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**Datasheet for the decision
of 11 May 2021**

Case Number: T 2285/17 - 3.4.03

Application Number: 14170728.1

Publication Number: 2816545

IPC: G09G3/20, G06F3/01, G08B21/02,
G09G5/10, H04N21/442, G06T7/00,
H04N13/02, G06K9/00, H04N13/00,
H04N13/04

Language of the proceedings: EN

Title of invention:

Method and apparatus for protecting eyesight

Applicant:

Samsung Electronics Co., Ltd.

Relevant legal provisions:

EPC R. 64(2), 137(3)

EPC Art. 84, 54(1), 54(2), 111(1)

RPBA 2020 Art. 13(2), 11

Keyword:

Unity of invention - refund of further search fees (yes)
Examination procedure - correct exercise of discretion (yes)
Late-filed main request - amendments after arrangement of oral proceedings - admitted (yes)
Claims - main request - clarity (yes)
Novelty - main request (yes)
Remittal - (yes)



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Case Number: T 2285/17 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 11 May 2021

Appellant: Samsung Electronics Co., Ltd.
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Representative: Grünecker Patent- und Rechtsanwälte
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 10 May 2017
refusing European patent application No.
14170728.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Eliasson
Members: M. Ley
E. Mille

Summary of Facts and Submissions

- I. The appeal concerns the decision of the examining division to refuse European patent application No. EP 14 170 728 and to reject the refund of the seven additional search fees.
- II. The examining division did not admit the main request as well as the first and second auxiliary requests into the proceedings. Rule 137(3) EPC and passages from the the Guidelines H-II 2.7, H-III 2.1.2, H-II 2.3 were cited.

Auxiliary request 3 was admitted by the examining division, which held that the amendments made to claim 1 according to the third auxiliary request did not comply with the requirements of Article 123(2) EPC.

The examining division rejected the appellant's request for the refund of all seven search fees (see point 8 of the contested decision) and the appellant's request for the refund of some of the additional search fees (see point 9 of the contested decision).

The following documents were cited:

D1 EP 2 477 183 A1
D9 US 2011/052009 A1

- III. In the statement of grounds of appeal, the appellant initially requested that the impugned decision be set aside and a patent be granted on the basis of the claim sets according to the main request or to the first to third auxiliary requests underlying the decision. It requested the refund of the seven additional search

fees paid on 7 January 2015 in response to the communication forwarding the partial European search report. Oral proceedings were requested should the Board be unable to grant the main request and/or the request for the refund of the additional search fees.

IV. In a communication pursuant to Article 15(1) RPBA 2020, the Board informed the appellant *inter alia* about its provisional view that the seven additional search fees were to be reimbursed, that it intended to admit the main request into the proceedings under Article 12(4) RPBA 2007, that claims 1 and 6 of the main request lacked clarity within the meaning of Article 84 EPC (see points 6.1 to 6.4) and that an amended set of claims taking into account the Board's observations regarding Article 84 EPC would meet the requirements of Articles 123(2), 84, 54(1) and (2) EPC.

V. In the letter dated 11 January 2021, the appellant requests that:

(1) a European patent be granted on the basis of a new set of amended claims 1 to 15 as a main request, including description page 1 filed on 5 April 2016, description page 1a filed with the letter dated 11 January 2021, description pages 2 to 23 as originally filed, drawing sheets 1 to 7 as originally filed;

(2) the seven additional search fees paid on 7 January 2015 in response to the communication forwarding the partial European search report be refunded;

(3) if the Board grants the requests under (1) and (2) in written proceedings, the oral proceedings be cancelled, and

(4) if the Board cannot grant a patent based on the main request, the request for oral proceedings is withdrawn under the condition that the Board grants the request to refund the additional search fees and remits the case to the examining division for further prosecution on the basis of the amended main request.

VI. Claim 1 according to the main request has the following wording:

A method for protecting eyesight in an image output digital device (100), comprising:
configuring an eyesight protecting mode in the digital device (100);
configuring (301) a 3D photographing mode in a multifunctional camera (225) of the digital device (100) based on the configuring of the eyesight protecting mode;
generating a photographed 3D image by the multifunctional camera based on the configuring of the 3D photographing mode;
detecting (301; 303) an object in the photographed 3D image, based on the configuration of the eyesight protecting mode;
detecting (305) a distance between the detected object and the digital device (100) by using depth information of the 3D image;
when the detected distance is within a reference distance, configuring a 2D photographing mode in the multifunctional camera (225) of the digital device (100);

generating a photographed 2D image by the multifunctional camera based on the configuring of the 2D photographing mode;
detecting (307) a face or eyes in the photographed 2D image of the object;
when the face or the eyes of a user are detected in the photographed 2D image, determining (309) whether the user remains within the reference distance, based on the results of the detection of the face or the eyes;
determining (311) whether the user is viewing a display panel (210) of the digital device (100), based on the results of the detection of the face or the eyes; and
when it is determined that the user remains within the reference distance and is viewing the display panel (210), generating (317) a warning.

Claim 6 according to the main request has the following wording:

An image output digital device (100) comprising:
a display panel (210);
a camera (220) that is mounted on a same surface as the display panel (210);
a controller (110) configured to:
configure an eyesight protecting mode in the digital device (100),
configure a 3D photographing mode in a multifunctional camera (225) of the digital device (100) based on the configuring of the eyesight protecting mode,
generate a photographed 3D image by the multifunctional camera based on the configuring of the 3D photographing mode,
detect an object in the photographed 3D image, based on the configuration of the eyesight protecting mode,

detect a distance between the detected object and the digital device (100) by using depth information of the 3D image,
when the detected distance is within a reference distance, configure a 2D photographing mode in the multifunctional camera (225) of the digital device (100),
generate a photographed 2D image by the multifunctional camera based on the configuring of the 2D photographing mode,
detect a face or the eyes in the photographed 2D image of the object,
when the face or the eyes of a user are detected in the photographed 2D image, determine whether the user remains within the reference distance,
based on the results of the detection of the face or the eyes, determine whether the user is viewing a display panel (210) of the digital device (100), based on the results of the detection of the face or the eyes, and
when it is determined that the user remains within the reference distance and is viewing the display panel (210), generate a warning.

VII. The wording of the claims according to the auxiliary requests 1 to 3 is not relevant for the present decision.

Reasons for the Decision

1. The appeal is admissible
2. Procedural issues - decision without oral proceedings
 - 2.1 In the statement of grounds of appeal, the appellant initially requested the decision be set aside and a

European patent be granted on the basis of the requests underlying the contested decision. Oral proceedings were requested should the Board be unable to grant the main request and/or the request for the refund of the additional search fees.

2.2 Oral proceedings were scheduled to take place on 11 February 2021. In a communication pursuant to Article 15(1) RPBA 2020, the Board informed the appellant about its provisional opinion (see IV. above).

2.3 In the letter dated 11 January 2021, the request for oral proceedings is withdrawn under the condition that the Board grants the request to refund the additional search fees and remits the case to the examining division for further prosecution on the basis of the amended main request (see V. above, item (4)). As the above condition is met, the oral proceedings were cancelled and the case can be decided in writing.

3. The invention

The present invention relates to a digital device for an image display, and more particularly, to a method and an apparatus for protecting eyesight by which an appropriate viewing distance of users can be secured.

In an eye protecting mode, the digital device (e. g. a smart phone or a TV device) operates a multifunctional camera in a 3D photographing mode and uses the depth information in a generated 3D image to determine if an object (e. g. a human being) is within a predetermined reference distance. If this is the case, the digital device operates the multifunctional camera in a 2D photographing mode and uses a generated 2D image of the

object to detect a face or eyes of a user and to determine if the user is viewing a display panel of the display device. A warning is issued if the user is both within the reference distance and viewing the display panel.

4. Request to refund the seven additional search fees

4.1 Claim 1 as originally filed has the following wording (feature labeling added by the Board):

A method for protecting eyesight in an image output digital device, comprising:

- (a) detecting an object in a photographed 3D image, based on a configuration of an eyesight protecting mode;
- (b) detecting a distance between the detected object and the digital device; and
- (c) when the detected distance is within a reference distance distance [sic],
 - (c1) detecting a face or eyes in a photographed 2D image of the object, and
 - (d) when the face or eyes of a user are detected in the photographed 2D image,
 - (d1) determining whether the user remains within the reference distance distance, based on the results of the face or eye detection,
 - (e) determining whether the user is viewing a display panel of the digital device, based on the results of the face or eye detection, and
 - (f) when it is determined that the user remains within the reference distance distance and is viewing the display panel,
 - (f1) generating a warning.

4.2 The review under Rule 64(2) EPC has to be carried out by the examining division having regard only to the facts presented by the search division in its communication under Rule 64(1) EPC, i. e. the partial European search report including "sheet B" in the present case. Hence, the examining division has to base its review solely on the documents cited in the partial search report and on the specification of the different inventions drawn up by the search division, while taking into account any arguments which the applicant might have submitted in support of his request for a refund, see Case Law of the Boards of Appeal of the EPO, 9th Edition, 2019, II.B.3.3, fifth paragraph.

In the present case, the partial European search report was drawn up for those parts of the patent application which related to the invention first mentioned in the claims and sheet B identified in total eight inventions :

- Invention 1: claims 1, 2, 6, 7, 11 and claim 4 (partially: "displaying a warning notification at a predetermined location on the display panel")
- Invention 2: claims 3 and 8
- Invention 3: claims 12 and 4 (partially: "displaying a photographed user's image at the center of the display panel")
- Invention 4: claims 13 and 4 (partially: generating a warning "by turning off the display panel")
- Invention 5: claims 14 and claim 4 (partially: generating a warning by "pausing a currently executed application")
- Invention 6: claims 5 and 15
- Invention 7: claim 9
- Invention 8: claim 10

4.3 As the partial European search report identified document D1 as "particularly relevant" to original claims 1, 2, 4, 6, 7 and 11 "when taken alone" and as sheet B identified the above mentioned eight inventions and mentioned a technical problem allegedly solved by the different inventions, the examining division understood that the search division considered the subject-matter of original independent claims 1 and 6 not novel (Articles 52(1), 54(1) and (2) EPC) over the disclosure of D1 and that, as a consequence, dependent claims 2 to 5 and 7 to 15 defined the eight inventions. The examining division's view is in accordance with sections 2 and 3 of the European search opinion issued by the search division together with the European search report drawn up for all inventions after payment of the seven additional search fees.

The examining division held that the findings of the search division with respect to a lack of unity of invention were correct, because the subject-matter of claims 1 and 6 as originally filed was known from D1, see the contested decision, point 8. The examining division took this view throughout the examination procedure, see communication dated 5 January 2016, point 4.1, the summons to attend oral proceedings, points 7.1 and 7.2, the minutes of oral proceedings, points 2.1 to 2.3 and the contested decision, point 8.

4.4 The appellant disagreed and argued throughout the examination procedure that D1 did not disclose a "photographed 3D image" and, hence, a step of "detecting an object in the photographed 3D image", see its letter dated 21 October 2015, paragraph bridging pages 2 and 3, its letter dated 5 April 2016, page 3, its letter dated 20 January 2017, section II. 1.3 and minutes of oral proceedings, points 2.1 to 2.3 and the

contested decision, point 8. The appellant argued in addition that D1 did not disclose step (e), see the letter dated 20 January 2017, section II. 1.3 and the minutes of oral proceedings, point 2.2.

In the statement of grounds of appeal, the appellant stated the examining division's non-unity objection was not justified, because D1 did not anticipate the subject-matter of claims 1 and 6, see points II.1.2 and II. 1.3. In the Board's understanding, the appellant identified three distinguishing features :

- (i) photographed 3D image (see statements of grounds of appeal, page 5, first paragraph)
- (ii) a step of determining whether the user is viewing a display panel of the digital device (see statements of grounds of appeal, page 5, second paragraph)
- (iii) the chronology of steps required by claim 1 (see statement of grounds of appeal, page 5, third paragraph).

4.5 From the above, the contentious question with respect to the non-unity objection raised by the search division and upheld by the examining division is whether the subject-matter of claims 1 and 6 as originally filed is novel over D1 or not.

If D1 discloses the subject-matter of original claims 1 and 6, then raising an objection under Article 82 EPC by the search division and requesting the payment of seven additional fees were justified; if the subject-matter of original claims 1 and 6 is novel over D1, then the search division's objection was not justified and the seven additional search fees are to be reimbursed.

4.6 The Board finds that the subject-matter of claims 1 and 6 as originally filed is novel over D1 for the following reasons:

4.6.1 Document D1 discloses (in the wording of claim 1 as originally filed) a method for protecting eyesight in an image output digital device (paragraph [0004]), comprising:
detecting an object in a photographed 3D image, based on a configuration of an eyesight protecting mode (figures 1 to 3 and 6, paragraph [0020]: "imaging units 104 that capture a moving image in an upper center portion and right and left center portions of a display panel 102", paragraph [0029]);
detecting a distance between the detected object and the digital device (paragraph [0020]: "... calculates a position of the user", paragraphs [0030], [0037]: "distance information detected by the sensor 106", paragraphs [0044] to [0047], "the distance $d1=d0*(w0/w1)$ is calculated", figure 6: steps S606, 612, paragraphs [0054], [0055], [0058], [0059]); and ~~when the detected distance is within a reference distance,~~
detecting a face or eyes in a photographed 2D image of the object (paragraph [0020]: "detects a user's face", paragraph [0033]: "detecting a face or facial expression", figure 6: step S604, paragraph [0054]),
and
when the face or eyes of a user are detected in the photographed 2D image (paragraph [0054], figure 6, step S604),
determining whether the user remains within the reference distance distance, based on the results of the face or eye detection (figure 6, steps 606, 608, paragraphs [0055], [0056]),

determining whether the user is viewing a display panel of the digital device, based on the results of the face or eye detection (paragraph [0033]: "viewing state and viewing position"), and when it is determined that the user remains within the reference distance distance and is viewing the display panel (paragraphs [0055], [0056], figure 6, steps S606, S608), generating a warning (paragraph [0057], figure 6, step S610, figures 7(A) to 7(D), paragraphs [0040], [0042], [0050]).

- 4.6.2 The Board does not share the appellant's view regarding the alleged distinguishing feature (ii) and is of the opinion that the method of D1 includes a step of determining whether the user is viewing a display panel of the digital device (see paragraphs [0033] and [0037]: "viewing state and viewing position").
- 4.6.3 On the other hand, with respect to the alleged distinguishing feature (iii), the Board agrees with the appellant that in the method of D1, the step of "detecting a face or eyes in a photographed 2D image of the object" is not triggered by "detecting a distance between the detected object and the digital device" and determining if this "detected distance is within a reference distance". In D1, the face or eyes detection step clearly precedes any step of identifying a distance between the display and the user, which is either calculated from the face or eye identification, e. g. D1, paragraphs [0046] and [0047] or provided by sensor 106 to the viewing state analyzer 116, see D1, paragraphs [0030], [0037].
- 4.6.4 More importantly, the Board could not identify any indication in D1 that a 3D image is photographed or

even used in the method and disagrees with the examining division that the various definitions provided under point 8.1 iii a) to d) of the contested decision are those that should be used to understand the term "photographed 3D image". A three-dimensional or 3D image differs from a 2D image in that it comprises depth information associated to each pixel. The application describes two ways of photographing a 3D image using a multifunctional camera 225 that generates both 3D images and 2D images. In the first embodiment, the multifunctional camera 225 has two cameras 221 and 222, wherein, in the 3D photographing mode, the first camera 221 and the second camera 222 are simultaneously operated to photograph the subject, so image signals output from each of the cameras 221 and 222 are input to the image processing module 150. The skilled person understands from paragraph page 10, lines 17 to 23 that both images are used to provide a 3D image with depth information. In other words, in the first embodiment, a stereo photography technique is used by the multifunctional camera 225. In a second embodiment the multifunctional camera 225 is configured with one single camera, wherein an image sensor provided in the multifunctional camera 225 is comprised of R, G, B pixels to output colour information and a Z-pixel to output depth information, see page 9, last line to page 10, line 5 and figure 2.

In contrast, in D1, the distance between the display and the object of interest is not derived from a photographed 3D image, but is either calculated using a reference face size and a reference distance, see D1, paragraphs [0046], [0047] or is provided by an sensor 106, see paragraphs [0030], [0038]. No indication can be found in D1 that image sensors 104 provide multiple

images used to generate a 3D image or that sensor 106 provides an image comprising depth information.

4.6.5 The subject-matter of original claim 1 is therefore novel over D1. For the same reasons, a device according to original claim 6 is not disclosed in D1, either.

4.7 In view of sections 4.5 and 4.6 above, the search division's and the examining division's findings with respect to lack of unity of invention were thus not correct.

Hence, the seven additional search fees are to be reimbursed.

5. Admission of the appellant's main request

5.1 According to Article 13(2) RPBA 2020 in combination with Article 25(1) RPBA 2020, any amendment to a party's appeal case made after notification of a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

5.2 The alleged lack of novelty over D1 of the subject-matter of original claim 1 was objected by the search division in the European search opinion and maintained by the examining division throughout the examination procedure, see section 4.3 above, second paragraph.

Throughout the examination procedure, the appellant contested that D1 disclosed the subject-matter according to original claims 1 and 6, see section 4.4 above. Prior to the summons to attend oral proceedings before the examining division, the appellant amended

feature (b) of claim 1 by adding "by using depth information of the 3D image" or "based on depth information of the 3D image" and by making corresponding amendments to claim 6 in order to underline its reading of the independent claims. After the summons to attend oral proceedings, the appellant returned to the original wording of the claims by filing the main request underlying the decision (hereinafter: the former main request).

5.3 The examining division did not admit the former main request into the proceedings under Rule 137(3) EPC for two reasons (see the contested decision, points 10.1 to and 10.2):

(1) As the claims according to the former main request were identical to the set of original claims, the examining division considered that the former main request re-introduced subject-matter that was already objected to.

(2) The objection under Article 84 EPC raised in the summons to attend oral proceedings (see point 6.2 a)) against the term "photographed 3D image" was not overcome by the "re-introduction of the original claims".

The examining division found that - in their view - claim 1 as originally filed was known from D1 and that the term "photographed 3D image" was not clear so that filing the former main request, which is identical to the claims as originally filed, clearly could not overcome the examining division's objections. As a result, it decided not to admit said former main request.

5.4 Although the amendments made to claims 1 and 6 prior to the summons to attend oral proceedings before the examining division did not substantively change the claimed subject-matter and might be seen as mere clarifications to underline the appellant's view how the independent claims should be understood when being compared to the prior art, the Board is of the view that the examining division has not exercised its discretion in an unreasonable way.

5.5 In the statement of grounds of appeal, the appellant argued that the subject-matter of claim 1 according to the former main request was novel over D1 (see II.1.2 and II.2.1) and clear (see II.2.3).

As discussed above in section 4.6, the Board does not agree with the examining division's conclusions and is of the opinion that D1 does not anticipate the subject-matter of original claim 1 and that the term "photographed 3D image" is clear. The whole basis for the examining division's position regarding the admission of the former main request thus no longer exists.

As the claims according to the present main request correspond to those of the former main request and, hence, to the set of claims as originally filed, with amendments made only to overcome the Board's objections under Article 84 EPC raised for the first time in its communication pursuant to Article 15(1) RPBA 2020, the Board is convinced that the above circumstances - which arose from reversing the finding on unity of invention - qualify as exceptional circumstances in the sense of Article 13(2) RPBA 2020 and, accordingly, admits the main request into the appeal proceedings.

6. Basis for the amendments

Claims 1 and 6 correspond to original claims 1 and 6 in combination with page 10, lines 17 to 27, page 11, lines 19 to 22, page 15, lines 26 to page 16, line 2 (for the features related to the 3D photographing mode), page 11, lines 25 to 28, page 16, lines 2 to 5 (for the "depth information of the 3D image"), page 10, lines 29 to page 11, line 8, page 11, line 29 to page 12, line 4, page 16, lines 8 to 11 (for the features related to the 2D photographing mode).

The Board is satisfied that the requirements of Article 123(2) EPC were met.

7. Clarity - Article 84 EPC

As explained above in section 4.6.4, the Board accepts that the term "photographed 3D image" is clear for the skilled person.

Claims 1 and 6 make it clear that the 3D image is generated by a multifunctional camera operating in a 3D photographing mode, when the display is operating in an eyesight protecting mode and that the 2D image is generated by the multifunctional camera operating in a 2D photographing mode. Claims 1 and 6 define that a distance between the detected object and the digital device is detected by using depth information of the 3D image.

Thus, the amendments made to the claims according to the main request overcome the objections raised in points 6.1 to 6.4 of the communication pursuant to Article 15(1) RPBA 2020.

8. Novelty - Articles 52(1), 54(1) and (2) EPC

As explained above in section 4.6, the Board is of the view that the subject-matter of original claims 1 and 6 is novel over D1.

Most obviously the same conclusion holds for claims 1 and 6 according to the main request. In particular, D1 does not disclose a multifunctional camera operating in a 3D photographing mode for generating a 3D image having depth information and used to detect a distance between an object and the digital device.

9. Remittal to the first instance

The Board notes that an inventive merit of the independent claims has not been examined during the first instance procedure. The examining division merely stated in an additional remark not forming "a part of the reasoning and grounds for refusal" that document D9 might "become relevant for the examination under Article 56 EPC" (see point 15.3).

According to Article 111(1) EPC the Board may either proceed further with the examination of the application or remit the case to the department which was responsible for the decision appealed. Under Article 11 RPBA 2020 the Board may remit the case to the department whose decision was appealed if there are special reasons for doing so.

As the contested decision does not deal with the issue of inventive step, the Board holds that such special reasons exist in the present case.

Under these circumstances and further considering that the appellant did agree to a remittal, the Board finds it appropriate to remit the case to the examining division for further prosecution on the basis for the main request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The refund of the seven additional search fees is ordered.
3. The case is remitted to the examining division for further prosecution on the basis of the main request.

The Registrar:

The Chairman:



S. Sánchez Chiquero

G. Eliasson

Decision electronically authenticated