



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 336869-02	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/US2013/067905	International filing date (<i>day/month/year</i>) 01.11.2013	Priority date (<i>day/month/year</i>) 01.11.2012
International Patent Classification (IPC) or national classification and IPC INV. G06F3/041		
Applicant MICROSOFT CORPORATION		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>4</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2).</p> <p><input type="checkbox"/> superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)).</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3bis of Annex C of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand	Date of completion of this report	
24.06.2014	06.10.2014	
Name and mailing address of the international preliminary examining authority:	Authorized officer	
 <p>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465</p>	<p>Valin, Steven</p> <p>Telephone No. +49 89 2399-5975</p>	
		

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- 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 (under Rules 12.3(a) and 23.1(b))
 - publication of the international application (under Rule 12.4(a))
 - international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-23 as originally filed

Claims, Numbers

1-8 filed in electronic form on 24-06-2014

Drawings, Sheets

1/11-11/11 as originally filed

- a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:
- the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
5. This report has been established:
- taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - without taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

6. With regard to top-up searches (Rules 66.1 ter and 70.2(f)):
- A top-up search was carried out by this Authority on 19.09.2014 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - No top-up search was carried out by this Authority.
7. Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-8</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-8</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-8</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document(s):

D1 US 2011/310038 A1 (PARK JONG-KANG [KR] ET AL) 22
December 2011 (2011-12-22)

D2 US 2004/095333 A1 (MORAG MEIR [IL] ET AL) 20 May 2004
(2004-05-20)

- 1 D1 is regarded as being the prior art closest to the subject-matter of claim 1 and discloses a method and apparatus for correcting touch coordinates detected by a touch panel. The method comprises storing a lookup table for correcting a touch coordinate value of a touch panel. Touch data is generated by touch conductors and is used to calculate a touch coordinate value. The size of the touch conductors is measured and its size along with the touch coordinate value are used as input parameters when accessing the lookup table (abstract; [0056]-[0058], FIG. 5). The method may use either a direct lookup table (LUT), resulting in a large amount of data, or, in order to reduce the memory load, a lookup table including resolutions and spaces between the size of the conductor can be prepared, and intermediate values can be acquired through interpolation ([0058]).
- 2 The subject-matter of claim 1 therefore differs from this known apparatus: The apparatus of the present invention employs two lookup tables: a coarse correction table storing mappings of sensed locations of an input panel to intermediate corrected locations that compensate for interference introduced into the input panel; and a partial fine correction table storing mappings of particular intermediate corrected locations to corrected locations, the particular intermediate corrected locations comprising a subset of the intermediate corrected locations having an accuracy that fails to satisfy a threshold coordinate accuracy, wherein the partial fine correction table excludes mappings for intermediate corrected locations that satisfy the threshold coordinate accuracy; and a compensation control module configured to apply to a sensed location of the input panel the mappings of the coarse correction table and the mappings of the partial fine correction table to generate a corrected location that compensates for interference introduced into the input panel.

- 3 The subject-matter of claim 1 is therefore new (Article 33(2) PCT).
- 4 The problem to be solved by the present invention may be regarded as how to provide an alternative method and apparatus for compensating for touch panel input interference.
- 5 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
- 6 There is nothing in the prior art cited which would have incited the skilled person to arrive at an apparatus falling within the scope of claim 1.
- 7 D1 teaches compensating for input interference in a touch panel by either using a direct lookup table or, in order to reduce the memory load, a lookup table including resolutions and spaces between the size of the conductor can be prepared, and intermediate values can be acquired through interpolation ([0058]).
- 8 D2 teaches compensating for input interference in a transparent digitiser in which an error compensation stage, S70 (FIG. 13; [0212]) corrects systematic errors that are caused by environmental interference, such as by a flat panel display, by using a customized look-up table (LUT). The LUT is, typically, in the form of a two-dimensional matrix wherein cells represent sensor coordinates and the contents of the cells are a two-dimensional error value for the relevant position. At run time, the system may either select the error value stored in the matrix cell closest to the reported position, or interpolate a detected value by a number of matrix cells around the reported position ([0213]).
- 9 There is nothing in either D1 or D2 to suggest the use of a coarse correction table in conjunction with a partial fine correction table storing mappings of particular intermediate corrected locations to corrected locations, the particular intermediate corrected locations comprising a subset of the intermediate corrected locations having an accuracy that fails to satisfy a threshold coordinate accuracy, and wherein the partial fine correction table excludes mappings for intermediate corrected locations that satisfy the threshold coordinate accuracy. This difference has the technical effect that areas of input panel 520 for which the mappings of coarse correction table 504 result in intermediate corrected locations having an accuracy that satisfies the threshold coordinate accuracy (e.g., having an accuracy that is less than a threshold coordinate accuracy or having an accuracy that is less

than or equal to a threshold coordinate accuracy) need not, and typically do not, have additional mappings included in partial fine correction table 506. This threshold coordinate accuracy can have different values based on the type of input panel and desired accuracy for the input panel.

- 10 The subject-matter of claim 5 is directed to a corresponding method (and in fact is narrower in scope as it contains further features associated with identifying a current environment of an input panel, obtaining a regional correction table and updating one or more baseline tables, the baseline tables including a coarse correction table and a fine correction table as recited in claim 1. Therefore, independent method claim 5 is also considered as involving an inventive step (Article 33(3) PCT).
- 11 Claims 2-4 and 6-8 are dependent on claims 1 and 5, respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VIII

Certain observations on the international application

- 1 Both independent claims 1 and 5 recite a coarse correction table and a fine correction table. However, the description at page 9, lines 20-23, states that the coarse correction table is *typically (but not need be)* a coarser granularity than the fine correction table. This statement in the description would appear to cast some doubt on the scope of the claimed subject-matter and thus contravenes the requirements of Article 6 PCT, which requires the claims to be clear and fully supported by the description.

BOEHMERT & BOEHMERT
ANWALTSSOZIELTÄT

BOEHMERT & BOEHMERT P.O.B. 150308 80044 München

Europäisches Patentamt

D-80298 München

DR. ING. KARL BOEHMERT PA (1899-1973)
DIPL.-ING. ALBERT BOEHMERT PA (1907-1993)
WILHELM J. H. STAHLBERG RA, BREMEN
DR.-ING. WALTER HOORMANN PA*, BREMEN
PROF. DR. HEINZ GODDAR PA*, MÜNCHEN, SHANGHAI
DR.-ING. ROLAND LIESEGANG PA*, MÜNCHEN
WOLF-DIETER KUNTZE RA, BREMEN
DR. LUDWIG KOUKER RA, BREMEN
DIPL.-PHYS. DR. MARION TÖNHARDT PA*, DÜSSELDORF
DIPL.-ING. EVA LIESEGANG PA*, MÜNCHEN
PROF. DR. AXEL NORDEMANN RA, BERLIN
DIPL.-PHYS. DR. STEFAN SCHOHE PA*, MÜNCHEN
DR.-ING. MATTHIAS PHILIPP PA*, BIELEFELD
DR. MARTIN WIRTZ RA, DÜSSELDORF, BERLIN
PROF. DR. JAN BERND NORDEMANN, LL.M. RA, BERLIN
PROF. DR. CHRISTIAN CZYCHOWSKI RA, BERLIN
DR. CARL-RICHARD HAARMANN RA, MÜNCHEN
DIPL.-PHYS. CHRISTIAN W. APPELT PA*, MÜNCHEN
DIPL.-PHYS. DR.-ING. UWE MANASSE PA*, BREMEN
DIPL.-PHYS. DR. THOMAS L. BITTNER PA*, BERLIN
DR. VOLKER SCHMITZ-FOHRMANN, M. JUR. RA, MÜNCHEN, PARIS
DIPL.-BIOL. DR. JAN B. KRAUSS PA*, BERLIN
DIPL.-BIOCHEM. DR. MARKUS ENGELHARD PA*, MÜNCHEN
DIPL.-CHEM. DR. KARL-HEINZ B. METTEN PA*, FRANKFURT
DIPL.-ING. NILS T. F. SCHMID PA*, DEL. MÜNCHEN, PARIS
DR. FLORIAN SCHWAB, LL.M. RA, LIC. EN DROIT, MÜNCHEN
DR. ANDREAS DUSTMANN, LL.M. RA, POTSDAM, ALICANTE
DIPL.-CHEM. DR. VOLKER SCHOLZ PA*, BREMEN
DR. MARTIN SCHAEFER RA, BERLIN
DIPL.-PHYS. DR. MICHAEL HARTIG PA*, MÜNCHEN
DIPL.-PHYS. DR. STEFFEN SCHMIDT PA*, FRANKFURT
DR. ANDREAS LÜCKE PA*, MÜNCHEN
DIPL.-CHEM. DR. UTE KILGER PA*, BERLIN
MALTE NENTWIG, LL.M. RA, BREMEN
DR. RUDOLF BÖCKENHOLT, LL.M. RA, BREMEN
DIPL.-ING. FELIX HERMANN PA*, MÜNCHEN
DR. ANKE NORDEMANN-SCHIFFEL RA, M.E.O., POTSDAM
DR. BJÖRN BAHLMANN RA, MÜNCHEN
PROF. DR. WILHELM NORDEMANN RA, POTSDAM
DIPL.-PHYS. EDUARD BAUMANN PA*, MÜNCHEN
DIPL.-ING. HANS W. GROENING PA*, MÜNCHEN
DIPL.-ING. SIEGFRIED SCHIRMER PA*, BIELEFELD
DIPL.-PHYS. LORENZ HANEWINKEL, PA* (BIS 2013/UNTIL 2013)
DIPL.-ING. ANTON FREIHERR RIEDEGER V. PAAR PA*, MÜNCHEN
DIPL.-CHEM. DR. KLAUS-DIETER LANGFINGER PA*, FRANKFURT
CHRISTOPH SCHMÖKEL RA, BERLIN
DR. BODO HASSE, LL.M. RA, MÜNCHEN
DIPL.-CHEM. DR. LOTHAR STEILING PA*, DÜSSELDORF
DR. KATRIN SEIBT RA, BREMEN
DR. THOMAS W. BODDIEN RA, BERLIN
DIPL.-BIOL. DR. MARTIN L. LOBEMEIER PA*, KIEL
DIPL.-BIOCHEM. DR. SIBYLLA M. GRAHN PA*, MÜNCHEN
GABRIELE PFISZTER RA, MÜNCHEN
DIPL.-PHYS. DR. XIA PFAFFENZELLER PA*, MÜNCHEN
DR. CATHARINA GÖTZ RA, MÜNCHEN
DIPL.-PHYS. DR. KLAUS BEHRNDT PA*, MÜNCHEN
DIPL.-PHYS. DR. DENNIS KRETSCHMANN PA*, MÜNCHEN
PETER GROSS, LL.M. RA, MÜNCHEN
DIPL.-PHYS. CHRISTOPH ANGERHAUSEN PA*, DÜSSELDORF
DIPL.-INFORM. FRITZ JETZEK PA, BREMEN
DR. JULIAN WAIBLINGER RA, BERLIN
DIPL.-INFORM. DR. JAKOB VALYODA PA*, MÜNCHEN
OLAF WOLTERS RA, BERLIN
DIPL.-BIOL. DR. DAVID KUTTENKEULER PA*, MÜNCHEN
JAN RETHER RA, MÜNCHEN
DIPL.-PHYS. DR. BJÖRN HÜLSEN PA*, BERLIN
DR. MICHAEL RÜBERG, LL.M. RA, MÜNCHEN
DIPL.-BIOCHEM. DR. HOLGER DORMANN PA*, MÜNCHEN
CLAUDIA DEPPE RA, MÜNCHEN
DR. SUSANNE SCHACKERT, LL.M. RA, MÜNCHEN
DR. CHRISTIAN MEYER RA, MÜNCHEN
MICHAEL C. MAIER, LL.M. RA, AVOCAT AU BARREAU DE PARIS, BERLIN
SILKE FREUND RA, MÜNCHEN
DIPL.-ING.(FH) LUCAS OESTREICHER *, MÜNCHEN
DR. ECKHARD RATJEN, LL.M. RA, BREMEN
DIPL.-PHYS. DIPL.-KFM. DR. MORITZ KOPLIN, M.SCEIT. PA, BREMEN

PA PATENTANWALT/PATENT ATTORNEY
RA RECHTSANWALT/ATTORNEY AT LAW
* EUROPEAN PATENT ATTORNEY
VERTRETUNG VOR DEM HAMB. - MARKEN UND GESCHMACKSMUSTER
REPRESENTATION AT OHIM - TRADEMARKS AND DESIGNS

Ihr Zeichen/Your ref.

Ihr Schreiben/Your letter

Unser Zeichen/Our ref.
M11890WO

München,
June 24, 2014

Microsoft Corporation
International Patent Application No. PCT/US2013/067905 - Input location correction tables
for input panels -

Letter accompanying the amendments under Art. 34 PCT:

A new set of claims 1 to 8 replacing the original set of claims is submitted under Art. 34 PCT.

I.

New independent claim 1 includes a combination of original claims 1 and 3.

New claim 2 is unchanged.

BOEHMERT & BOEHMERT

- 2 -

Original claim 3 has been cancelled.

New claims 3 and 4 correspond to original claim 4 and 5.

New claim 5 includes a combination of original claims 6 and 7, wherein the features in original claim 3 have been included in new claim 5.

Original claim 7 has been cancelled.

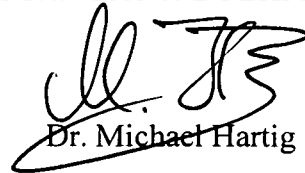
New claims 6 to 8 correspond to original claims 8 to 10.

II.

It is agreed to the opinion of the International Searching Authority that original dependent claim 3 which has been included in new independent claims 1 and 5 adds inventive subject matter to independent claims 1 and 5. Therefore, the new independent claims should be allowable.

Therefore, the issue of a positive International Preliminary Examination Report is expected.

BOEHMERT & BOEHMERT



Dr. Michael Hartig

Anlage:

New set of claims 1 to 8

New set of claims 1 to 8, showing marked-up amendments

PCT/US2013/67905
Microsoft Corporation
M11890WO

Amended claims under Art 34.

1. A system comprising:
 - a coarse correction table (504) storing mappings of sensed locations (510) of an input panel (520) to intermediate corrected locations that compensate for interference introduced into the input panel (520);
 - a partial fine correction table (506) storing mappings of particular intermediate corrected locations to corrected locations (512), the particular intermediate corrected locations comprising a subset of the intermediate corrected locations having an accuracy that fails to satisfy a threshold coordinate accuracy, wherein the partial fine correction table (506) excludes mappings for intermediate corrected locations that satisfy the threshold coordinate accuracy; and
 - a compensation control module (502) configured to apply to a sensed location (510) of the input panel (520) the mappings of the coarse correction table (504) and the mappings of the partial fine correction table (506) to generate a corrected location (512) that compensates for interference introduced into the input panel (520).
2. A system as recited in claim 1, the coarse correction table (504) and/or partial fine correction table (506) being a combination of a baseline table and a regional correction table corresponding to a current environment of the input panel.
3. A system as recited in claim 1, the compensation control module (520) being configured to apply the mappings of the coarse correction table (504) to the sensed location (510) to generate an intermediate location, and to apply the mappings of the partial fine correction table (506) to the intermediate location in response to a mapping for the intermediate location being included in the partial fine correction table (506) to generate the corrected location (512).
4. A system as recited in claim 3, the compensation control module (520) being further configured to use the intermediate location as the corrected location (512) in response to no mapping for the intermediate location being included in the partial fine correction table (506).

PCT/US2013/67905
Microsoft Corporation
M11890WO

5. A method comprising:
- identifying (902) a current environment of an input panel;
 - obtaining (904) a regional correction table corresponding to the current environment of the input panel, the regional correction table identifying changes to make to one or more baseline tables that store mappings to generate, based on a sensed location of the input panel, a corrected location that compensates for interference introduced into the input panel; and
 - updating (906) the one or more baseline tables in accordance with the changes identified in the regional correction table,
- the baseline tables including a coarse correction table that includes mappings that correct for a particular type of interference, and a fine correction table that corrects for coordinate shift introduced by the particular type of interference, the fine correction table comprising a partial fine correction table that stores mappings of intermediate locations mapped to by the coarse correction table having an accuracy that fails to satisfy a threshold coordinate accuracy, wherein the partial fine correction table excludes mappings for intermediate corrected locations that satisfy the threshold coordinate accuracy.
- 5
6. A method as recited in claim 5, the one or more baseline tables storing mappings to generate corrected locations that compensate for interference introduced into the input panel in an environment in which no additional devices are attached to a computing device including the input panel and no additional devices are within a threshold distance of the input panel.
7. A method as recited in claim 6, the current environment comprising the computing device and a keyboard magnetically attached to the computing device.
8. A method as recited in claim 5, retrieving the regional correction table from a memory separate from a correction table memory in which the one or more baseline tables are stored, and the updating comprising updating the one or more baseline tables in the correction table memory.