 473

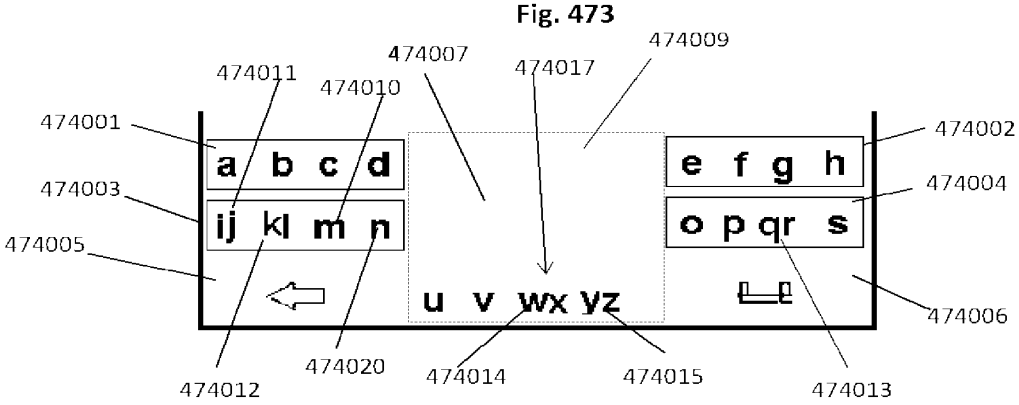


Fig. 474A

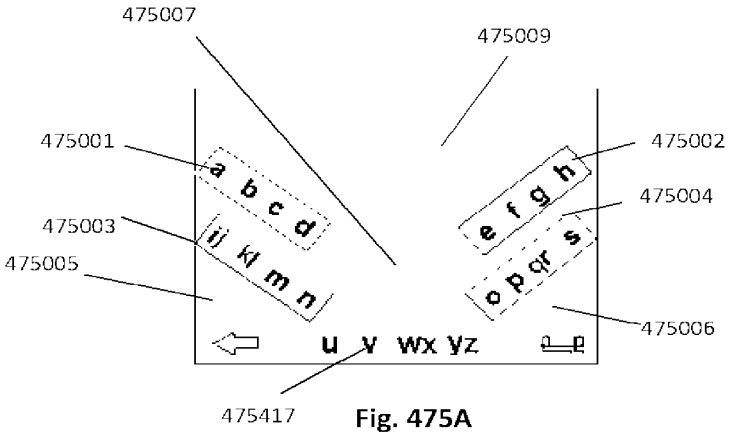


Fig. 475A

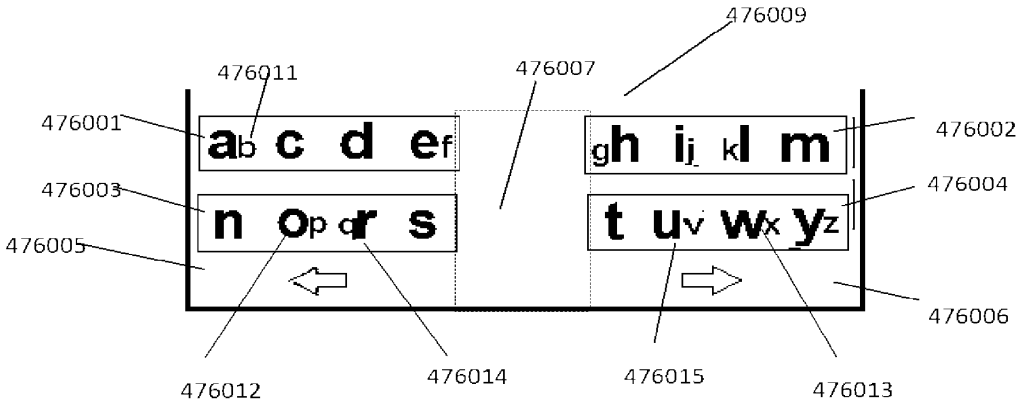


Fig. 476A

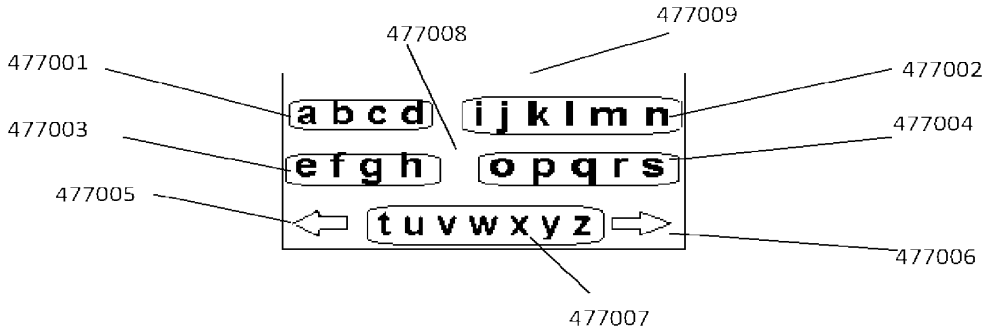


Fig. 477A

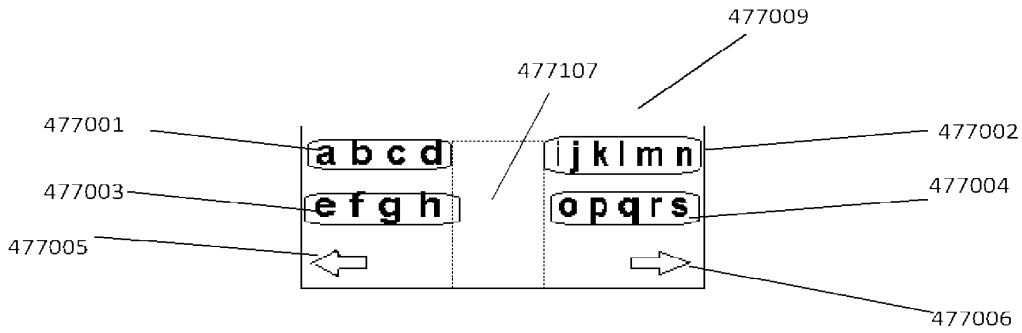


Fig. 477B

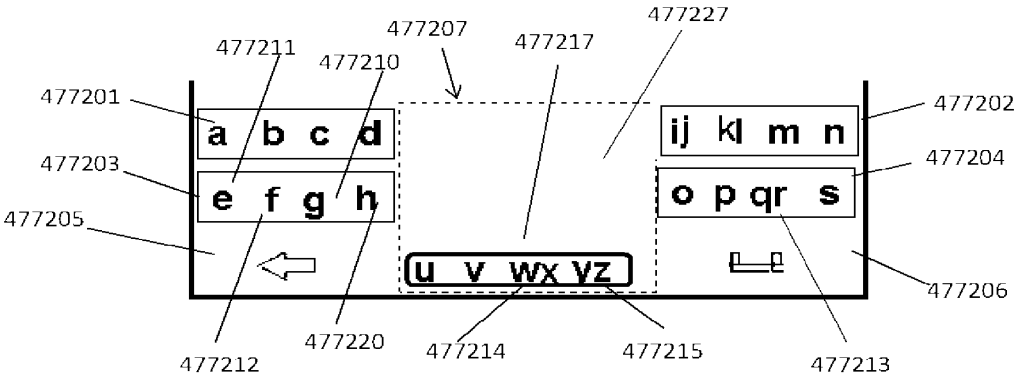


Fig. 477C

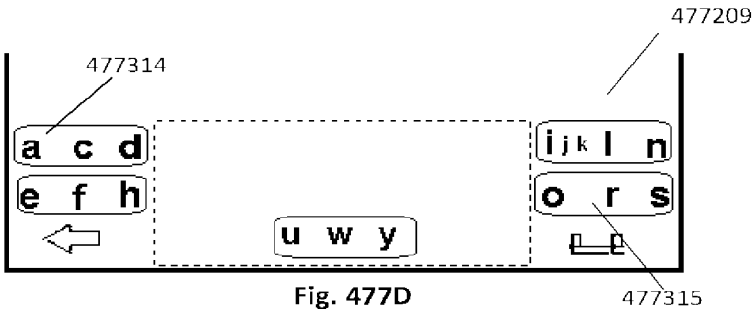


Fig. 477D

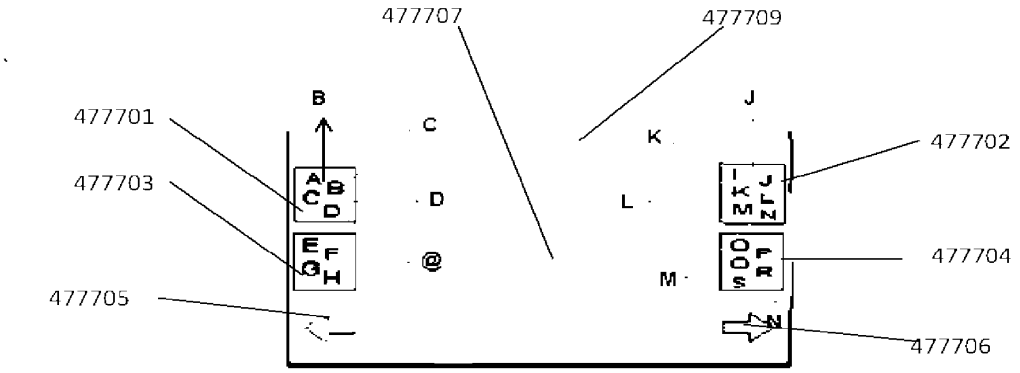


Fig. 477E

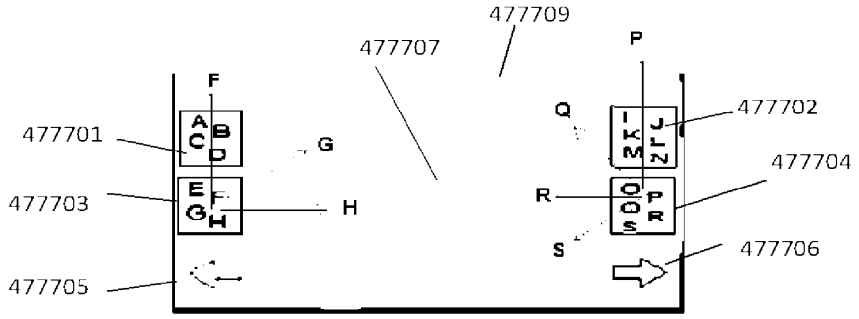


Fig. 477F

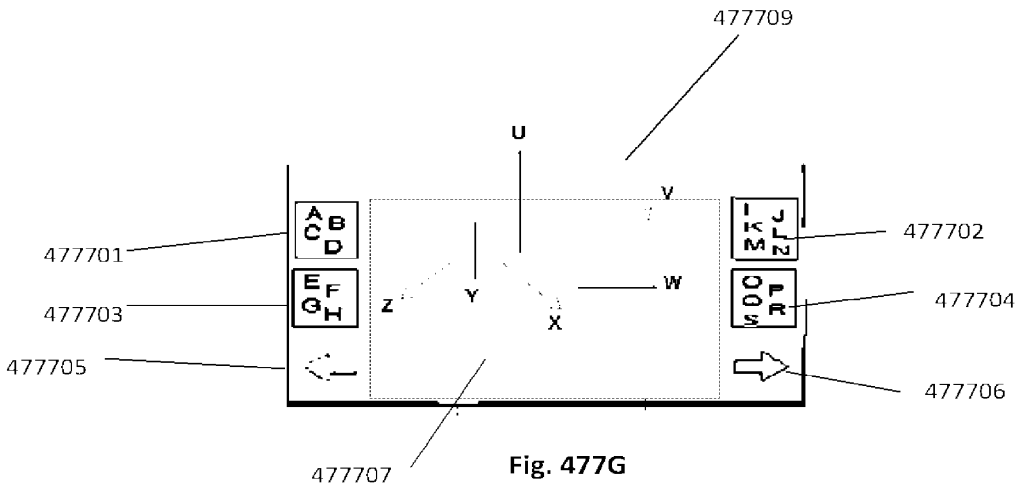


Fig. 477G

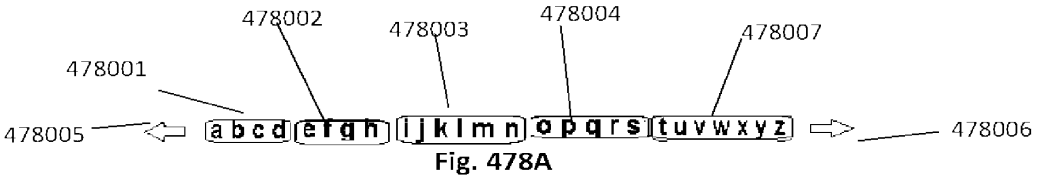


Fig. 478A

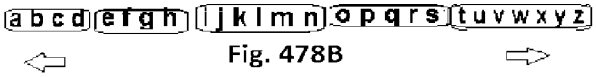


Fig. 478B

Fig. 478C

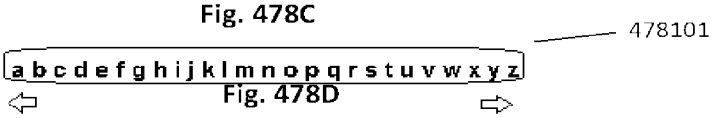


Fig. 478D

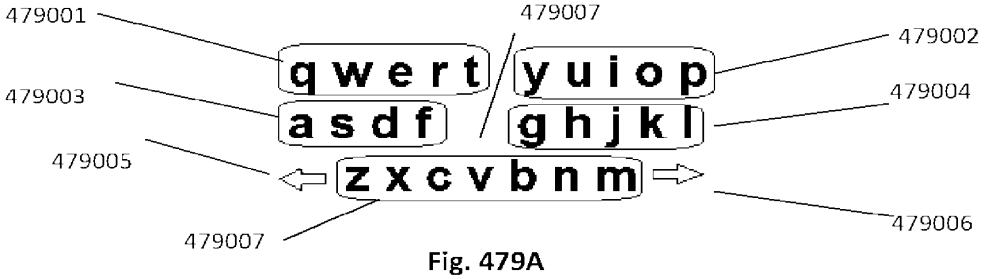


Fig. 479A

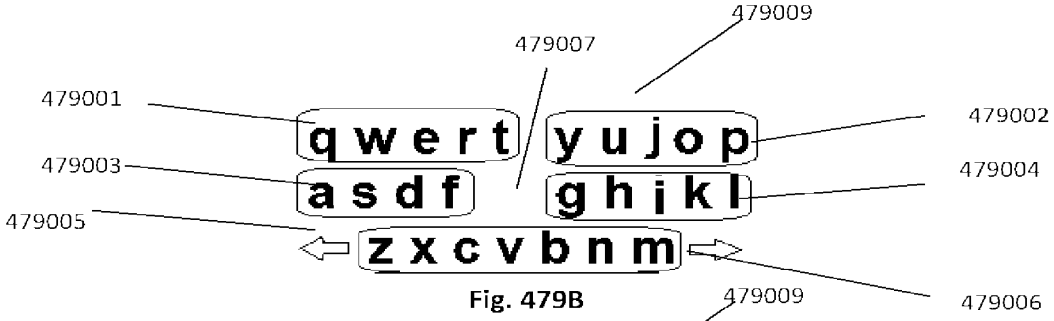


Fig. 479B

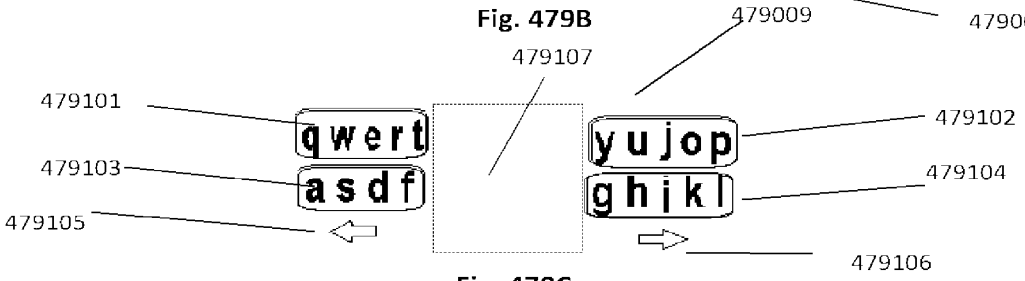


Fig. 479C

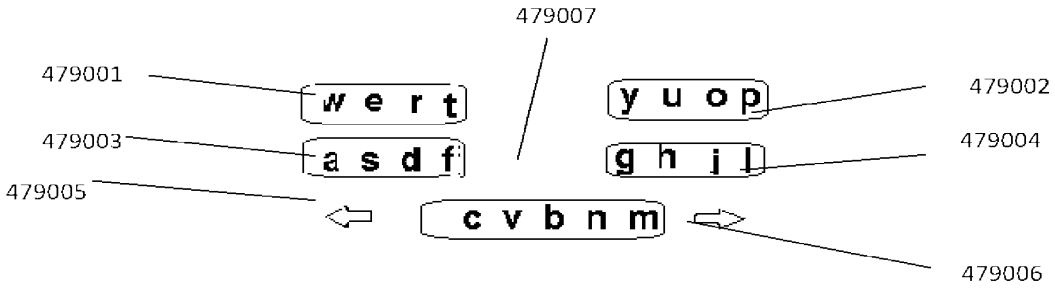


Fig. 479D

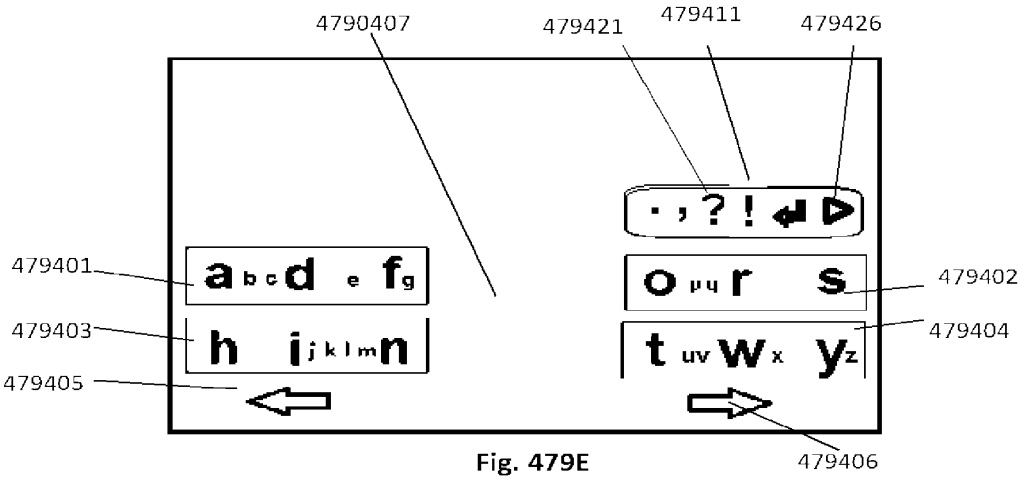


Fig. 479E

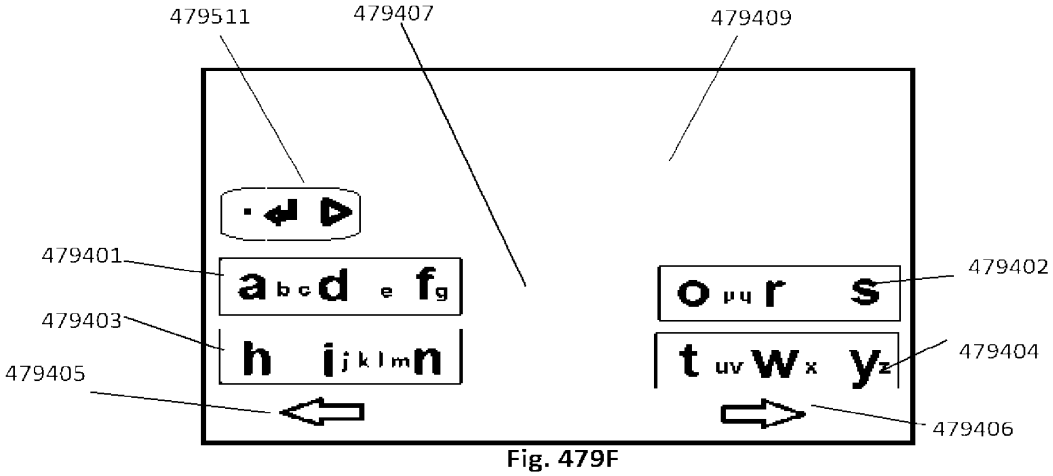


Fig. 479F

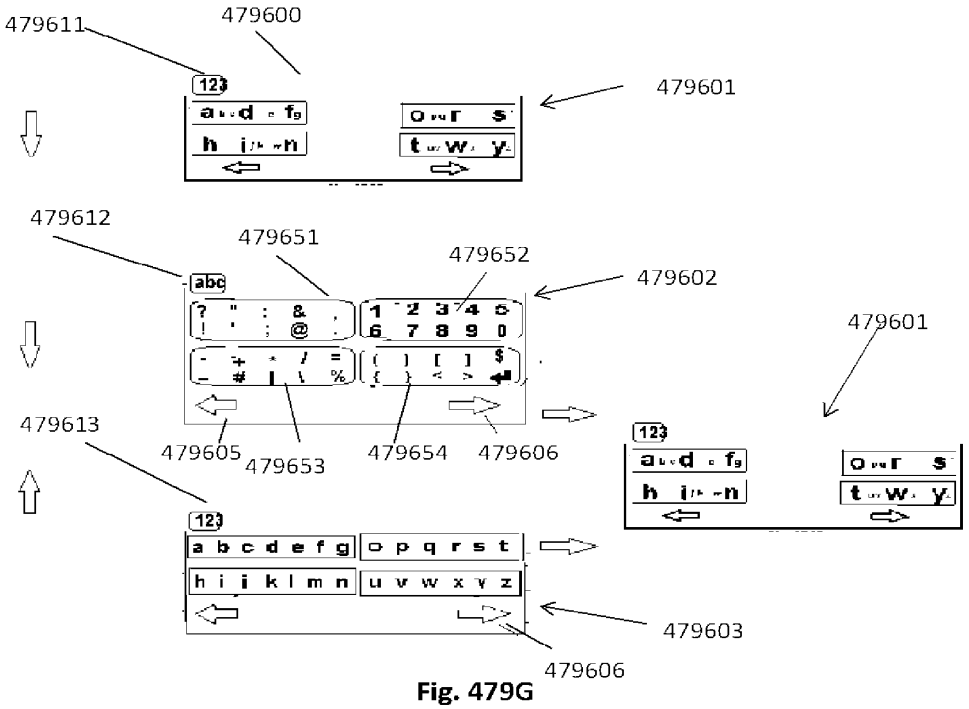


Fig. 479G

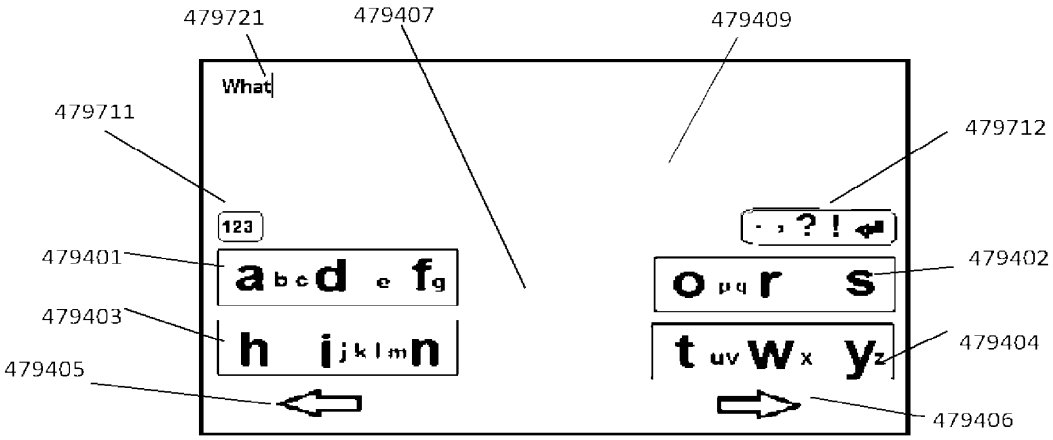


Fig. 479H

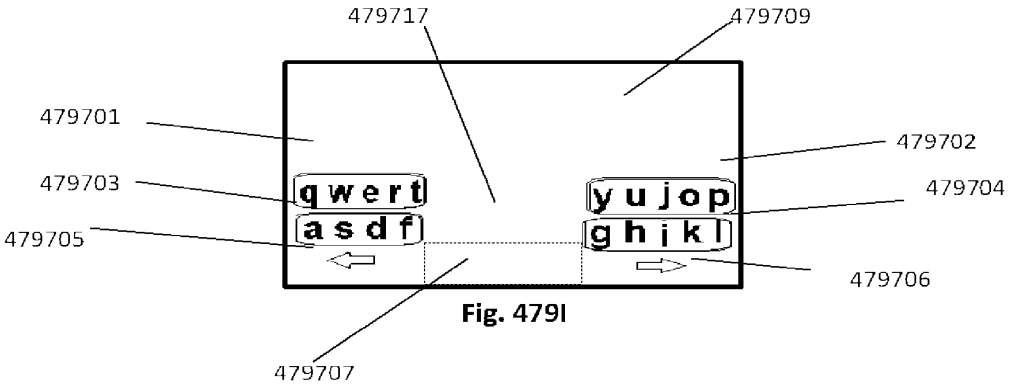


Fig. 479I

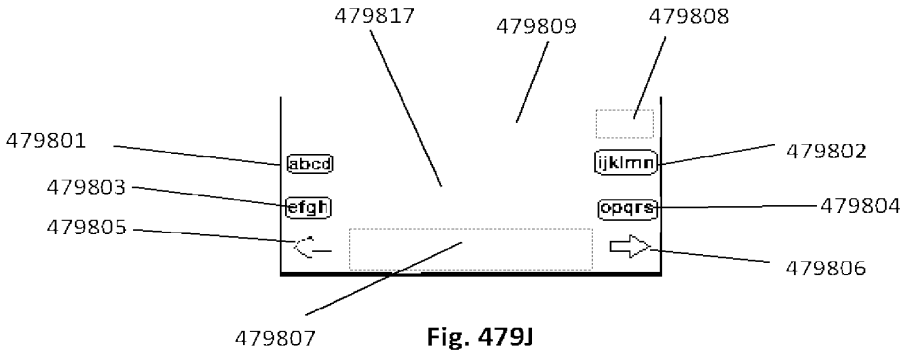


Fig. 479J

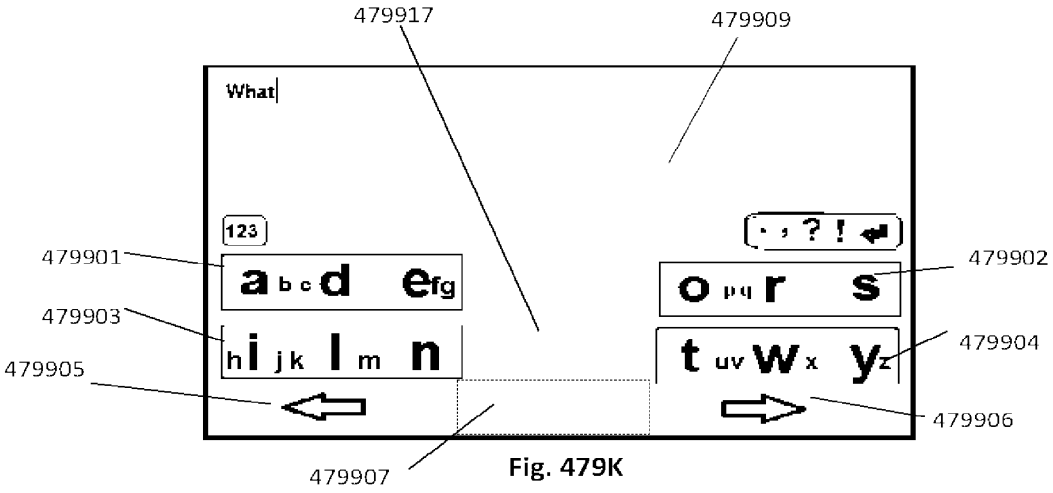


Fig. 479K

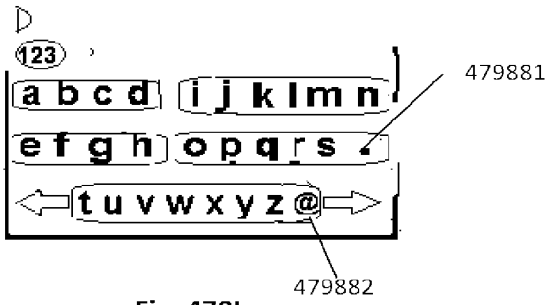


Fig. 479L

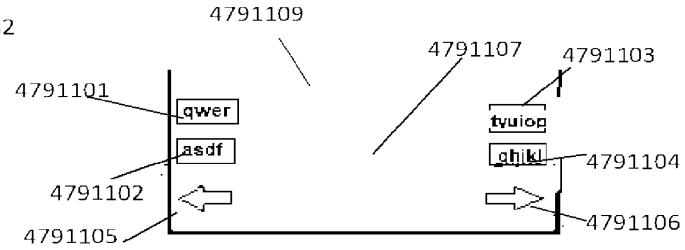


Fig. 479M

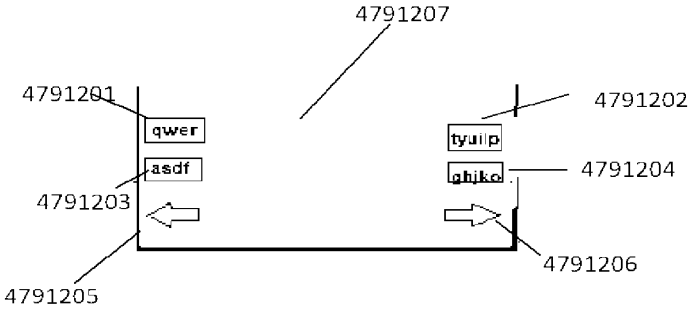


Fig. 479N

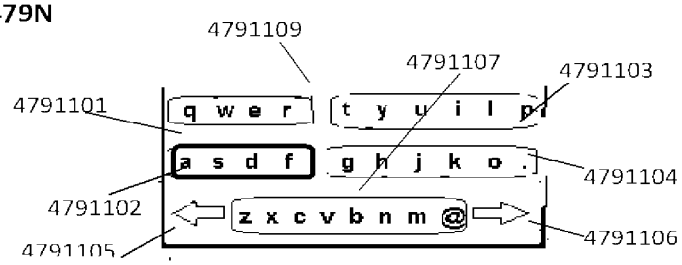


Fig. 479O

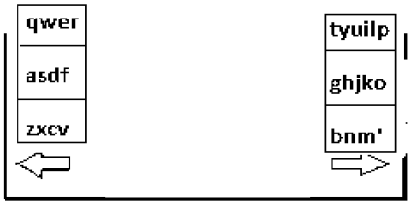


Fig. 479P1

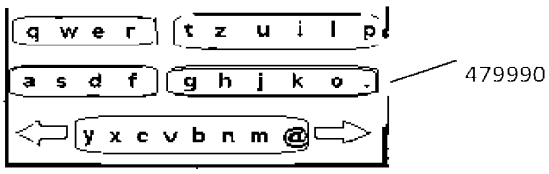


Fig. 479P

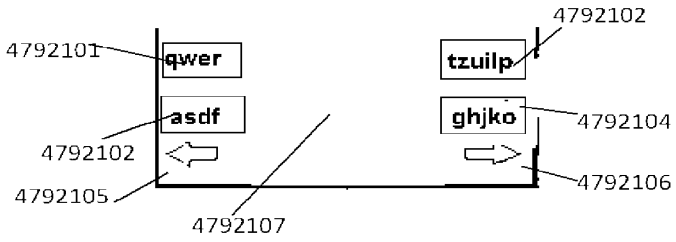


Fig. 479Q

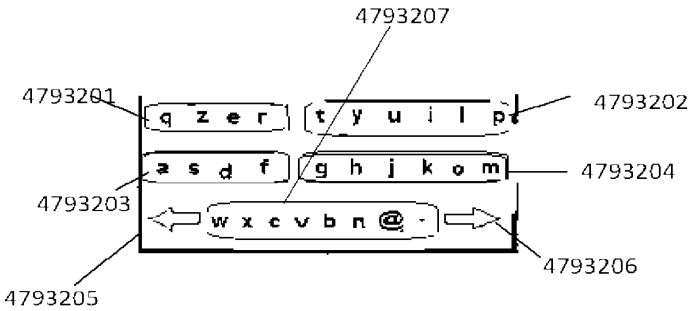


Fig. 479R

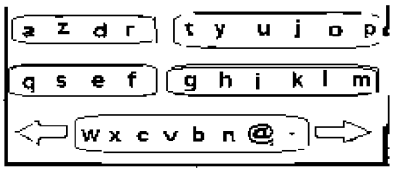


Fig. 479S

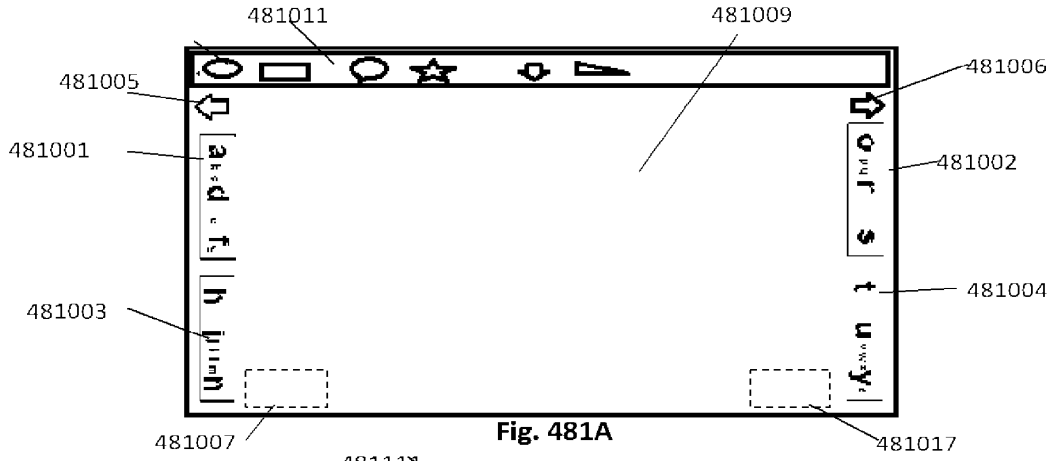


Fig. 481A

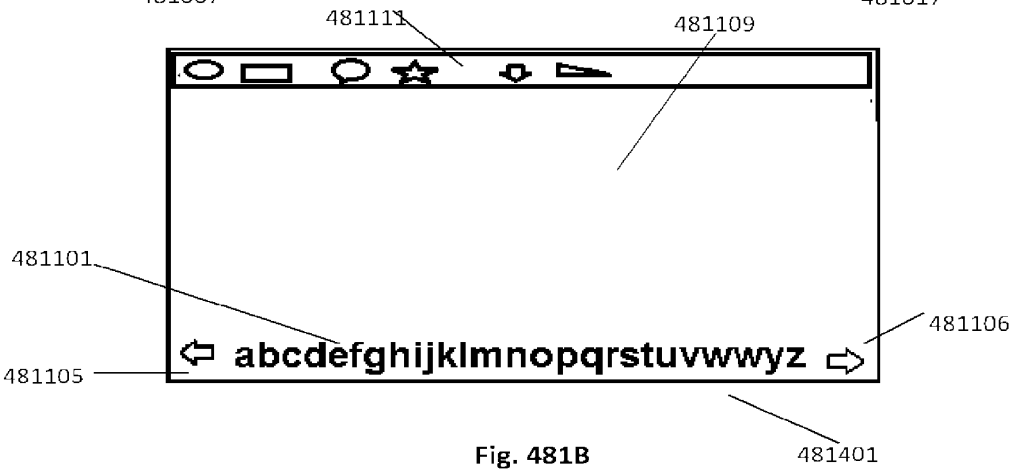


Fig. 481B

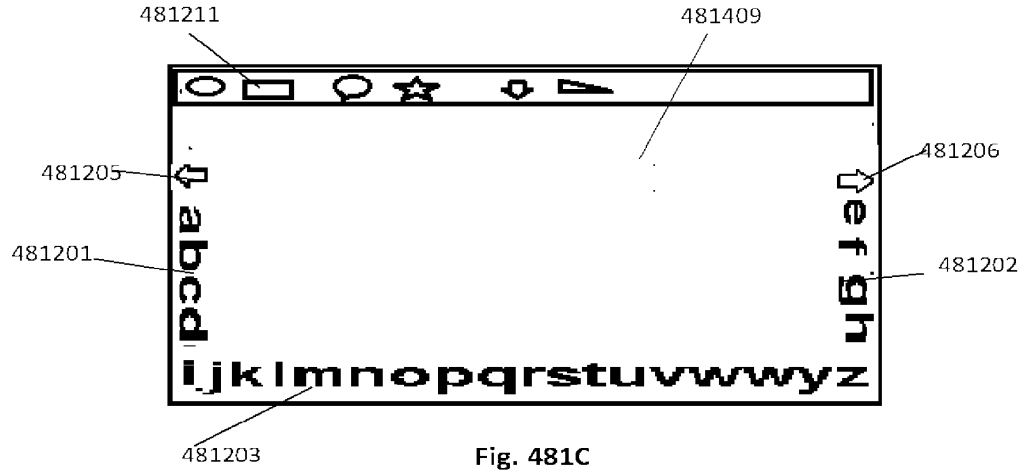


Fig. 481C

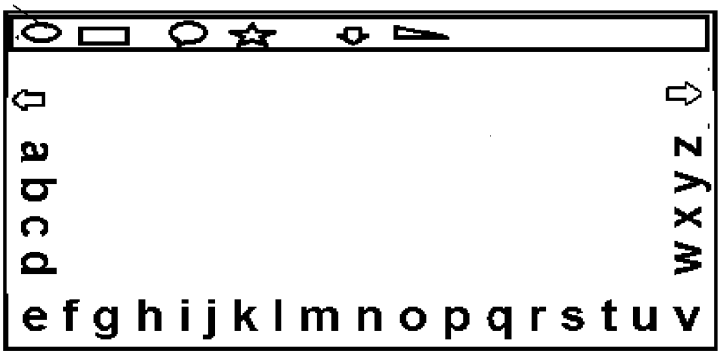


Fig. 482A

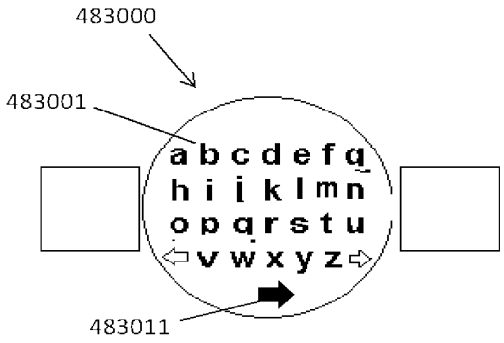


Fig. 483A

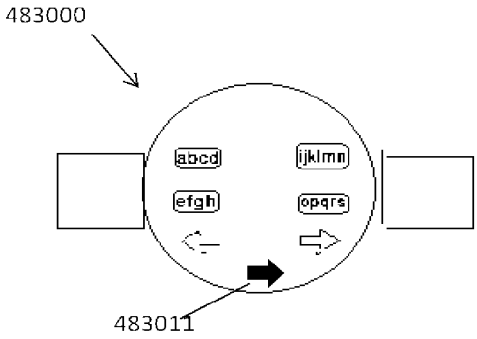


Fig. 483B

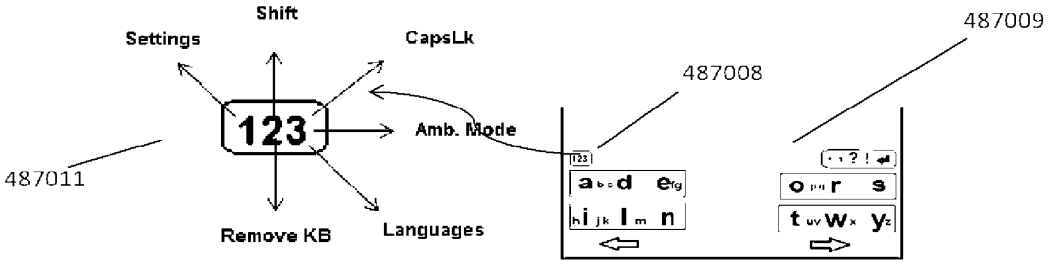


Fig. 487A

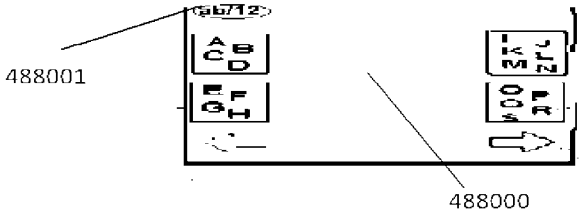


Fig. 488A

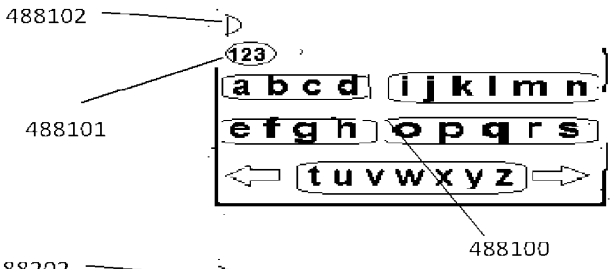


Fig. 488B

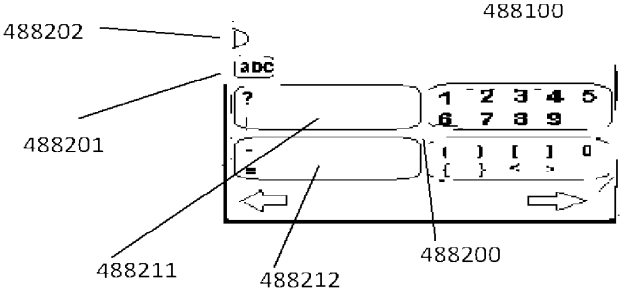


Fig. 488C

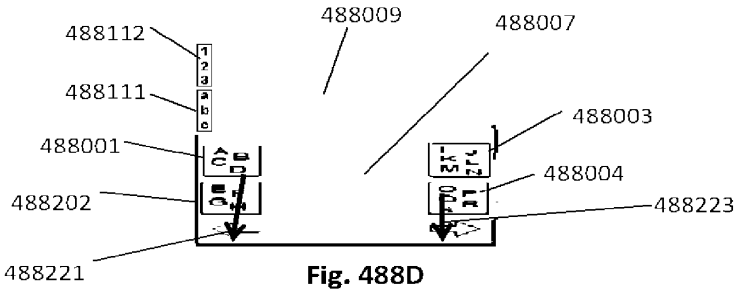


Fig. 488D

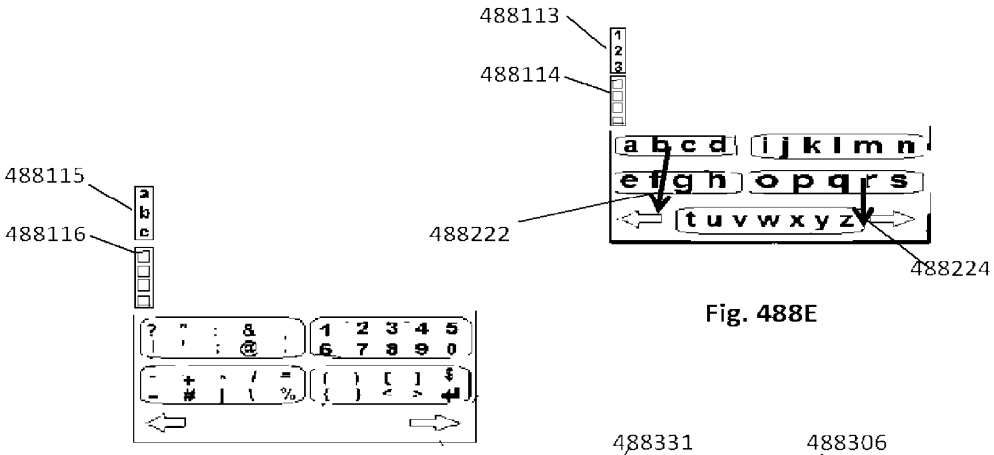


Fig. 488E

Fig. 488F

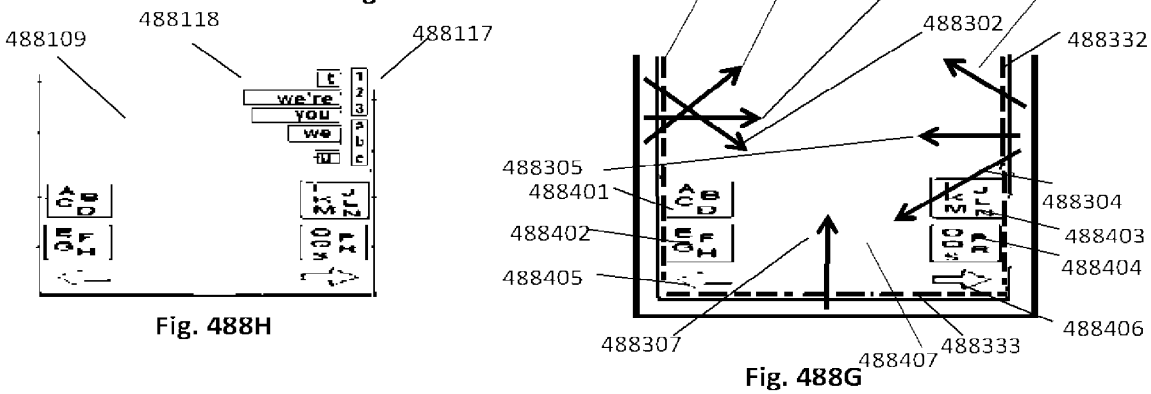


Fig. 488H

Fig. 488G

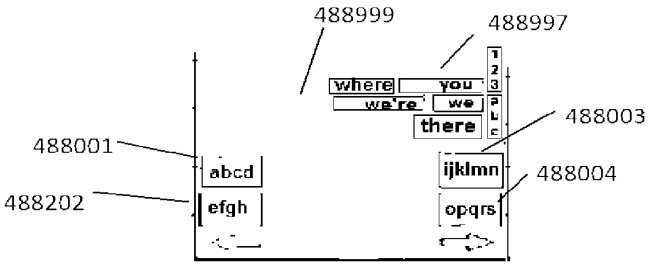


Fig. 488I

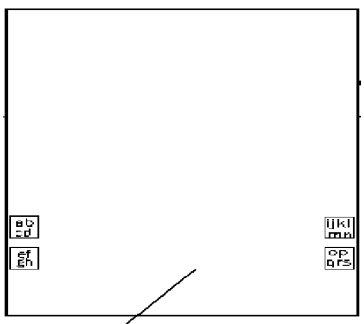


Fig. 489A

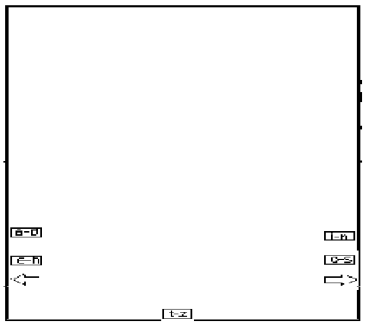


Fig. 489B

489008

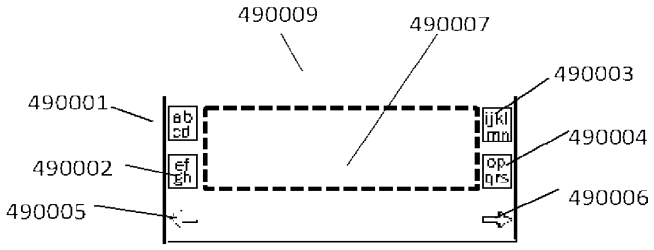


Fig. 490A

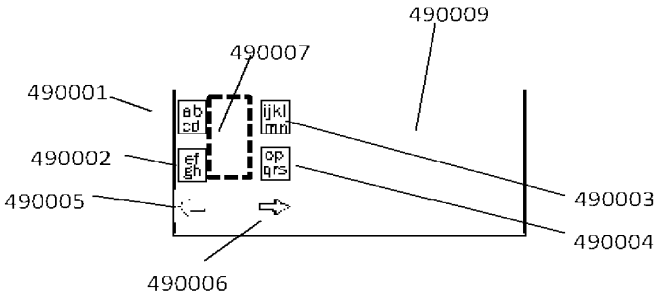


Fig. 490B

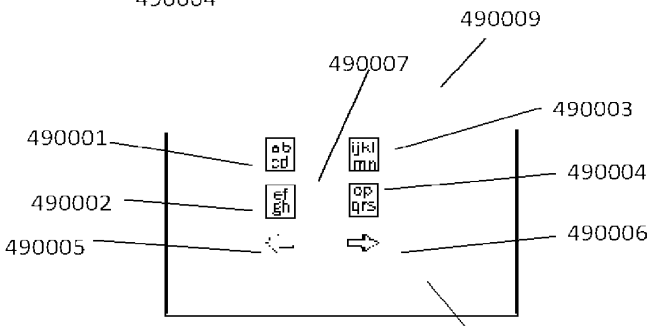


Fig. 490C

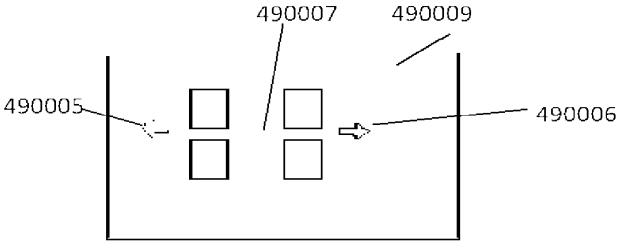


Fig. 490D

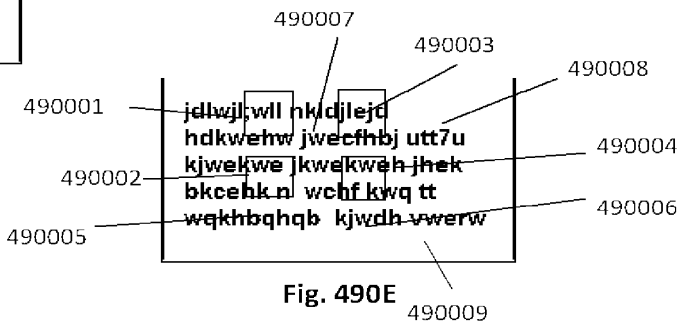


Fig. 490E

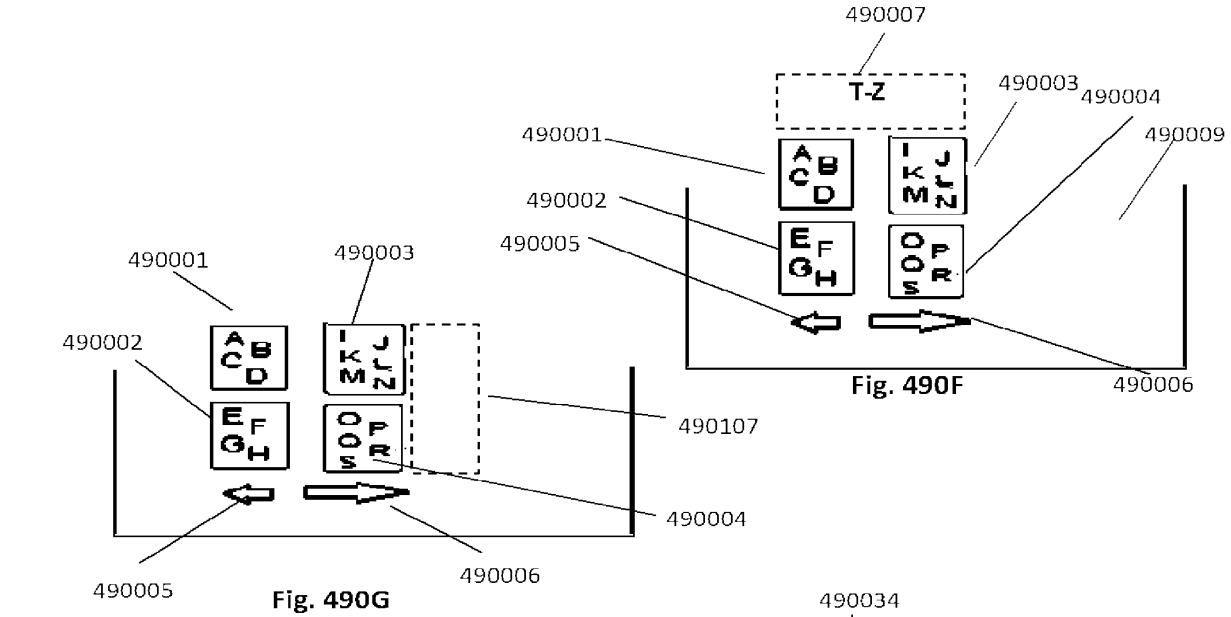


Fig. 490F

Fig. 490G

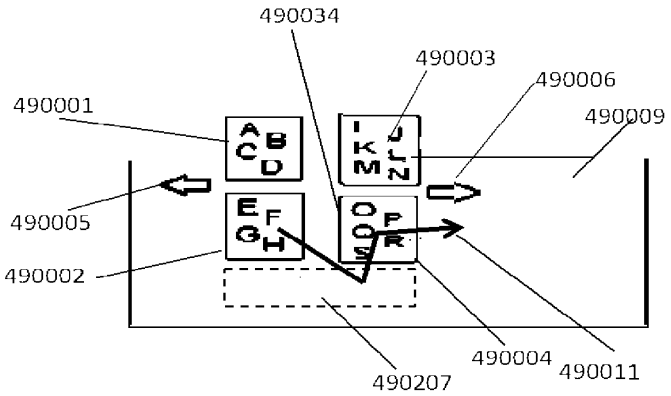


Fig. 490H

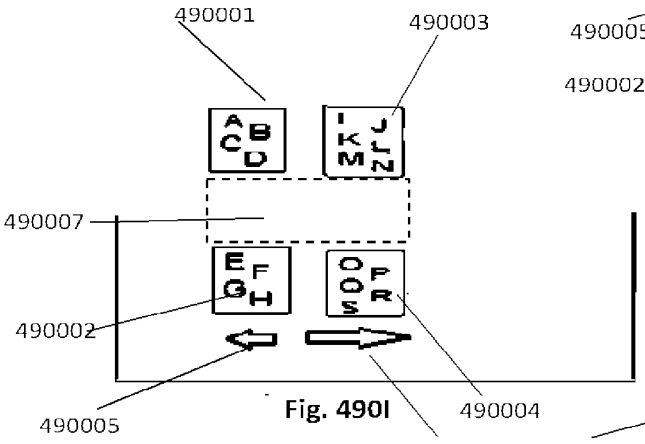


Fig. 490I

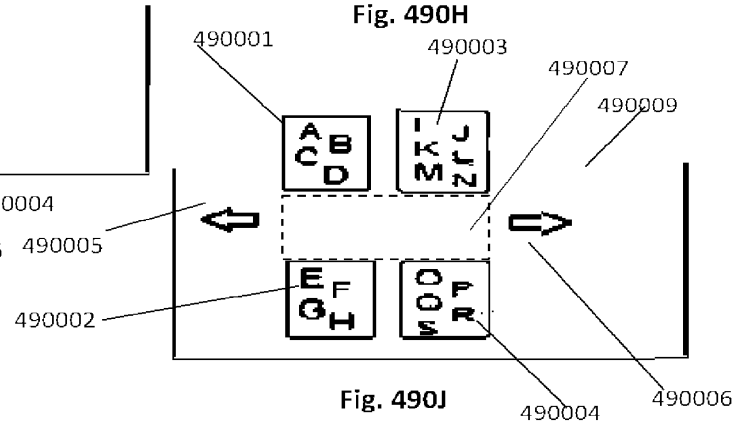


Fig. 490J

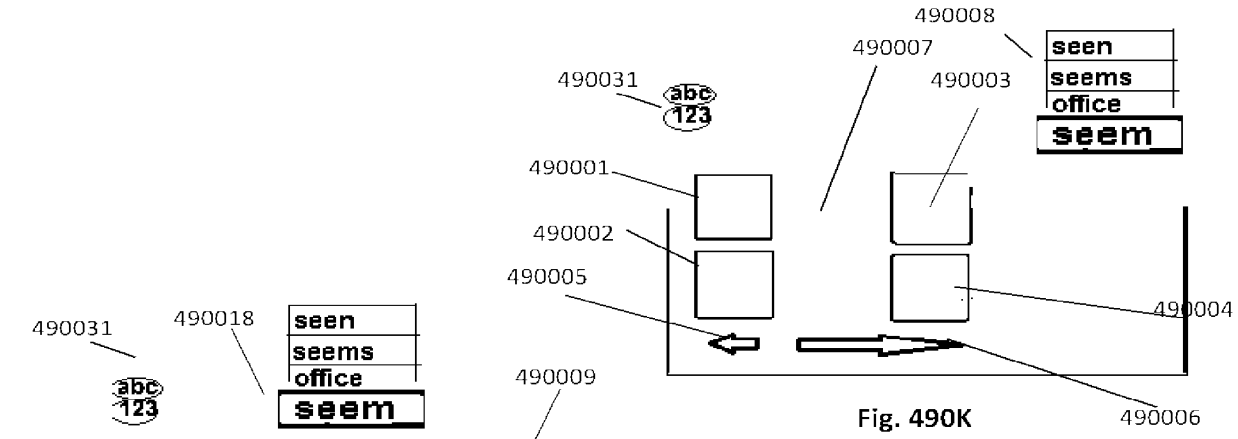


Fig. 490K

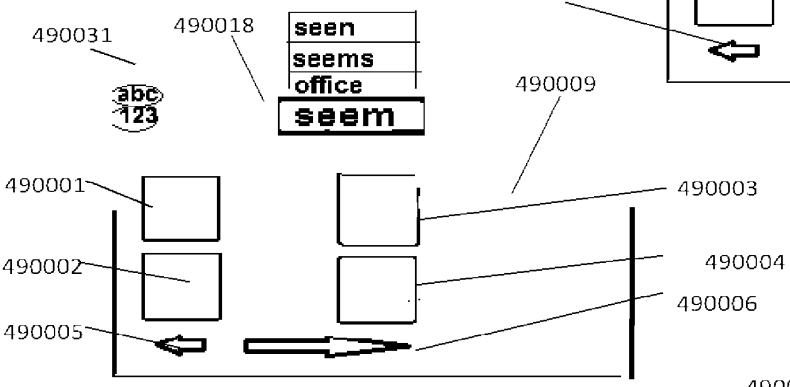


Fig. 490L

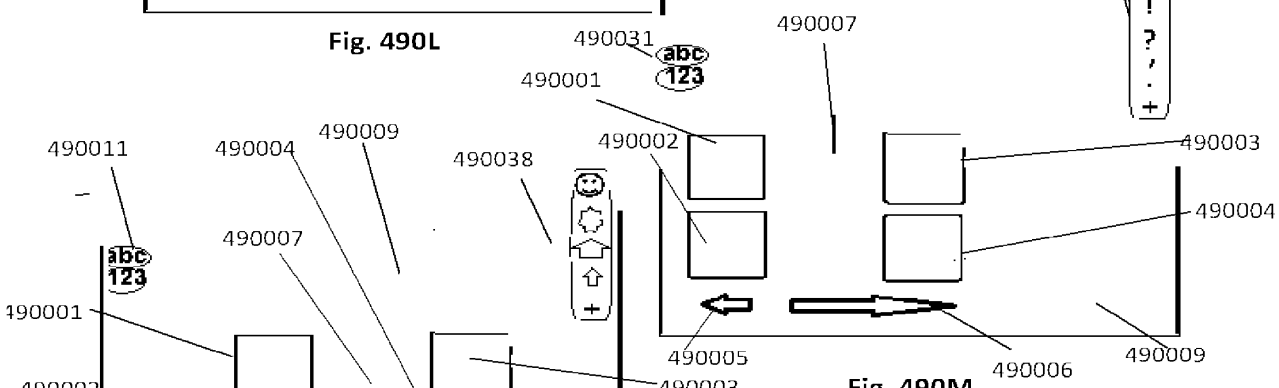


Fig. 490M

Fig. 490N

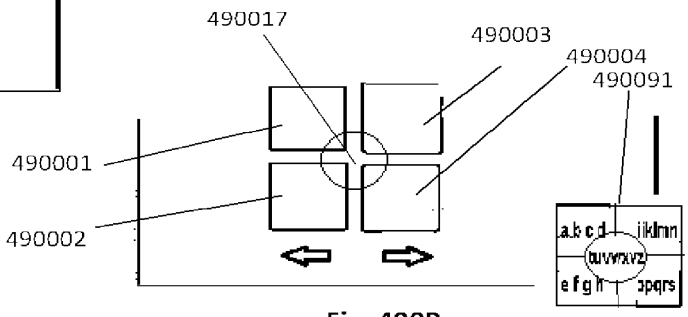


Fig. 490P

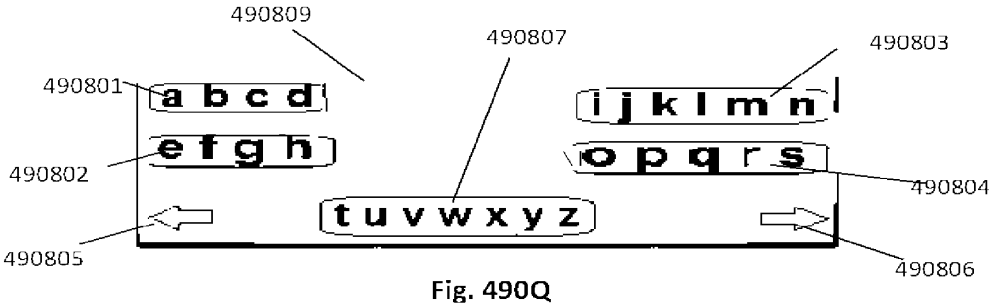


Fig. 490Q

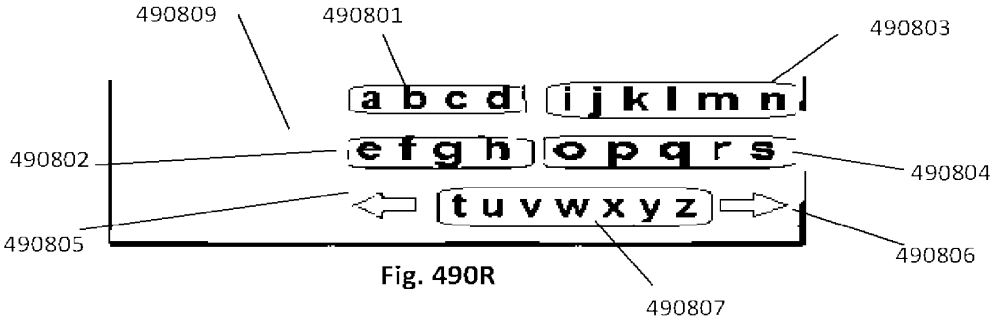
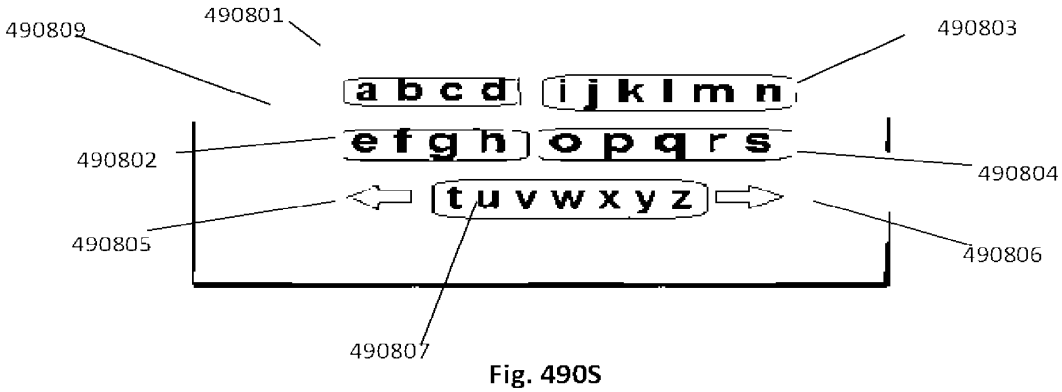


Fig. 490R



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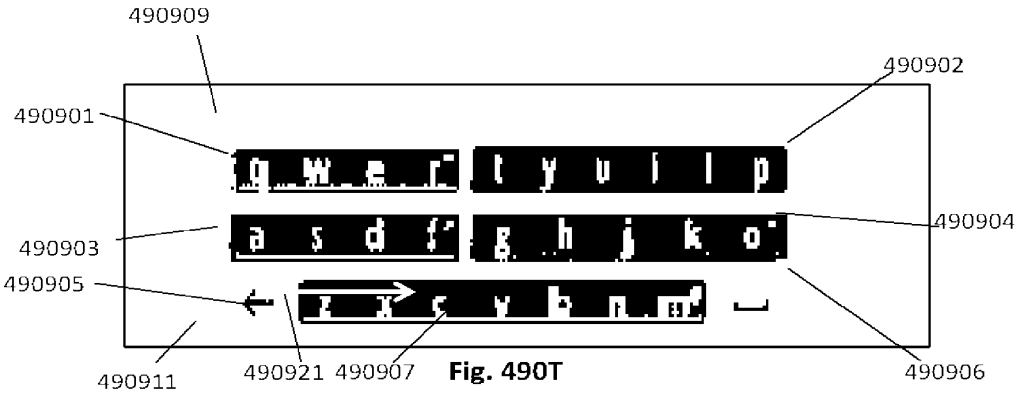


Fig. 490T

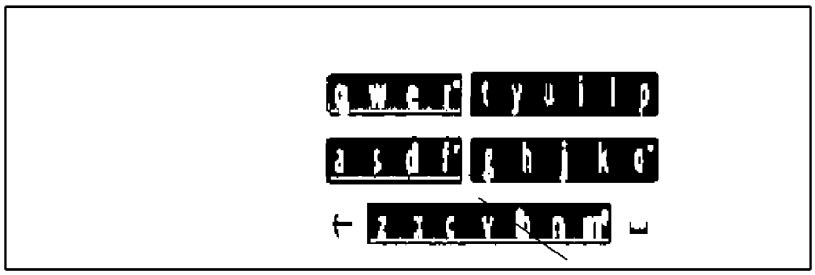


Fig. 490U

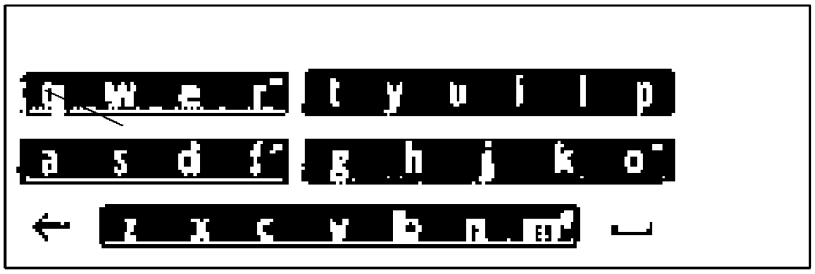


Fig. 490V

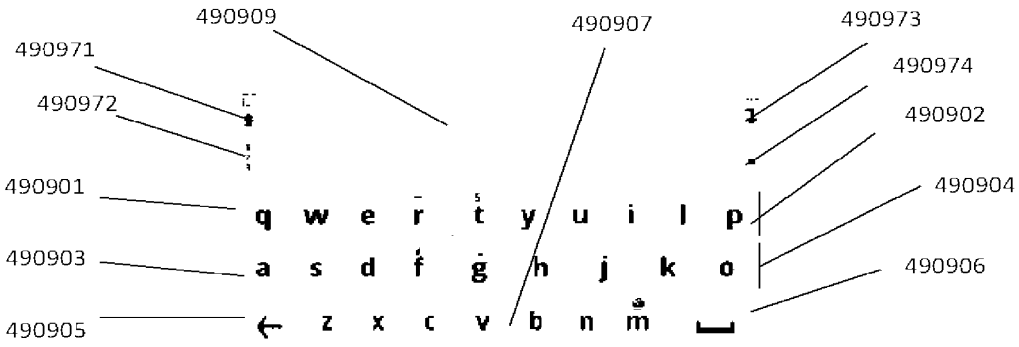


Fig. 490W

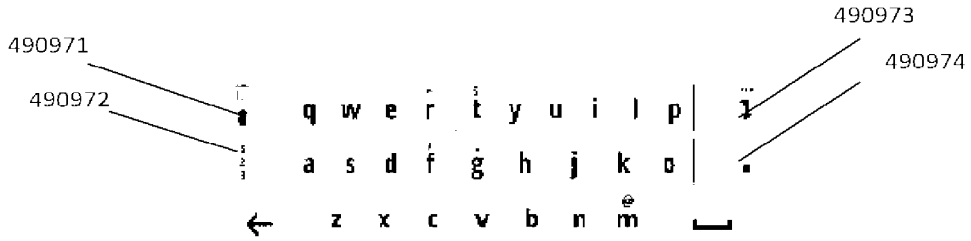


Fig. 490X

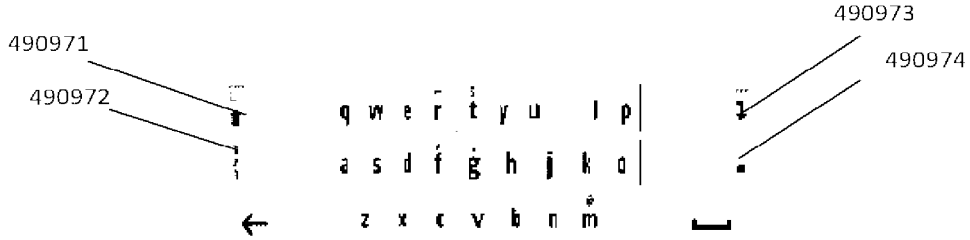


Fig. 490Y

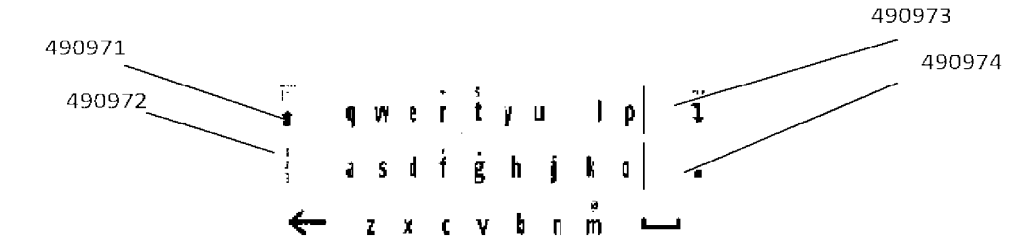


Fig. 490Z1

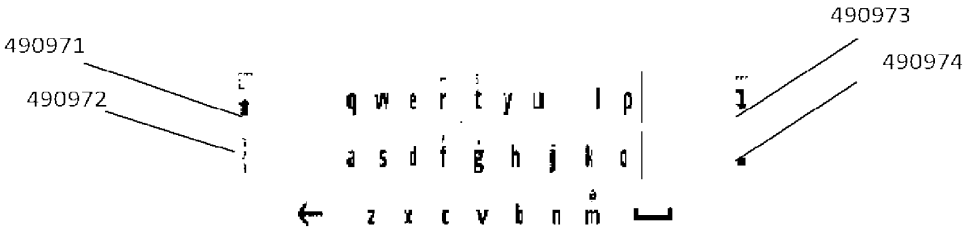


Fig. 490Z2

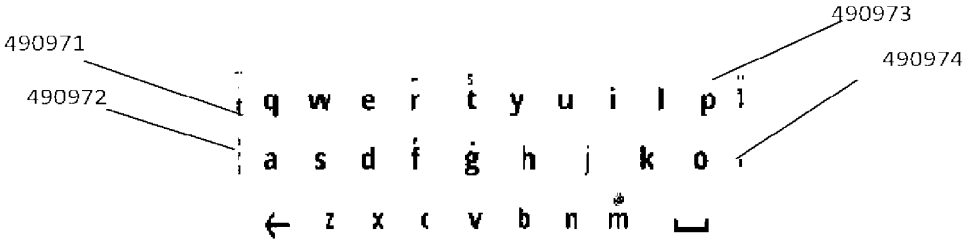


Fig. 490Z3

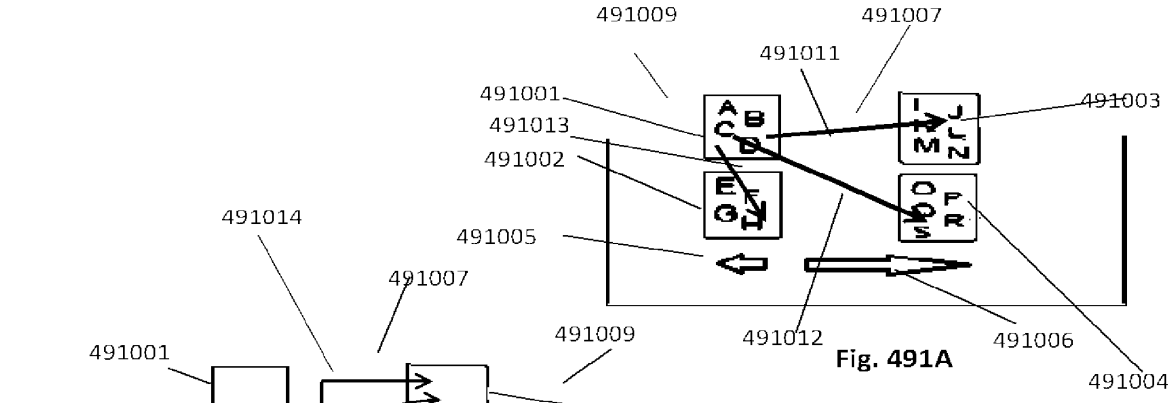


Fig. 491A

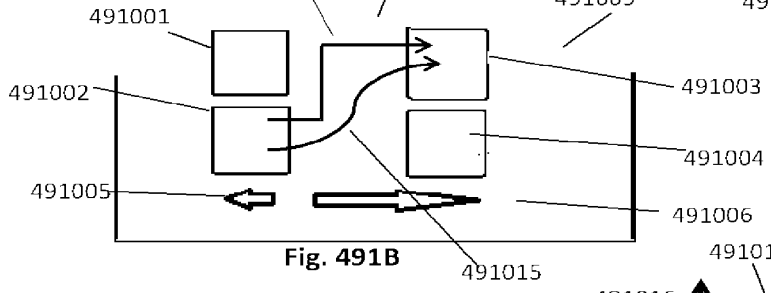


Fig. 491B

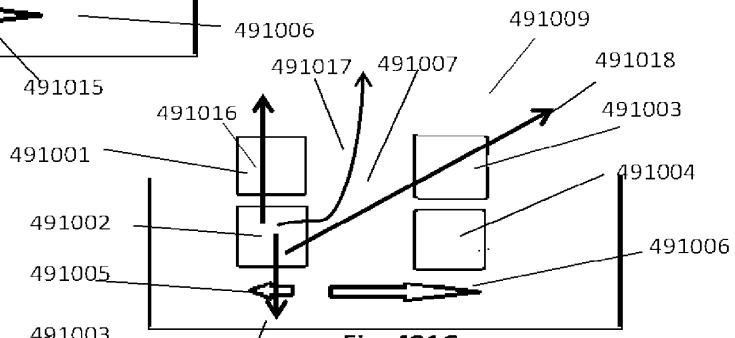


Fig. 491C

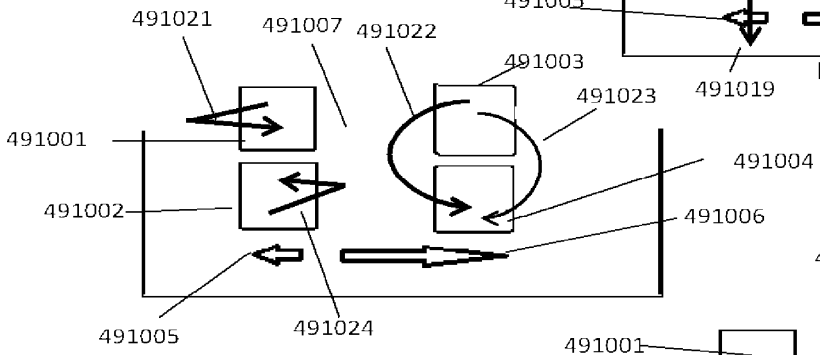


Fig. 491D

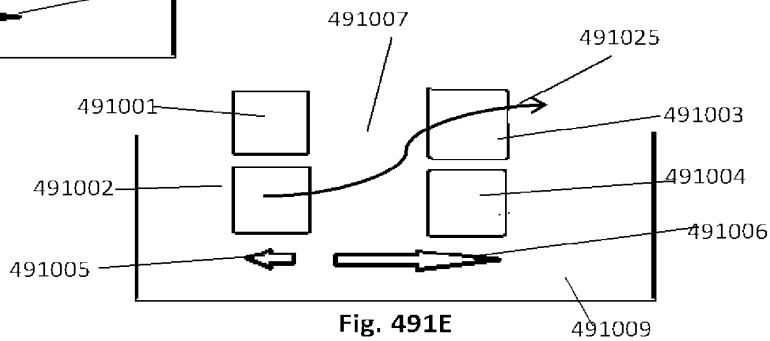


Fig. 491E

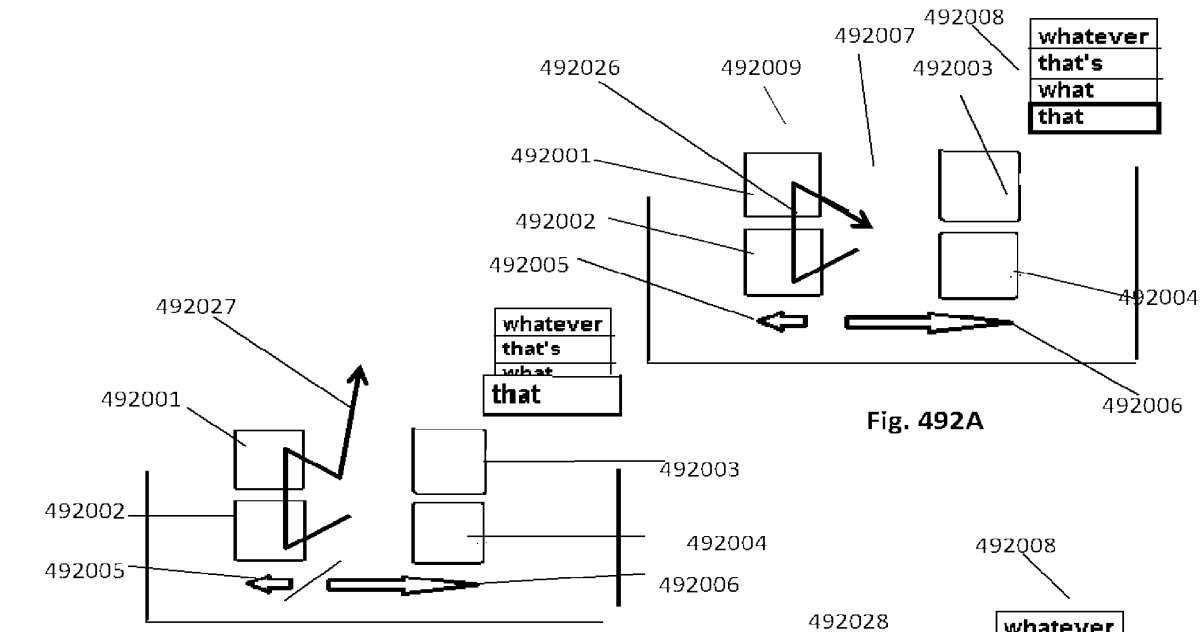


Fig. 492A

Fig. 492B

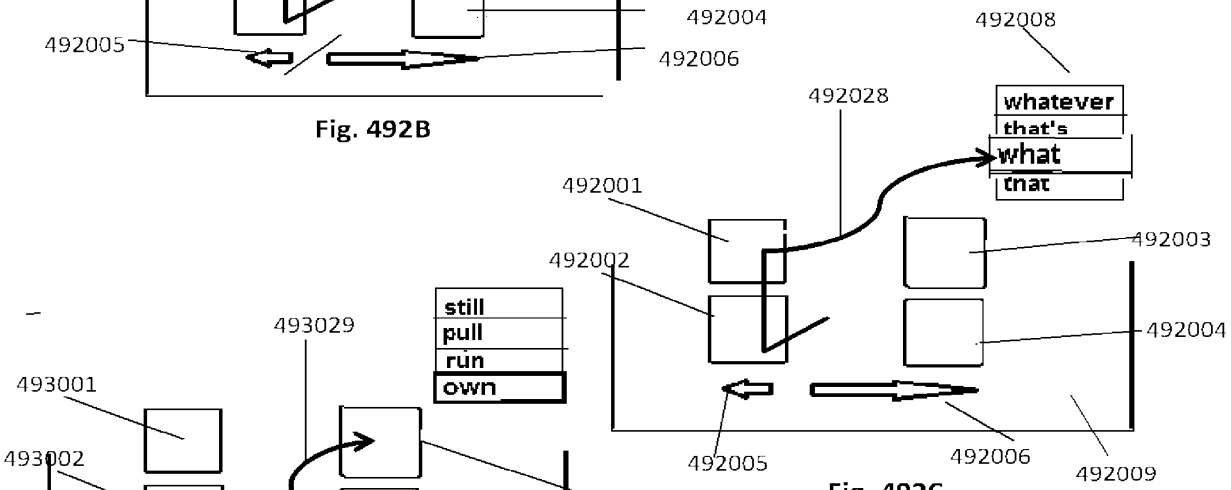


Fig. 492C

Fig. 493A

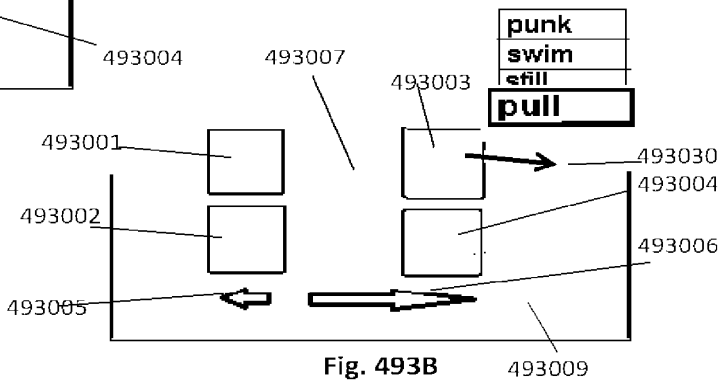


Fig. 493B

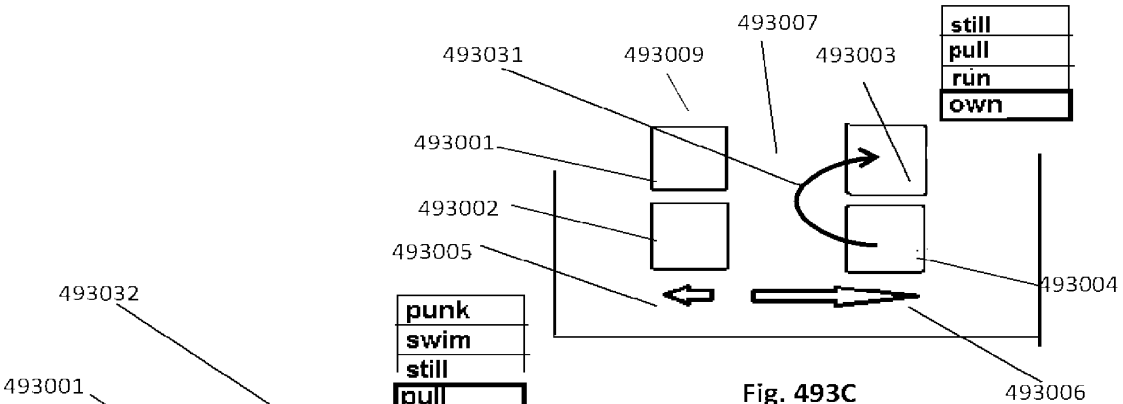
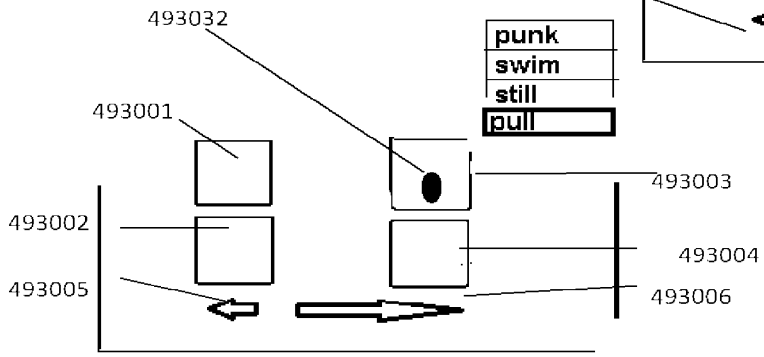


Fig. 493C



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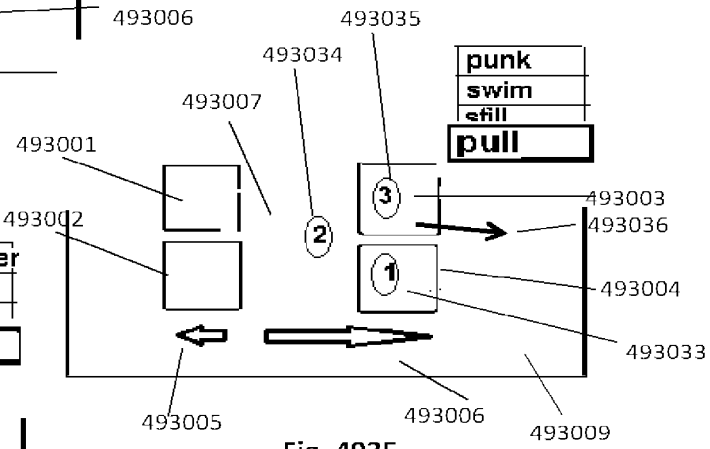


Fig. 493E

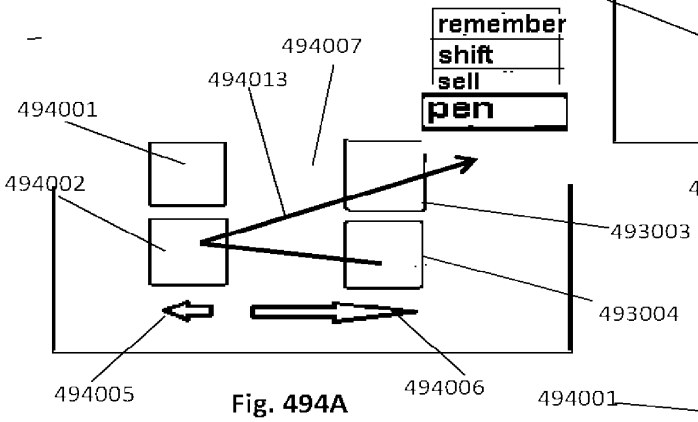


Fig. 494A

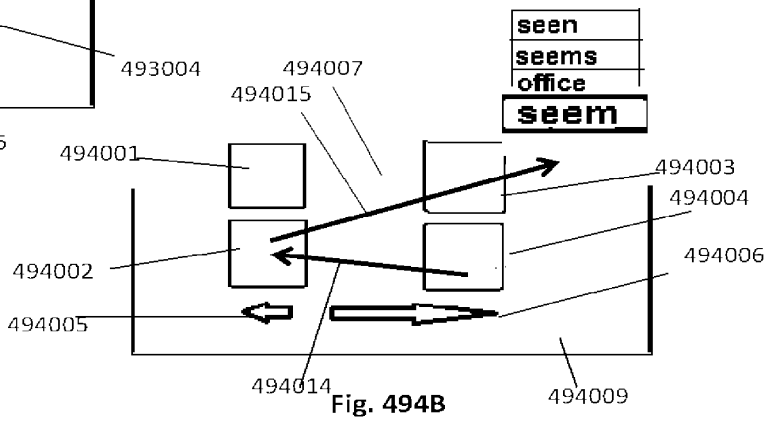


Fig. 494B

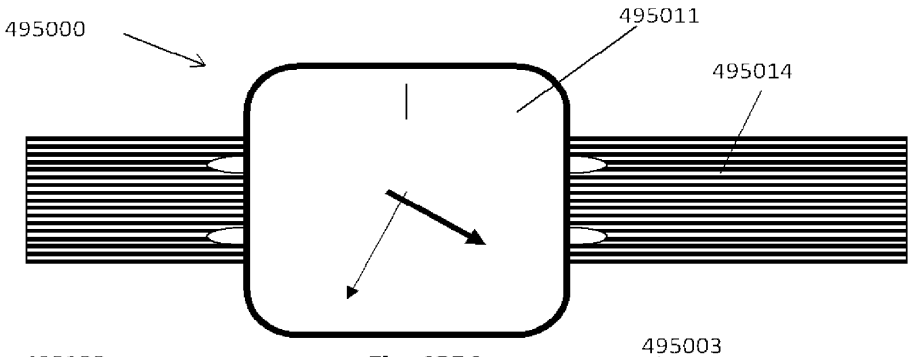


Fig. 495A

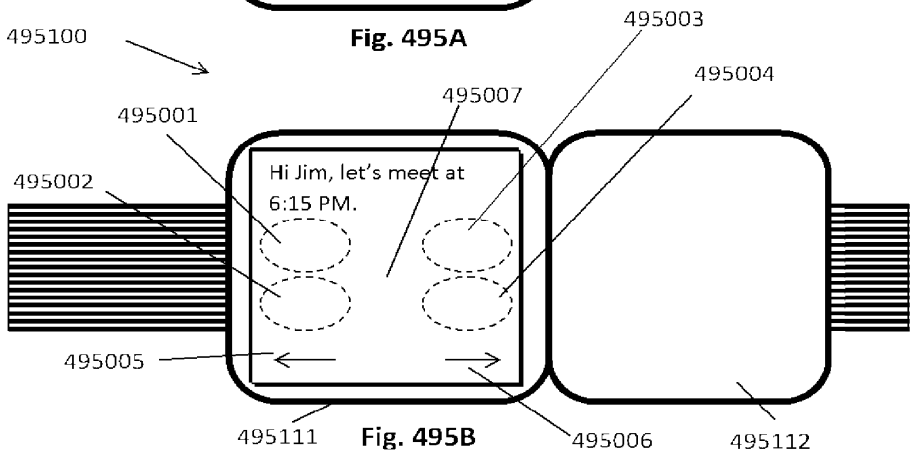


Fig. 495B

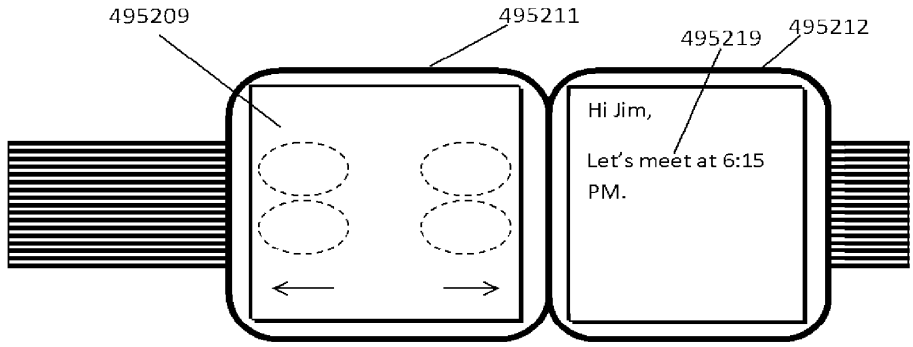


Fig. 495C

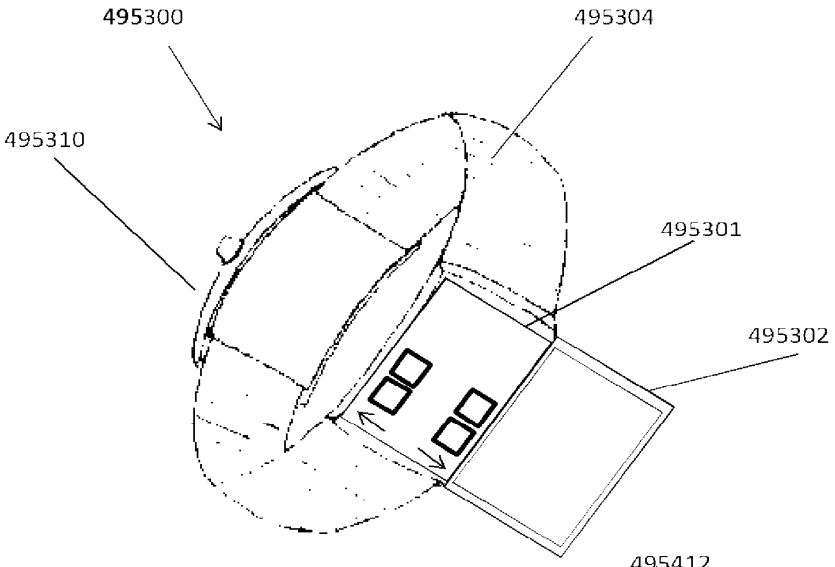


Fig. 495D

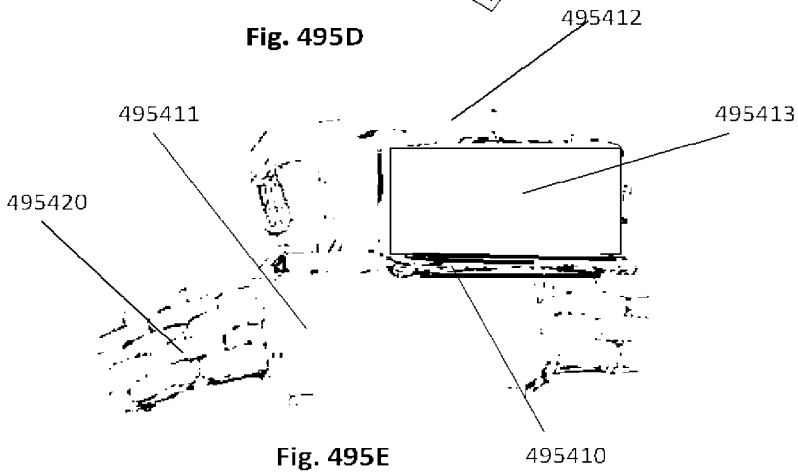


Fig. 495E

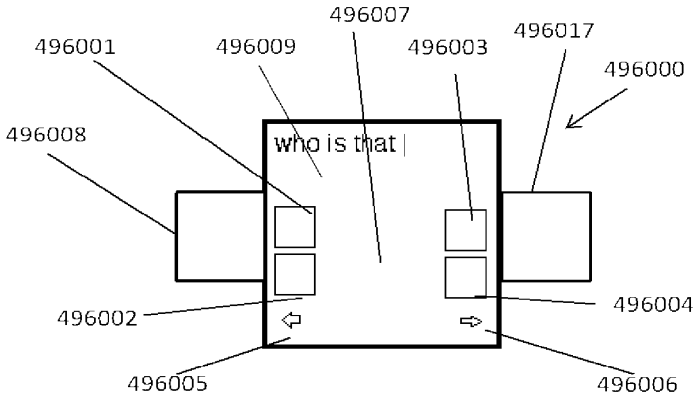


Fig. 496A

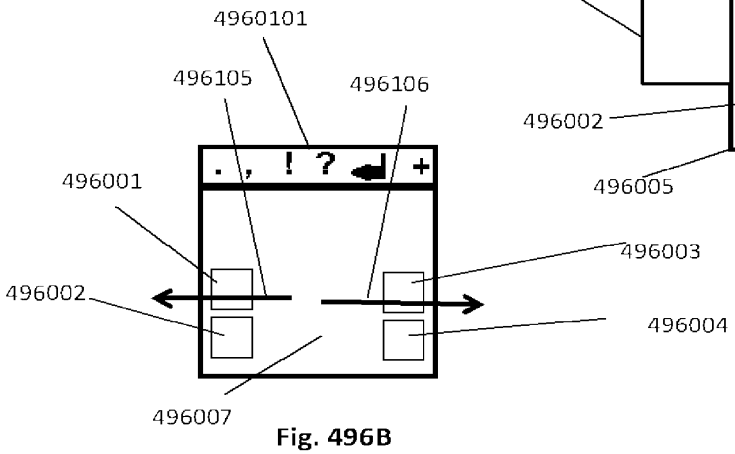


Fig. 496B

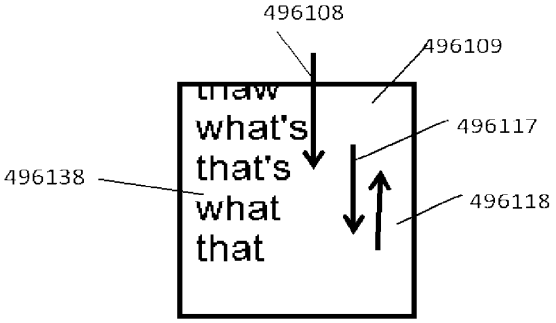


Fig. 496C

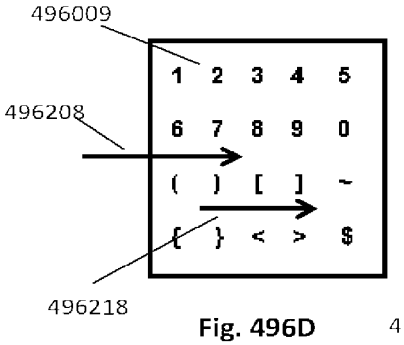


Fig. 496D

496006

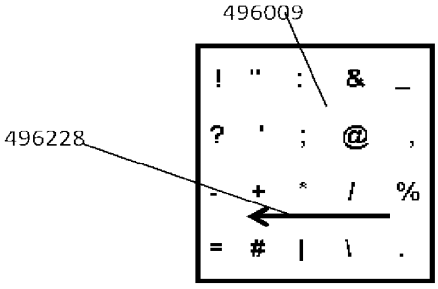


Fig. 496E

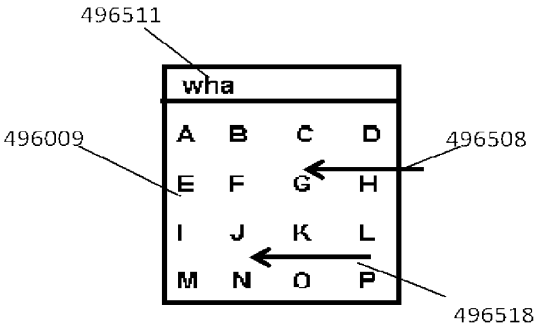


Fig. 496F

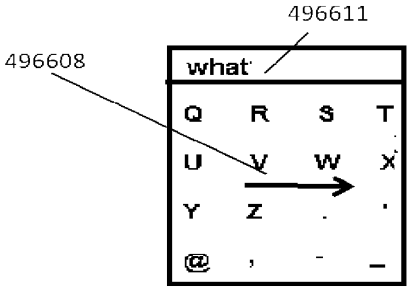


Fig. 496G

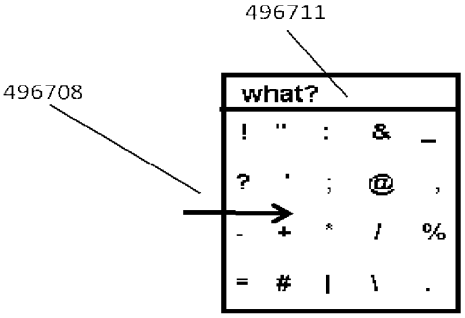


Fig. 496H

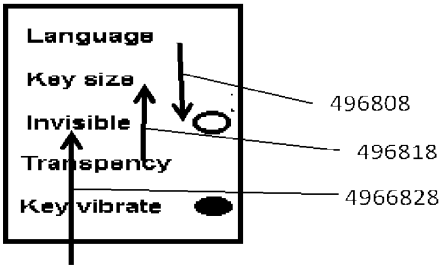


Fig. 496I

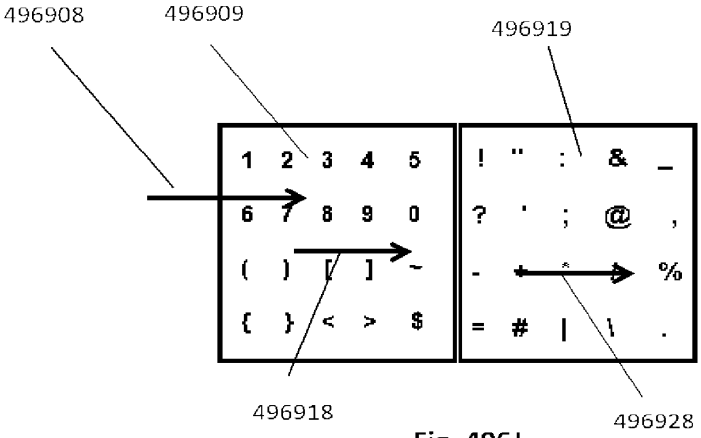
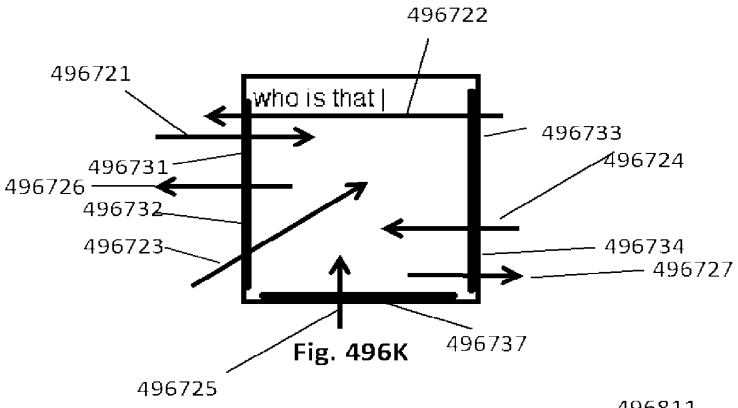


Fig. 496J



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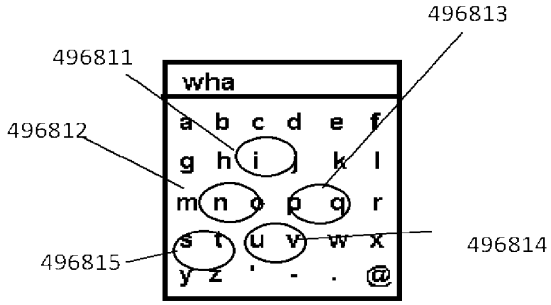

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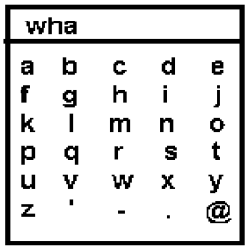

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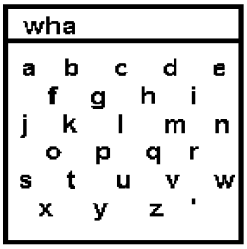

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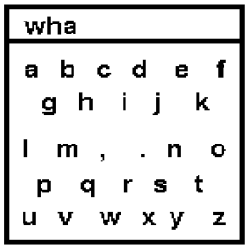

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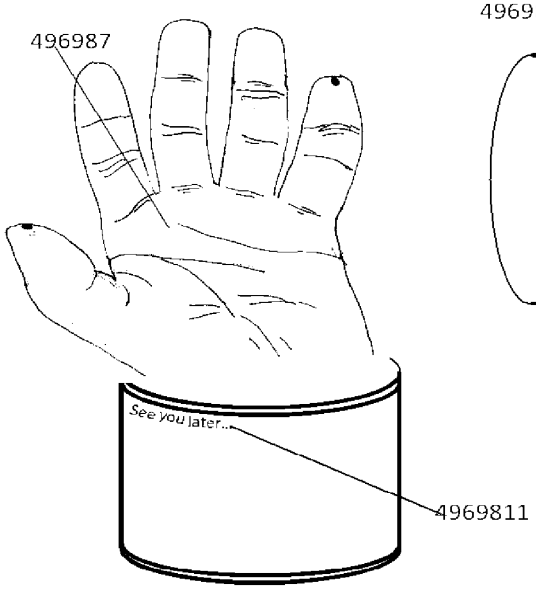
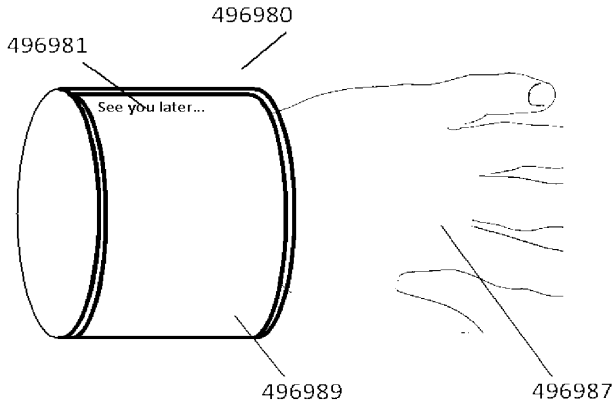


Fig. 496Q



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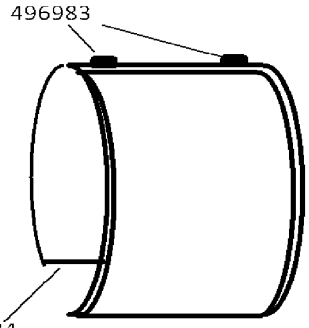

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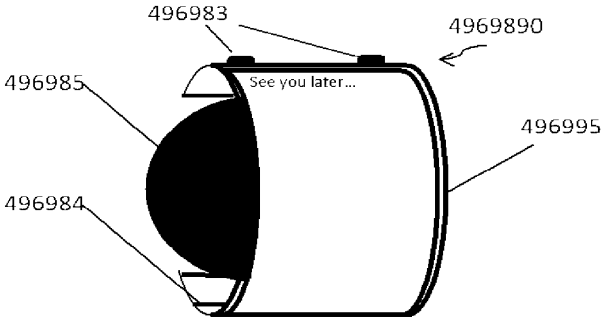


Fig. 496S

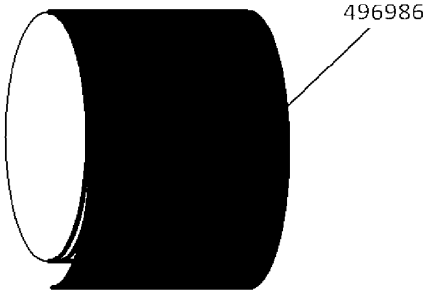


Fig. 496T

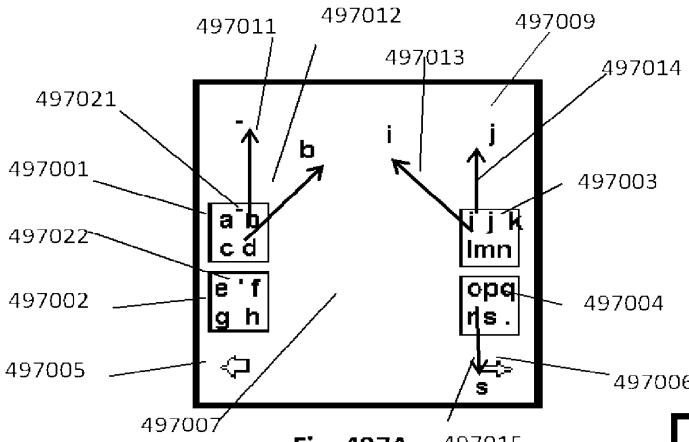


Fig. 497A

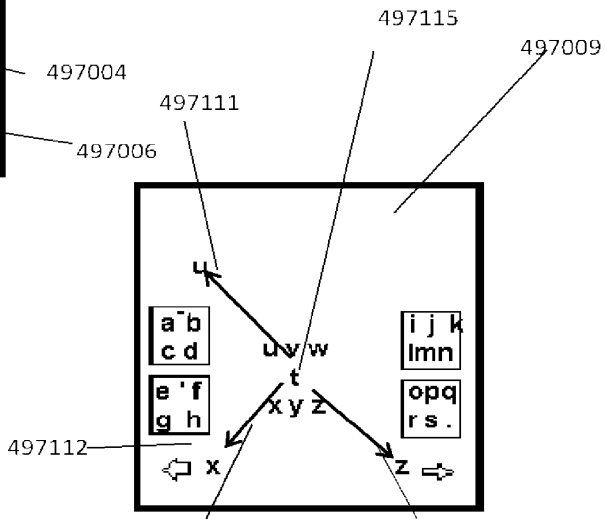


Fig. 497B

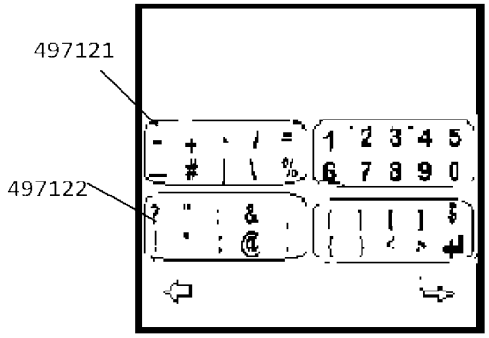
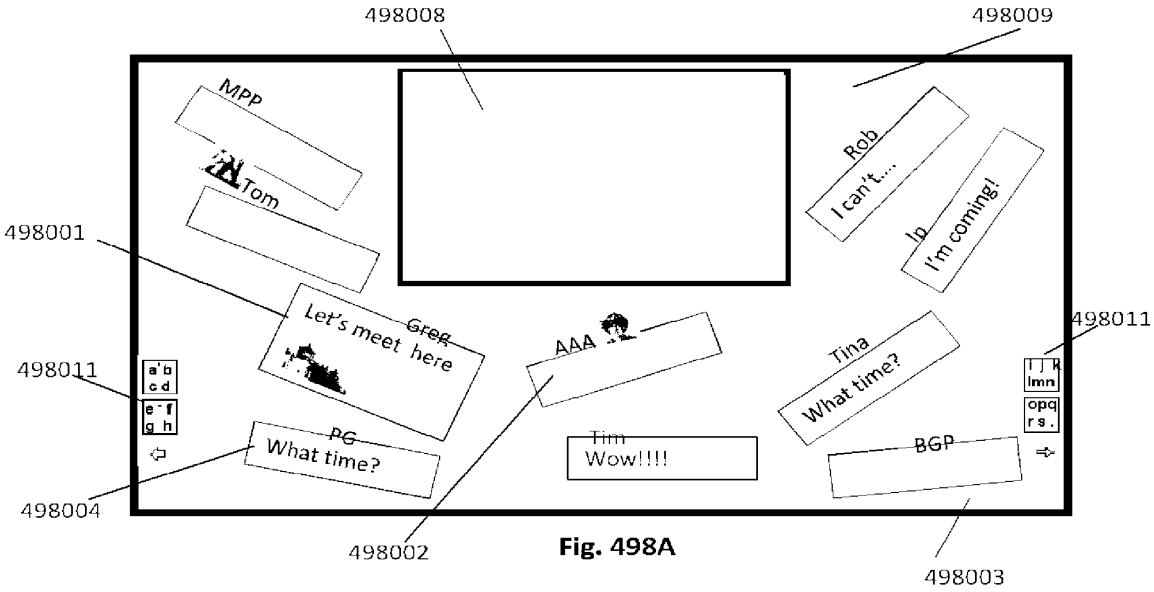


Fig. 497C



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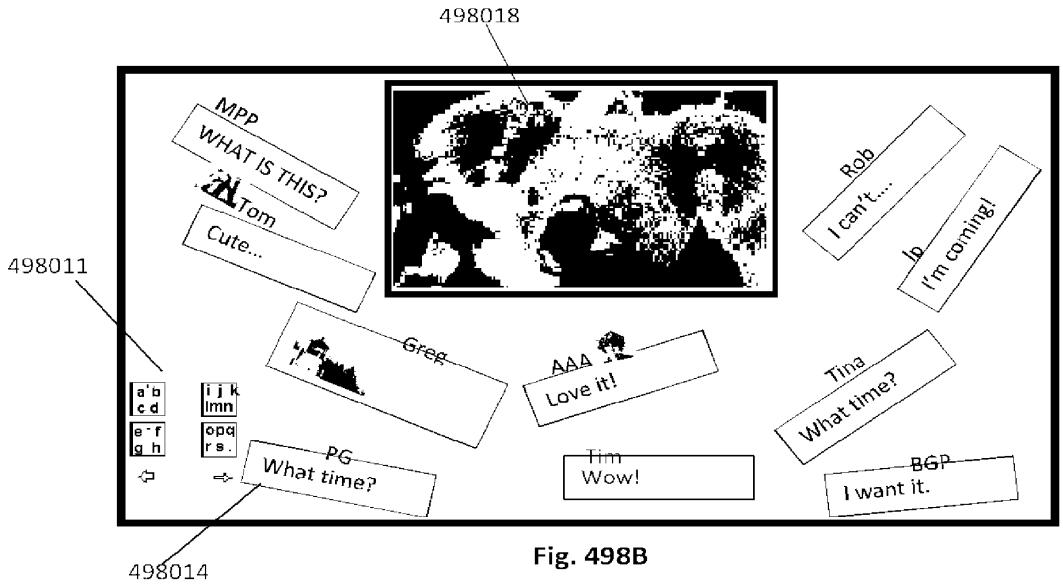


Fig. 498B

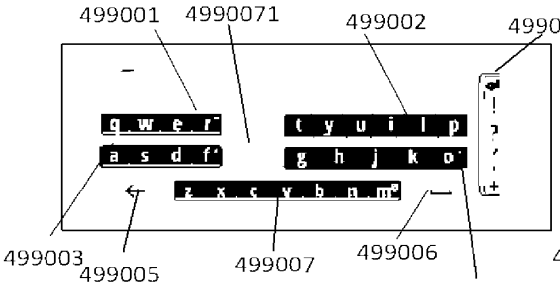
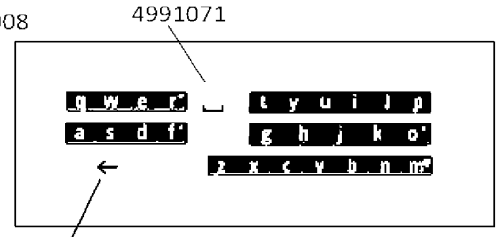


Fig. 499A



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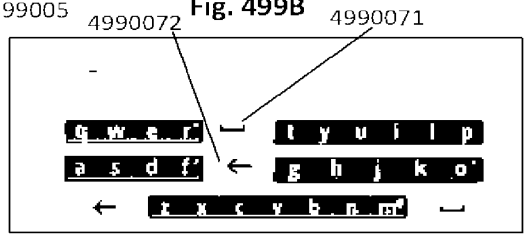


Fig. 499A1

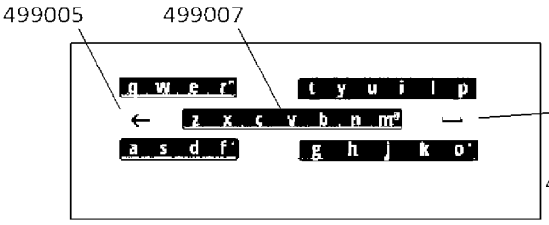


Fig. 499C

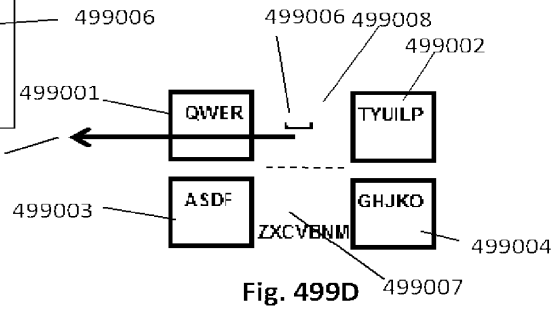


Fig. 499D

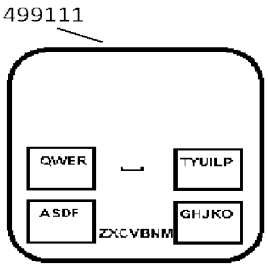


Fig. 499F

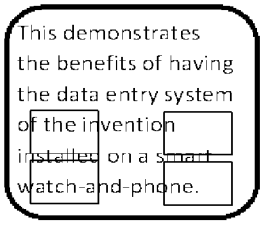


Fig. 499G

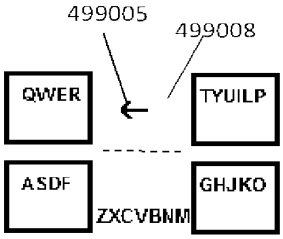


Fig. 499E

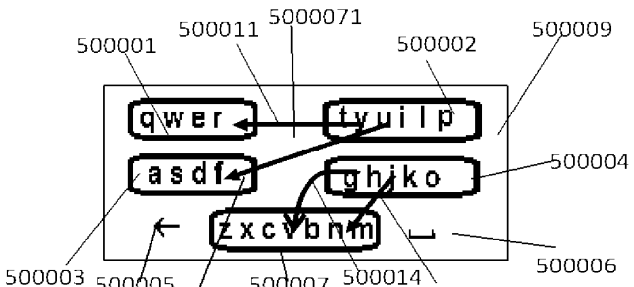


Fig. 500A

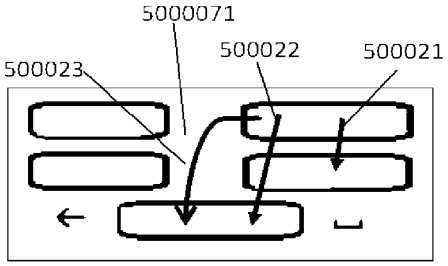


Fig. 500B

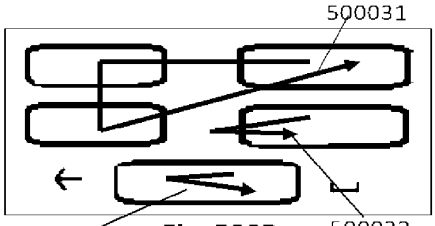


Fig. 500D

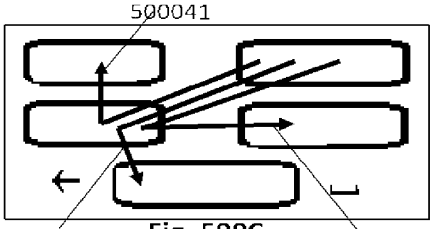


Fig. 500C

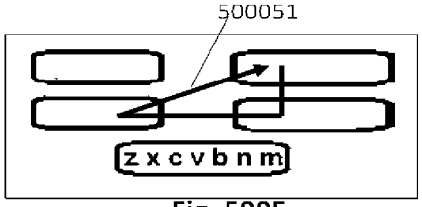


Fig. 500E

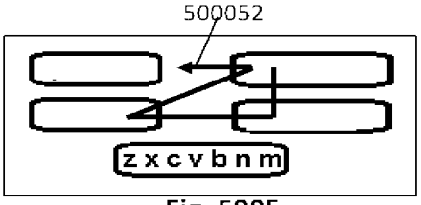


Fig. 500F

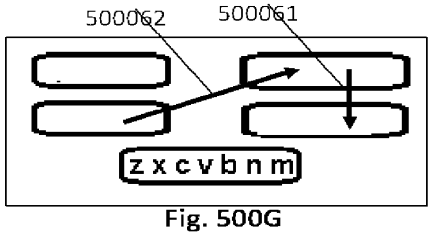


Fig. 500G

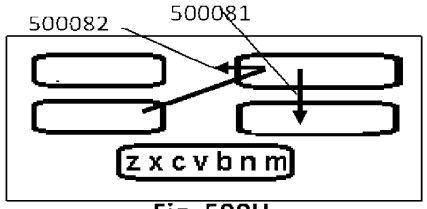


Fig. 500H

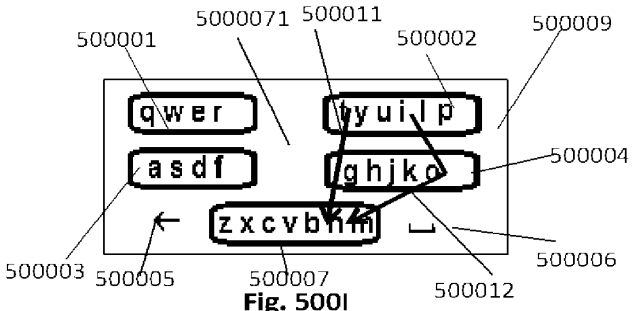


Fig. 500I

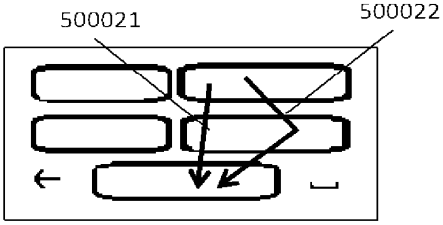


Fig. 500J

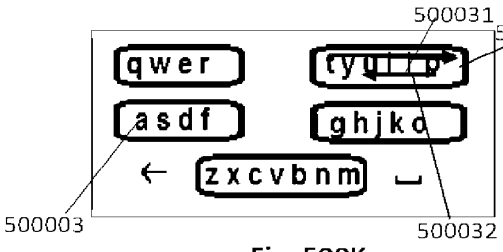


Fig. 500K

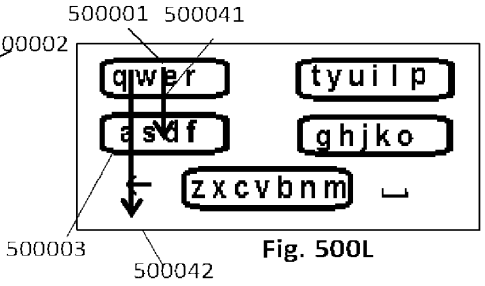


Fig. 500L

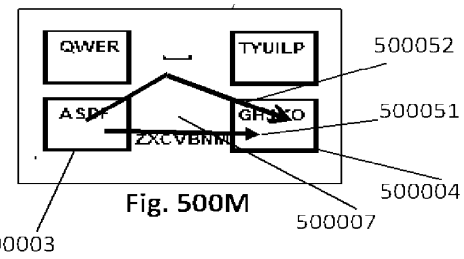


Fig. 500M

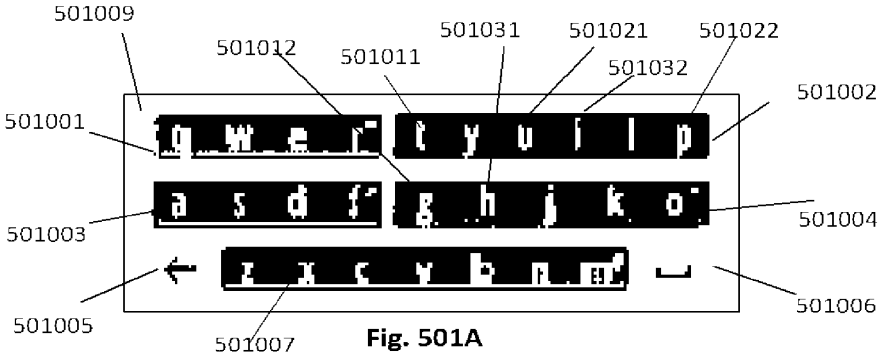


Fig. 501A

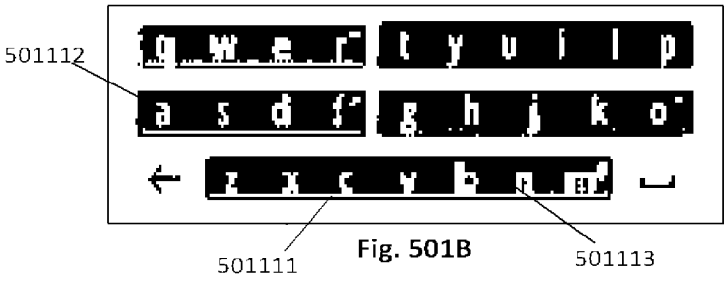


Fig. 501B

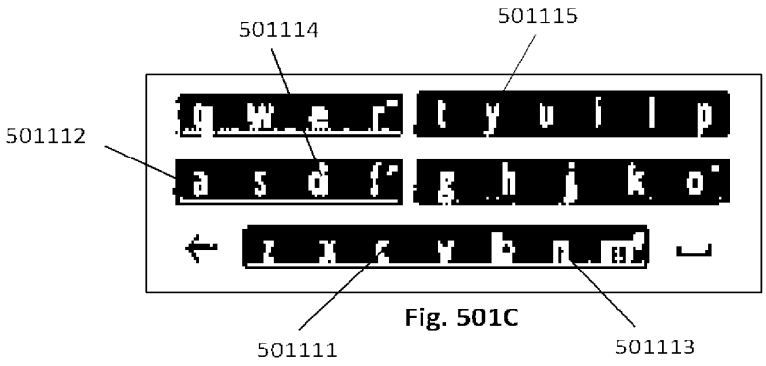
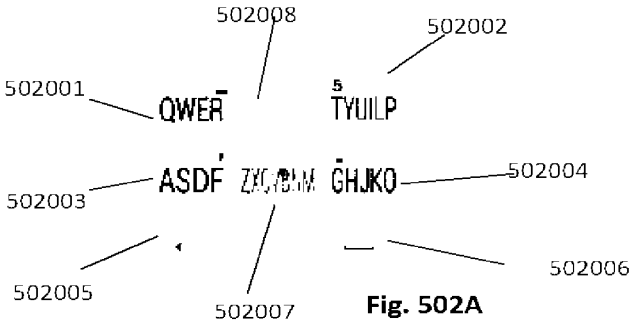


Fig. 501C



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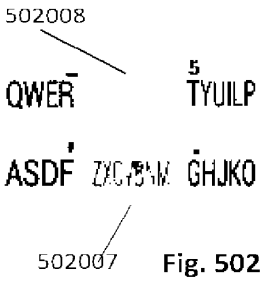


Fig. 502B

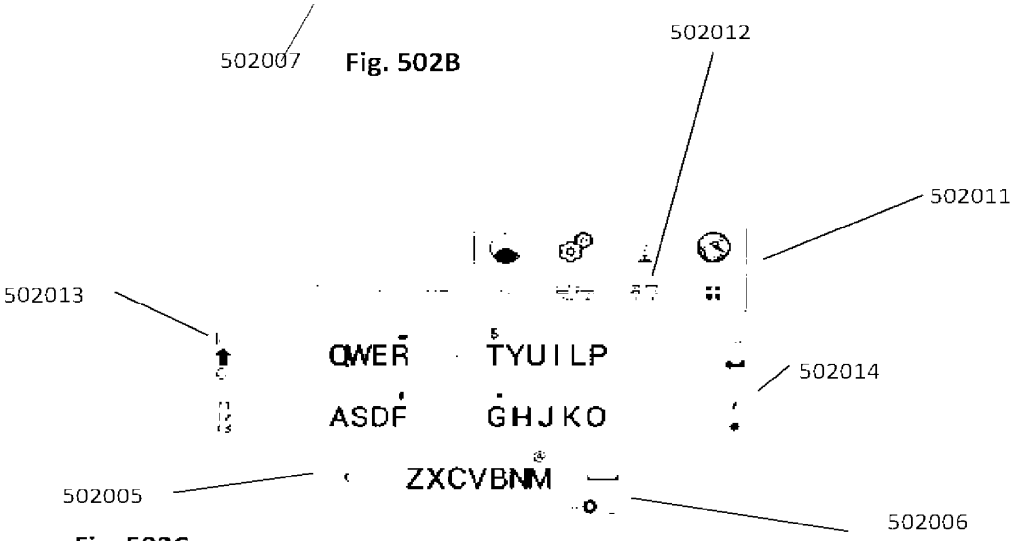


Fig. 502C

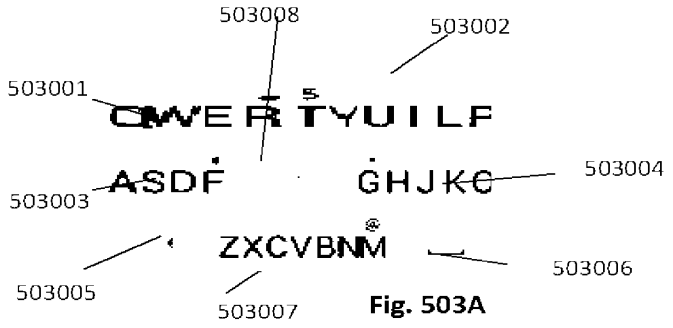


Fig. 503A

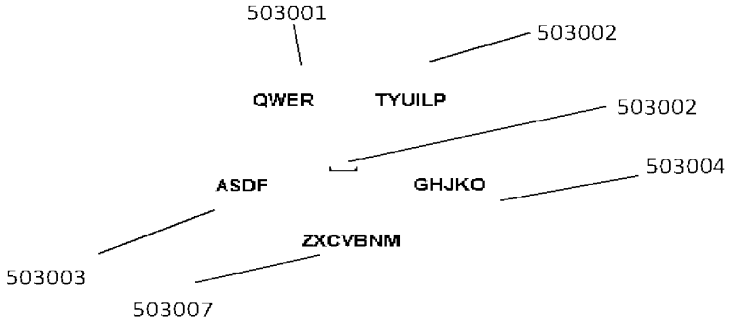


Fig. 503B

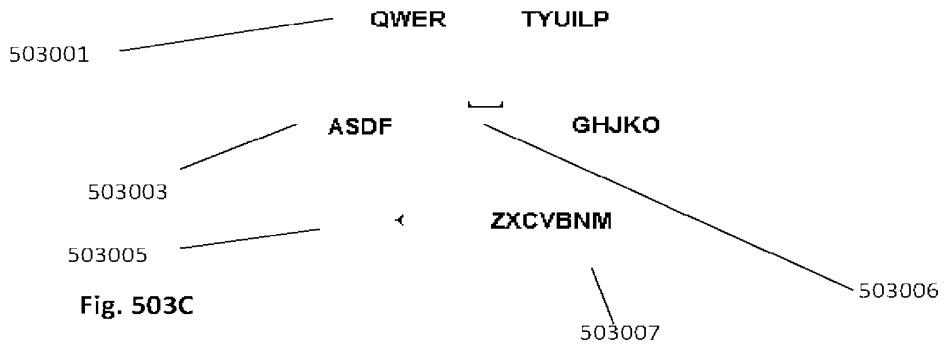


Fig. 503C

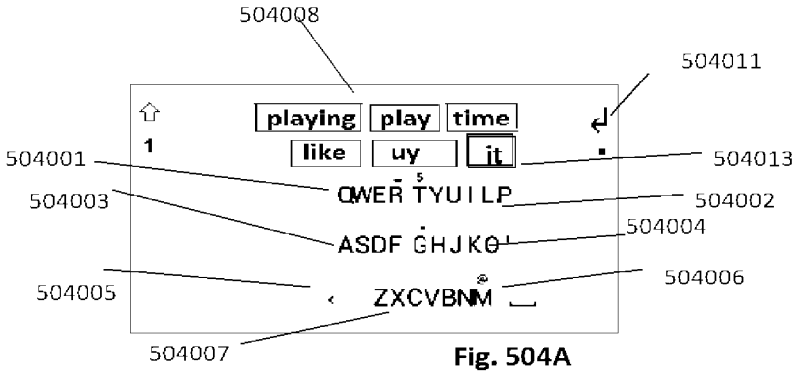


Fig. 504A

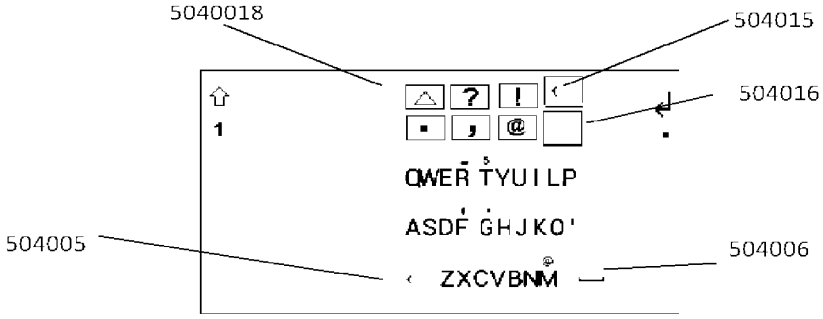
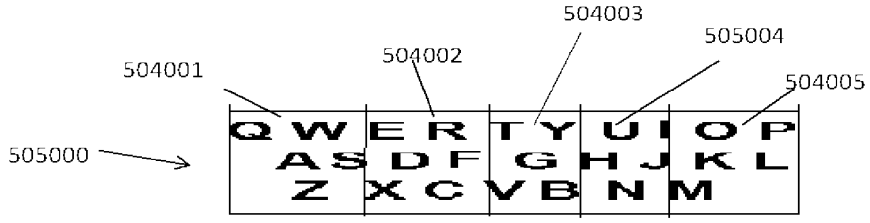


Fig. 504B



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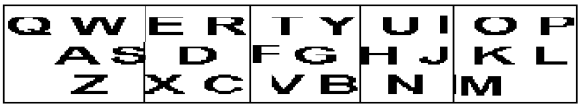

Fig. 505B

Fig. 505C

Fig. 505D

Fig. 505E

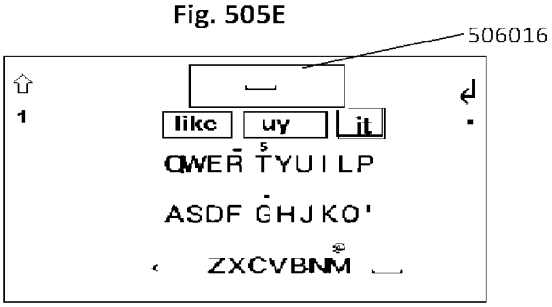

Fig. 506A

Fig. 507A

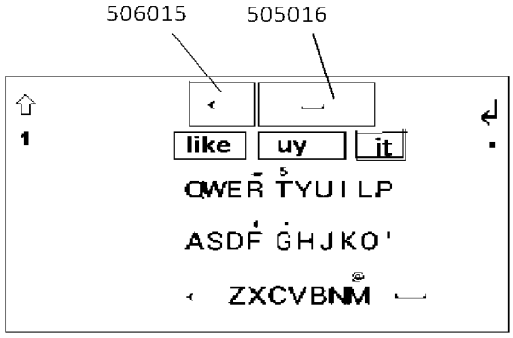

Fig. 506B

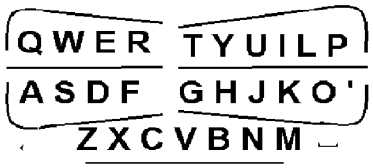

Fig. 507B

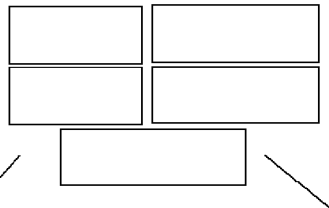

Fig. 508A

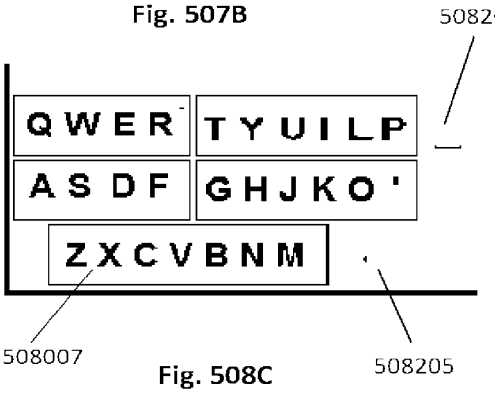

Fig. 508C

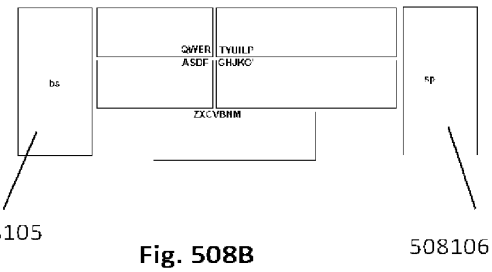

Fig. 508B

PCT REQUEST

Original (for **SUBMISSION**)

0	**For receiving Office use only**	
0-1	International Application No.	PCT/US14/16777
0-2	International Filing Date	18 FEBRUARY 2014 (18.02.14)
0-3	Name of receiving Office and "PCT International Application"	PCT INTERNATIONAL APPLICATION RO/US

0-4	**Form PCT/RO/101 PCT Request**	
0-4-1	Prepared Using	PCT-SAFE [EASY/EFS-Web mode] Version 3.51.061.237 MT/FOP 20140101/0.20.5.21
0-5	**Petition** The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	**Receiving Office (specified by the applicant)**	United States Patent and Trademark Office (USPTO) (RO/US)
0-7	**Applicant's or agent's file reference**	2104-052-PCT
I	**Title of Invention**	IMPROVED DATA ENTRY SYSTEMS
II	**Applicant**	
II-1	This person is	Applicant only
II-2	Applicant for	All designated States
II-4	Name	KEYLESS SYSTEMS LTD.
II-5	Address	2 Yosef Hachmy Street 96428 Jerusalem Israel
II-6	State of nationality	IL
II-7	State of residence	IL
II-8	Telephone No.	+972-2-6449001
II-9	Facsimile No.	+972-2-6449003
III-1	**Applicant and/or inventor**	
III-1-1	This person is	Applicant only
III-1-2	Applicant for	AP: (SD); SD
III-1-4	Name (LAST, First)	KLEIN, David
III-1-5	Address	18 Menuha VeNahala Street 76209 Rehovot Israel
III-1-6	State of nationality	US
III-1-7	State of residence	IL

PCT REQUEST

Original (for **SUBMISSION**)

III-2	**Applicant and/or inventor**	
III-2-1	This person is	Inventor only
III-2-3	Inventor for	
III-2-4	Name (LAST, First)	GHASSABIAN, Benjamin
III-2-5	Address	12/6 Hadishon Street 96956 Jerusalem Israel
IV-1	**Agent or common representative; or address for correspondence**	
	The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name (LAST, First)	KLEIN, David
IV-1-2	Address	18 Menuha VeNahala Street 76209 Rehovot Israel
IV-1-3	Telephone No.	+972-8-9495334
IV-1-4	Facsimile No.	+972-8-9495323
IV-1-5	e-mail	dekelltd@netvision.net.il
IV-1-5(a)	E-mail authorization The receiving Office, the International Searching Authority, the International Bureau and the International Preliminary Examining Authority are authorized to use this e-mail address, if the Office or Authority so wishes, to send notifications issued in respect of this international application:	exclusively in electronic form (no paper notifications will be sent)
IV-1-6	Agent's registration No.	41118
V	**DESIGNATIONS**	
V-1	**The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.**	
VI-1	**Priority claim of earlier national application**	
VI-1-1	Filing date	17 February 2013 (17.02.2013)
VI-1-2	Number	61/765,751
VI-1-3	Country	US
VI-2	**Priority claim of earlier national application**	
VI-2-1	Filing date	19 February 2013 (19.02.2013)
VI-2-2	Number	61/766,747
VI-2-3	Country	US

VI-3	**Priority claim of earlier national application**	
VI-3-1	Filing date	26 February 2013 (26.02.2013)
VI-3-2	Number	61/769,285
VI-3-3	Country	US
VI-4	**Priority claim of earlier national application**	
VI-4-1	Filing date	04 March 2013 (04.03.2013)
VI-4-2	Number	61/772,066
VI-4-3	Country	US
VI-5	**Priority claim of earlier national application**	
VI-5-1	Filing date	08 March 2013 (08.03.2013)
VI-5-2	Number	61/774,605
VI-5-3	Country	US
VI-6	**Priority claim of earlier national application**	
VI-6-1	Filing date	12 March 2013 (12.03.2013)
VI-6-2	Number	61/777,102
VI-6-3	Country	US
VI-7	**Priority claim of earlier national application**	
VI-7-1	Filing date	13 March 2013 (13.03.2013)
VI-7-2	Number	61/778,888
VI-7-3	Country	US
VI-8	**Priority claim of earlier national application**	
VI-8-1	Filing date	17 March 2013 (17.03.2013)
VI-8-2	Number	61/802,690
VI-8-3	Country	US
VI-9	**Priority claim of earlier national application**	
VI-9-1	Filing date	20 March 2013 (20.03.2013)
VI-9-2	Number	61/803,456
VI-9-3	Country	US
VI-10	**Priority claim of earlier national application**	
VI-10-1	Filing date	24 March 2013 (24.03.2013)
VI-10-2	Number	61/804,681
VI-10-3	Country	US
VI-11	**Priority claim of earlier national application**	
VI-11-1	Filing date	11 April 2013 (11.04.2013)
VI-11-2	Number	61/810,805
VI-11-3	Country	US

VI-12	**Priority claim of earlier national application**	
VI-12-1	Filing date	14 April 2013 (14.04.2013)
VI-12-2	Number	61/811,756
VI-12-3	Country	US
VI-13	**Priority claim of earlier national application**	
VI-13-1	Filing date	18 April 2013 (18.04.2013)
VI-13-2	Number	61/813,271
VI-13-3	Country	US
VI-14	**Priority claim of earlier national application**	
VI-14-1	Filing date	21 April 2013 (21.04.2013)
VI-14-2	Number	61/814,290
VI-14-3	Country	US
VI-15	**Priority claim of earlier national application**	
VI-15-1	Filing date	05 May 2013 (05.05.2013)
VI-15-2	Number	61/819,598
VI-15-3	Country	US
VI-16	**Priority claim of earlier national application**	
VI-16-1	Filing date	09 May 2013 (09.05.2013)
VI-16-2	Number	61/821,331
VI-16-3	Country	US
VI-17	**Priority claim of earlier national application**	
VI-17-1	Filing date	14 May 2013 (14.05.2013)
VI-17-2	Number	61/822,934
VI-17-3	Country	US
VI-18	**Priority claim of earlier national application**	
VI-18-1	Filing date	16 May 2013 (16.05.2013)
VI-18-2	Number	61/823,971
VI-18-3	Country	US
VI-19	**Priority claim of earlier national application**	
VI-19-1	Filing date	17 May 2013 (17.05.2013)
VI-19-2	Number	61/825,049
VI-19-3	Country	US
VI-20	**Priority claim of earlier national application**	
VI-20-1	Filing date	24 May 2013 (24.05.2013)
VI-20-2	Number	61/827,020
VI-20-3	Country	US

VI-21	**Priority claim of earlier national application**	
VI-21-1	Filing date	02 June 2013 (02.06.2013)
VI-21-2	Number	61/830,114
VI-21-3	Country	US
VI-22	**Priority claim of earlier national application**	
VI-22-1	Filing date	11 June 2013 (11.06.2013)
VI-22-2	Number	61/833,512
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VI-23	**Priority claim of earlier national application**	
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VI-24	**Priority claim of earlier national application**	
VI-24-1	Filing date	14 June 2013 (14.06.2013)
VI-24-2	Number	61/834,889
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VI-25	**Priority claim of earlier national application**	
VI-25-1	Filing date	17 June 2013 (17.06.2013)
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VI-25-3	Country	US
VI-26	**Priority claim of earlier national application**	
VI-26-1	Filing date	21 June 2013 (21.06.2013)
VI-26-2	Number	61/837,662
VI-26-3	Country	US
VI-27	**Priority claim of earlier national application**	
VI-27-1	Filing date	23 June 2013 (23.06.2013)
VI-27-2	Number	61/838,288
VI-27-3	Country	US
VI-28	**Priority claim of earlier national application**	
VI-28-1	Filing date	24 June 2013 (24.06.2013)
VI-28-2	Number	61/838,403
VI-28-3	Country	US
VI-29	**Priority claim of earlier national application**	
VI-29-1	Filing date	30 June 2013 (30.06.2013)
VI-29-2	Number	61/841,360
VI-29-3	Country	US

VI-30	**Priority claim of earlier national application**	
VI-30-1	Filing date	07 July 2013 (07.07.2013)
VI-30-2	Number	61/843,391
VI-30-3	Country	US
VI-31	**Priority claim of earlier national application**	
VI-31-1	Filing date	14 July 2013 (14.07.2013)
VI-31-2	Number	61/846,030
VI-31-3	Country	US
VI-32	**Priority claim of earlier national application**	
VI-32-1	Filing date	25 July 2013 (25.07.2013)
VI-32-2	Number	61/858,210
VI-32-3	Country	US
VI-33	**Priority claim of earlier national application**	
VI-33-1	Filing date	31 July 2013 (31.07.2013)
VI-33-2	Number	61/860,396
VI-33-3	Country	US
VI-34	**Priority claim of earlier national application**	
VI-34-1	Filing date	13 August 2013 (13.08.2013)
VI-34-2	Number	61/865,254
VI-34-3	Country	US
VI-35	**Priority claim of earlier national application**	
VI-35-1	Filing date	15 August 2013 (15.08.2013)
VI-35-2	Number	61/866,119
VI-35-3	Country	US
VI-36	**Priority claim of earlier national application**	
VI-36-1	Filing date	21 August 2013 (21.08.2013)
VI-36-2	Number	61/868,172
VI-36-3	Country	US
VI-37	**Priority claim of earlier national application**	
VI-37-1	Filing date	25 August 2013 (25.08.2013)
VI-37-2	Number	61/869,722
VI-37-3	Country	US
VI-38	**Priority claim of earlier national application**	
VI-38-1	Filing date	09 September 2013 (09.09.2013)
VI-38-2	Number	61/875,192
VI-38-3	Country	US

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VI-39-1	Filing date	17 September 2013 (17.09.2013)
VI-39-2	Number	61/878,695
VI-39-3	Country	US
VI-40	**Priority claim of earlier national application**	
VI-40-1	Filing date	18 September 2013 (18.09.2013)
VI-40-2	Number	61/879,152
VI-40-3	Country	US
VI-41	**Priority claim of earlier national application**	
VI-41-1	Filing date	25 September 2013 (25.09.2013)
VI-41-2	Number	61/882,160
VI-41-3	Country	US
VI-42	**Priority claim of earlier national application**	
VI-42-1	Filing date	21 October 2013 (21.10.2013)
VI-42-2	Number	61/893,291
VI-42-3	Country	US
VI-43	**Priority claim of earlier national application**	
VI-43-1	Filing date	03 November 2013 (03.11.2013)
VI-43-2	Number	61/899,240
VI-43-3	Country	US
VI-44	**Priority claim of earlier national application**	
VI-44-1	Filing date	10 November 2013 (10.11.2013)
VI-44-2	Number	61/902,242
VI-44-3	Country	US
VI-45	**Priority claim of earlier national application**	
VI-45-1	Filing date	24 November 2013 (24.11.2013)
VI-45-2	Number	61/908,122
VI-45-3	Country	US
VI-46	**Priority claim of earlier national application**	
VI-46-1	Filing date	25 November 2013 (25.11.2013)
VI-46-2	Number	61/908,248
VI-46-3	Country	US
VI-47	**Priority claim of earlier national application**	
VI-47-1	Filing date	09 December 2013 (09.12.2013)
VI-47-2	Number	61/913,472
VI-47-3	Country	US

VI-48	**Priority claim of earlier national application**	
VI-48-1	Filing date	24 December 2013 (24.12.2013)
VI-48-2	Number	61/920,572
VI-48-3	Country	US
VI-49	**Priority claim of earlier national application**	
VI-49-1	Filing date	13 January 2014 (13.01.2014)
VI-49-2	Number	61/926,474
VI-49-3	Country	US
VI-50	**Priority claim of earlier national application**	
VI-50-1	Filing date	14 January 2014 (14.01.2014)
VI-50-2	Number	61/927,039
VI-50-3	Country	US
VI-51	**Priority claim of earlier national application**	
VI-51-1	Filing date	20 January 2014 (20.01.2014)
VI-51-2	Number	61/929,187
VI-51-3	Country	US
VI-52	**Priority claim of earlier national application**	
VI-52-1	Filing date	26 January 2014 (26.01.2014)
VI-52-2	Number	61/931,633
VI-52-3	Country	US
VI-53	**Priority claim of earlier national application**	
VI-53-1	Filing date	09 February 2014 (09.02.2014)
VI-53-2	Number	61/937,545
VI-53-3	Country	US

VI-54	**Priority document request** The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	**VI-1** **VI-2** **VI-3** **VI-4** **VI-5** **VI-6** **VI-7** **VI-8** **VI-9** **VI-10** **VI-11** **VI-12** **VI-13** **VI-14** **VI-15** **VI-16** **VI-17** **VI-18** **VI-19** **VI-20** **VI-21** **VI-22** **VI-23** **VI-24** **VI-25** **VI-26** **VI-27** **VI-28** **VI-29** **VI-30** **VI-31** **VI-32** **VI-33** **VI-34** **VI-35** **VI-36** **VI-37** **VI-38** **VI-39** **VI-40** **VI-41** **VI-42** **VI-43** **VI-44** **VI-45** **VI-46** **VI-47** **VI-48** **VI-49** **VI-50**

PCT REQUEST

Original (for **SUBMISSION**)

		VI-51 VI-52 VI-53	
VI-55	**Incorporation by reference :** where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.		
VII-1	**International Searching Authority Chosen**	European Patent Office (EPO) (ISA/EP)	
VIII	**Declarations**	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	–	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	–	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	–	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	–	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	–	
IX	**Check list**	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	11	✓
IX-2	Description	147	–
IX-3	Claims	2	–
IX-4	Abstract	1	✓
IX-5	Drawings	67	–
IX-7	TOTAL	228	
	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	✓	–
IX-20	**Figure of the drawings which should accompany the abstract**	400	
IX-21	**Language of filing of the international application**	English	

PCT REQUEST

Original (for **SUBMISSION**)

X-1	**Signature of applicant, agent or common representative**	/David Klein, Reg. Patent Agent 41118/
X-1-1	Name (LAST, First)	KLEIN, David
X-1-2	Name of signatory	
X-1-3	Capacity (if such capacity is not obvious from reading the request)	

FOR RECEIVING OFFICE USE ONLY

10-1	**Date of actual receipt of the purported international application**	18 FEBRUARY 2014 (18.02.14)
10-2	**Drawings:**	
10-2-1	Received	
10-2-2	Not received	
10-3	**Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application**	
10-4	**Date of timely receipt of the required corrections under PCT Article 11(2)**	
10-5	**International Searching Authority**	ISA/EP
10-6	**Transmittal of search copy delayed until search fee is paid**	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	**Date of receipt of the record copy by the International Bureau**	

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61/774,605	8 March 2013 (08.03.2013)	US
61/777,102	12 March 2013 (12.03.2013)	US
61/778,888	13 March 2013 (13.03.2013)	US
61/802,690	17 March 2013 (17.03.2013)	US
61/803,456	20 March 2013 (20.03.2013)	US
61/804,681	24 March 2013 (24.03.2013)	US
61/810,805	11 April 2013 (11.04.2013)	US
61/811,756	14 April 2013 (14.04.2013)	US
61/813,271	18 April 2013 (18.04.2013)	US
61/814,290	21 April 2013 (21.04.2013)	US
61/819,598	5 May 2013 (05.05.2013)	US
61/821,331	9 May 2013 (09.05.2013)	US
61/822,934	14 May 2013 (14.05.2013)	US
61/823,971	16 May 2013 (16.05.2013)	US
61/825,049	19 May 2013 (19.05.2013)	US
61/827,020	24 May 2013 (24.05.2013)	US
61/830,114	2 June 2013 (02.06.2013)	US
61/833,512	11 June 2013 (11.06.2013)	US
61/833,991	12 June 2013 (12.06.2013)	US
61/834,889	14 June 2013 (14.06.2013)	US
61/835,704	17 June 2013 (17.06.2013)	US
61/837,662	21 June 2013 (21.06.2013)	US
61/838,288	23 June 2013 (23.06.2013)	US
61/838,403	24 June 2013 (24.06.2013)	US
61/841,360	30 June 2013 (30.06.2013)	US
61/843,391	7 July 2013 (07.07.2013)	US
61/846,030	14 July 2013 (14.07.2013)	US
61/858,210	25 July 2013 (25.07.2013)	US
61/860,396	31 July 2013 (31.07.2013)	US
61/865,254	13 August 2013 (13.08.2013)	US
61/866,119	15 August 2013 (15.08.2013)	US
61/868,172	21 August 2013 (21.08.2013)	US
61/869,722	25 August 2013 (25.08.2013)	US
61/875,192	9 September 2013 (09.09.2013)	US
61/878,695	17 September 2013 (17.09.2013)	US
61/879,152	18 September 2013 (18.09.2013)	US
61/882,160	25 September 2013 (25.09.2013)	US
61/893,291	21 October 2013 (21.10.2013)	US
61/899,240	3 November 2013 (03.11.2013)	US
61/902,242	10 November 2013 (10.11.2013)	US
61/908,122	24 November 2013 (24.11.2013)	US
61/908,248	25 November 2013 (25.11.2013)	US
61/913,472	9 December 2013 (09.12.2013)	US
61/920,572	24 December 2013 (24.12.2013)	US
61/926,474	13 January 2014 (13.01.2014)	US
61/927,039	14 January 2014 (14.01.2014)	US
61/929,187	20 January 2014 (20.01.2014)	US
61/931,633	26 January 2014 (26.01.2014)	US
61/937,545	9 February 2014 (09.02.2014)	US

(71) Applicant: **KEYLESS SYSTEMS LTD.** [IL/IL]; 2 Yosef Hachmy Street, 96428 Jerusalem (IL).

(71) Applicant *(for SD only)*: **KLEIN, David** [US/IL]; 18 Menuha VeNahala Street, 76209 Rehovot (IL).

(72) Inventor: **GHASSABIAN, Benjamin**; 12/6 Hadishon Street, 96956 Jerusalem (IL).

(74) Agent: **KLEIN, David**; 18 Menuha VeNahala Street, 76209 Rehovot (IL).

[Continued on next page]

(54) Title: IMPROVED DATA ENTRY SYSTEMS

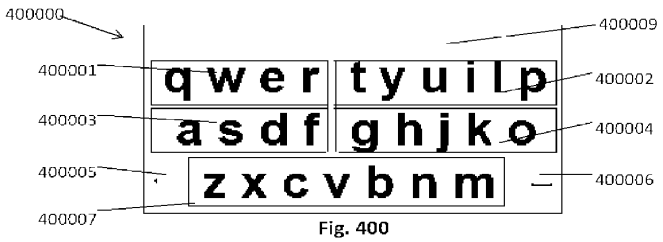

Fig. 400

(57) Abstract: A system is described with a plurality of keys, five of the keys representing all of the letters of an alphabet. The five keys are arranged to form two to three rows of keys. A first row includes two of the five keys and a second row includes at least two other keys of the five keys. The keys are hard keys and/or virtual keys.

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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, 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.

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Claims:

1. A data entry system comprising:
a plurality of keys wherein five of said keys represent all of the letters of an alphabet;
wherein said five keys are arranged such that to form two to three rows of keys;
wherein a first row includes two of said five keys and a second row includes at least two other keys of said five keys; and
wherein the system further comprises a word predictive system so that to predict a word upon receiving a sequence of key interactions.

2. The system of claim 1, wherein a third row of keys includes one of said five keys.

3. The system of claim 1, wherein the letters are represented by said keys in a QWERTY layout order.

4. The system of claim 1, wherein the letters are represented by said keys in a slightly modified QWERTY layout order.

5. The system of claim 4, wherein the letters L and O are swapped.

6. The system of any of the preceding claims wherein the letters QWER are represented by a first key of a row of keys and at least the letter T is represented by a second key in the same row.

7. The system of claim 1, wherein one of the keys represents the letters ASDF

8. The system of claim 1, wherein one of the keys represents the letters ZXCVBNM

9. The system of claim 1, wherein one of the keys represents the letters TYUILP.

10. The system of claim 1, wherein one of the keys represents the letters TYUIOP

11. The system of any of the preceding claims wherein said keys are zones on a touch sensitive surface.

12. The system of claim 1, wherein a different subzone on a key is assigned to a different letter such that interacting with a subzone corresponds to selecting the corresponding letter.

13. A data entry system comprising:
a virtual content, and
a chain of characters
wherein upon providing a gesture in a desired direction, the system positions the chain of characters in said direction on the virtual content.

14. The system of claim 13, wherein the chain of characters is provided after providing the gesture.

15. The system of claim 13, wherein the chain of characters is a selected chain of characters.

16. The system of claim 15, wherein the chain of characters is selected before providing the gesture.

17. The system of claim 13, wherein the gesture is provided on a touch screen.

18. The system of any of the preceding claims, wherein the chain of characters is provided through one of, typing, handwriting, and a speech recognition system.

19. The system of claim 13, wherein the virtual content is an image.

20. The system of claim 19, wherein the image and the chain of characters is integrated in the image to form an image.

21. The system of claim 13, wherein upon providing a gesture a virtual keyboard appears on the touch screen.

22. A data entry system, comprising:

a virtual keyboard having a plurality of keys

a word predictive system;

wherein said letter keys are divided into a plurality of zones by means of delimiters such that each of the zones represent a plurality of said letter keys, and wherein upon providing a sequence of interactions with said zones, the word predictive system predicts a word from a database; and

wherein said zones are delimited such that to augment the accuracy of the predictive system without deforming the keyboard.

23. The system of claim 22, wherein main vowels, separate from each other, are represented by different zones.

24. The System of claim 22, wherein the delimiters are provided from top to bottom or from bottom to top of the keyboard.

25. The system of claim 22, wherein at least one of the delimiters is not vertical.

26. The system of claim 22, wherein the zones mainly have different shapes.

27. The system of claim 22, wherein the shape and/or the letters represented by the zones and/or the number of the zones vary based on a language used by the keyboard.

28. The system of claim 22, wherein said keyboard is a traditional keyboard.

29. The system of claim 22, wherein said delimiters are in the form of lines.

30. The system of claim 22, wherein said delimiters may be defined by a user.

31. The system of claim 22, wherein an interaction with a zone ambiguously corresponds to a plurality of letters assigned to said zone.

32. The system of claim 22, wherein an interaction with a zone corresponds to an identified letter on which the interaction is provided.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/767,606	Filing Date 08/13/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 08/13/2015	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**0**

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
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