

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference T0709.70059	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 15/31248	International filing date (<i>day/month/year</i>) 15 May 2015 (15.05.2015)	(Earliest) Priority Date (<i>day/month/year</i>) 15 May 2014 (15.05.2014)
Applicant T-INK, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

- the international application in the language in which it was filed.
 a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. Certain claims were found unsearchable (see Box No. II).

3. Unity of invention is lacking (see Box No. III).

4. With regard to the title,

- the text is approved as submitted by the applicant.
 the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- the text is approved as submitted by the applicant.
 the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 6
 as suggested by the applicant.
 as selected by this Authority, because the applicant failed to suggest a figure.
 as selected by this Authority, because this figure better characterizes the invention.
- b. none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.: 4-32, 34-45, 47-52, 54-67
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-3, 46, 53, drawn to a system for extracting hand distance and/or position above a surface

Group II: Claims 33, drawn to method comprising transforming one path function of a hand through at least one dimensional space.

-- see extra sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-3, 46, 53

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

The present invention relates to input devices and, in particular, devices for entering data within three-dimensional space and converting that data into one or more commands. An embodiment of a system for extracting hand distance and/or position across and/or above a surface is provided. The system includes a substrate, a power source, a processor, at least one capacitive plate, and circuitry configured to produce measurable change of a parameter as a function of capacitance of the at least one capacitive plate.

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 3/044 (2015.01) CPC - G06F 3/044, G06 F3/03, G06F 1/3231, G06F 2203/04108, G06F 3/017 According to International Patent Classification (IPC) or to both national classification and IPC																									
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8) - G06F3/044 (2015.01) CPC - G06F3/044, G06F3/03, G06F1/3231, G06F2203/04108, G06F3/017 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched CPC - G06F3/044, G06F3/03, G06F 1/3231, G06F3/048, G06F2203/04108, G06F3/017, Y02B60/1289 IPC(8) - G06F3/044 (2015.01); USPC - 345/174 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Patbase; Google Patent/Web, FreePatentsonline Search terms used: capacitive sensor gesture hand body proximity position non-contact pad plate electrode rotate hinge swing reposition angle aim tilt direction																									
C. DOCUMENTS CONSIDERED TO BE RELEVANT																									
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X --- Y</td> <td>US 2004/0043696 A1 (SUZUKI) 04 March 2004 (04.03.2004), para [0006], [0021]-[0028]; Fig 1, 2; claim 1</td> <td>1-3, 46 ----- 53</td> </tr> <tr> <td>Y</td> <td>US 6,323,846 B1 (WESTERMAN et al.) 27 November 2001 (27.11.2001), Fig 1, col 7, ln 45-51; col 13, ln 4-10</td> <td>53</td> </tr> <tr> <td>A</td> <td>US 2013/0155010 A1 (CURTIS et al.) 20 June 2013 (20.06.2013), entire document</td> <td>1-3, 46, 53</td> </tr> <tr> <td>A</td> <td>US 6,288,707 B1 (PHILIPP) 11 September 2001 (11.09.2001), entire document</td> <td>1-3, 46, 53</td> </tr> <tr> <td>A</td> <td>US 2011/0298791 A1 (ADACHI et al.) 08 December 2011 (08.12.2011), entire document</td> <td>1-3, 46, 53</td> </tr> <tr> <td>A</td> <td>US 2004/0178995 A1 (STERLING) 16 September 2004 (16.09.2004), entire document</td> <td>1-3, 46, 53</td> </tr> <tr> <td>A</td> <td>US 2003/0222440 A1 (BASIR et al.) 04 December 2003 (04.12.2003), entire document</td> <td>1-3, 46, 53</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X --- Y	US 2004/0043696 A1 (SUZUKI) 04 March 2004 (04.03.2004), para [0006], [0021]-[0028]; Fig 1, 2; claim 1	1-3, 46 ----- 53	Y	US 6,323,846 B1 (WESTERMAN et al.) 27 November 2001 (27.11.2001), Fig 1, col 7, ln 45-51; col 13, ln 4-10	53	A	US 2013/0155010 A1 (CURTIS et al.) 20 June 2013 (20.06.2013), entire document	1-3, 46, 53	A	US 6,288,707 B1 (PHILIPP) 11 September 2001 (11.09.2001), entire document	1-3, 46, 53	A	US 2011/0298791 A1 (ADACHI et al.) 08 December 2011 (08.12.2011), entire document	1-3, 46, 53	A	US 2004/0178995 A1 (STERLING) 16 September 2004 (16.09.2004), entire document	1-3, 46, 53	A	US 2003/0222440 A1 (BASIR et al.) 04 December 2003 (04.12.2003), entire document	1-3, 46, 53	<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>
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* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family																								
Date of the actual completion of the international search 13 October 2015 (13.10.2015)	Date of mailing of the international search report 05 NOV 2015																								
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774																								

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Continuation of Box No. III -- Observations where unity of invention is lacking

The inventions listed as Groups I through II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special Technical Features

Group I includes the special technical feature of circuitry configured to produce measurable change of a parameter as a function of capacitance of said at least one capacitive plate, not included in the other groups.

Group II includes the special technical feature of transforming one path function into at least one different path function, not included in the other groups.

Common Technical Features:

The only technical feature shared by Groups I and II that would otherwise unify the groups, determining a hand position in space. However, this shared technical feature does not represent a contribution over prior art, because the shared technical feature is disclosed by US 6,288,707 B1 (Philipp).

Philipp discloses determining a hand position in space (abstract; claim 1, measuring a position of an object adjacent a homogeneous resistive sensing layer).

As the technical feature was known in the art at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.

Therefore, Groups I-II lack unity under PCT Rule 13.

Note: Claims 4-32, 34-45, 47-52 and 54-67 are determined to be unsearchable because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a) and are, therefore, not included in any claim group.