

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 2016OPSE8903	FOR FURTHER ACTION		See item 4 below
International application No. PCT/KR2017/003831	International filing date (<i>day/month/year</i>) 07 April 2017 (07.04.2017)	Priority date (<i>day/month/year</i>) 27 April 2016 (27.04.2016)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant SAMSUNG ELECTRONICS CO., LTD.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 9 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<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	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 30 October 2018 (30.10.2018)
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: BAE, KIM & LEE IP GROUP 11th Floor, 343, Gangnam-daero Seocho-gu Seoul 06626 Republic of Korea

Date of mailing (day/month/year) 10 July 2017 (10.07.2017)
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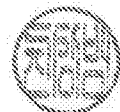
Applicant's or agent's file reference 2016OPSE8903	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/KR2017/003831	International filing date (day/month/year) 07 April 2017 (07.04.2017)	Priority date(day/month/year) 27 April 2016 (27.04.2016)
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International Patent Classification (IPC) or both national classification and IPC G06F 21/32(2013.01)i, G06K 9/00(2006.01)i, G06F 3/041(2006.01)i, G06F 3/0488(2013.01)i
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Applicant SAMSUNG ELECTRONICS CO., LTD.

1. This opinion contains indications relating to the following items:
- Box No. I Basis of the opinion
 - Box No. II Priority
 - Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - Box No. IV Lack of unity of invention
 - Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
 - Box No. VI Certain documents cited
 - Box No. VII Certain defects in the international application
 - Box No. VIII Certain observations on the international application
2. **FURTHER ACTION**
- If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.
- If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

 Name and mailing address of the ISA/KR International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Date of completion of this opinion 07 July 2017 (07.07.2017)	Authorized officer CHIN, Sang Bum Telephone No. +82-42-481-8398 
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2017/003831

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established 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))
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*. I(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13*ter*. I(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13*ter*. I(a)).
 - on paper or in the form of an image file (Rule 13*ter*. I(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-15</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>NONE</u>	YES
	Claims	<u>1-15</u>	NO
Industrial applicability (IA)	Claims	<u>1-15</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2010-0240415 A1 (JONG HWAN KIM et al.) 23 September 2010

D2: US 2008-0253624 A1 (SHIH-FANG WONG et al.) 16 October 2008

2.1 Novelty (PCT Article 33(2)) and Inventive Step (PCT Article 33(3))

2.1.1 Independent Claim 1

Claim 1 is an independent claim and relates to an electronic device.

D1, which is considered to be the closest prior art to the subject matter of claim 1, discloses a mobile terminal (100) (see claim 1 in D1) comprising:

a first body (100A) and a second body (100b) (see paragraphs [0073], [0076]; and figure 2 in D1);

a display module (151) which may serve as a touchscreen and be disposed in a front case (100A-1) (see paragraphs [0074]-[0075]; and figure 2 in D1);

a pressure sensor (143) which may be installed in the display module (151) (see paragraph [0049]; and figure 1 in D1);

a photo sensor embedded in the display module (151) for identifying a fingerprint (see paragraphs [0088]-[0091]; and figure 4 in D1);

a controller (180) (see figure 1 in D1); and

a memory (160) (see figure 1 in D1),

wherein a plurality of fingerprint information may be stored in the memory (160) (see paragraph [0099] in D1),

the display module (151) receives a fingerprint-touch input which is a touch input generated by touching the display module (151) with a finger and includes fingerprint information (see paragraph [0127]; and figure 11 in D1),

the controller (180) may determine whether the fingerprint information of the received

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2017/003831

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:

The phrase "The electronic device of clam 1" in claim 5 is considered to be a typo for "The electronic device of claim 1". Therefore, claim 5 does not meet the requirements of PCT Article 6.

The phrase "the least one registered fingerprint" in claim 15 is considered to be a writing error for "the at least one registered fingerprint". Therefore, claim 15 does not meet the requirements of PCT Article 6.

Supplemental Box

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Continuation of : Box No. V

fingerprint-touch input matches the previously-stored fingerprint information (see paragraph [0128] in D1), and the controller (180) may unlock the mobile terminal (100) and may enter a predefined operating mode if the fingerprint information of the received fingerprint-touch input matches with the previously-stored fingerprint information (see paragraph [0129] in D1).

The subject matter of claim 1 differs from that of D1 in the features of: sensing pressure of a user's finger against a touchscreen display using a pressure sensor; and upon sensing of the pressure, activating a fingerprint sensor. However, the different features can readily be derived from D2, which is in the same technical field as D1, disclosing the features of sensing pressure and generating a sensor power-up command (see paragraph [0027]; and figure 4 in D2) and providing power to a fingerprint sensor (see paragraph [0028]; and figure 4 in D2). It would not be particularly difficult for a person skilled in the art to combine D1 and D2, and it is considered that the effect achieved from the combination of D1 and D2 can readily be foreseen by a person skilled in the art.

Accordingly, it would have been obvious to a person skilled in the art to apply the feature of D2 to the mobile terminal of D1 to arrive at the electronic device of claim 1. Therefore, claim 1 is novel under PCT Article 33(2), but lacks an inventive step under PCT Article 33(3).

2.1.2 Dependent Claims 2-5

The additional feature of **claim 2**, dependent on claim 1, is merely a matter of design option in view of D2 disclosing the feature of sensing the pressure and generating the sensor power-up command (see paragraph [0027]; and figure 4 in D2).

The additional feature of **claim 3**, dependent on claim 2, can readily be derived from D1 disclosing that the controller (180) may unlock the mobile terminal (100) (see paragraph [0129] in D1).

The additional feature of **claim 4**, dependent on claim 1, can readily be derived from D1 disclosing that the pressure sensor (143) may be installed in the display module (151) (see paragraph [0049]; and figure 1 in D1).

The additional feature of **claim 5**, dependent on claim 1, can readily be derived from D1 disclosing that the controller (180) may enter the predefined operating mode (see

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paragraph [0129] in D1).

Accordingly, claims 2-5 would have been obvious over D1 in view of D2. Therefore, claims 2-5 are novel under PCT Article 33(2), but lack an inventive step under PCT Article 33(3).

2.1.3 Independent Claim 6

Claim 6 is an independent claim and relates to an electronic device.

D1, which is considered to be the closest prior art to the subject matter of claim 6, discloses a mobile terminal (100) (see claim 1 in D1) comprising:

a display module (151) which may serve as a touchscreen and be disposed in a front case (100A-1) (see paragraphs [0074]-[0075]; and figure 2 in D1);

a pressure sensor (143) which may be installed in the display module (151) (see paragraph [0049]; and figure 1 in D1);

a photo sensor embedded in the display module (151) for identifying a fingerprint (see paragraphs [0088]-[0091]; and figure 4 in D1);

a controller (180) (see figure 1 in D1); and

a memory (160) to store a plurality of fingerprint information (see paragraph [0099]; and figure 1 in D1),

wherein the display module (151) receives a fingerprint-touch input which is a touch input generated by touching the display module (151) with a finger and includes fingerprint information (see paragraph [0127]; and figure 11 in D1),

the controller (180) may determine whether the fingerprint information of the received fingerprint-touch input matches the previously-stored fingerprint information (see paragraph [0128] in D1), and

the controller (180) may unlock the mobile terminal (100) and may enter a predefined operating mode if the fingerprint information of the received fingerprint-touch input matches with the previously-stored fingerprint information (see paragraph [0129] in D1).

The subject matter of claim 6 differs from that of D1 in the features of: sensing pressure which is applied to a touchscreen display by a user's finger, using a pressure sensor; and activating a fingerprint sensor when the sensed pressure is equal to or greater than a designated value. However, the different features can readily be derived from D2 disclosing the features of sensing pressure and generating a sensor power-up command (see paragraph [0027]; and figure 4 in D2) and providing power to a fingerprint sensor

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(see paragraph [0028]; and figure 4 in D2).

Accordingly, it would have been obvious to a person skilled in the art to apply the feature of D2 to the mobile terminal of D1 to arrive at the electronic device of claim 6. Therefore, claim 6 is novel under PCT Article 33(2), but lacks an inventive step under PCT Article 33(3).

2.1.4 Dependent Claims 7-14

The additional feature of **claim 7**, dependent on claim 6, can readily be derived from D1 disclosing that the display module (151) receives the fingerprint-touch input which is the touch input generated by touching the display module (151) with the finger (see paragraph [0127]; and figure 11 in D1).

The additional feature of **claim 8**, dependent on claim 6, can readily be derived from D1 disclosing that the controller (180) may unlock the mobile terminal (100) (see paragraph [0129] in D1).

The additional feature of **claim 9**, dependent on claim 6, is merely a matter of design option in view of D2 disclosing the feature of sensing the pressure and generating the sensor power-up command (see paragraph [0027]; and figure 4 in D2).

The additional feature of **claim 10**, dependent on claim 9, can readily be derived from D1 disclosing that the controller (180) may unlock the mobile terminal (100) (see paragraph [0129] in D1).

The additional feature of **claim 11**, dependent on claim 9, can readily be derived from D1 disclosing that the controller (180) may enter the predefined operating mode (see paragraph [0129] in D1).

The additional features of **claims 12-14**, directly or indirectly dependent on claim 6, are merely matters of design option in view of D1 disclosing that the controller (180) may unlock the mobile terminal (100) and may enter the predefined operating mode (see paragraph [0129] in D1).

Accordingly, claims 7-14 would have been obvious over D1 in view of D2. Therefore, claims 7-14 are novel under PCT Article 33(2), but lack an inventive step under PCT

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Article 33(3).

2.1.5 Independent Claim 15

Claim 15 is an independent claim and relates to a fingerprint verification method of an electronic device. Since the features of claim 15 are substantially the same as those of claim 6 except for the category of invention, the same reasoning as in claim 6 applies to claim 15. Accordingly, claim 15 would have been obvious over D1 in view of D2. Therefore, claim 15 is novel under PCT Article 33(2), but lacks an inventive step under PCT Article 33(3).

2.2 Industrial Applicability (PCT Article 33(4))

Claims 1-15 are industrially applicable under PCT Article 33(4).