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Datasheet for the decision
of 18 June 2019

Case Number: T 1927/14 - 3.4.03
Application Number: 07735833.1
Publication Number: 2092508
IPC: G09G5/00, G06F3/01
Language of the proceedings: EN

Title of invention:
ADJUSTING DISPLAY BRIGHTNESS AND/OR REFRESH RATES BASED ON EYE TRACKING

Applicant:
Sony Ericsson Mobile Communications AB

Headword:

Relevant legal provisions:
EPC 1973 Art. 54, 56

Keyword:
Novelty - main request (no)
Inventive step - auxiliary request (no)

Decisions cited:
Case Number: T 1927/14 - 3.4.03

DECISION of Technical Board of Appeal 3.4.03
of 18 June 2019

Appellant: Sony Ericsson Mobile Communications AB
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Decision under appeal: Decision of the Examining Division of the European Patent Office posted on 28 February 2014 refusing European patent application No. 07735833.1 pursuant to Article 97(2) EPC.

Composition of the Board:
Chairman G. Eliasson
Members: M. Stenger
C. Heath
Summary of Facts and Submissions

I. The appeal of the applicant concerns the decision of the Examining Division to refuse European patent application no. 07735833. The Examining Division held that the subject-matter of claim 1 was not new in view of document D3 (US2003/052903).

II. The appellant requests that the decision under appeal be set aside and that a patent be granted according to a main request corresponding to the request on which the contested decision is based and filed with letter dated 21 December 2012 or according to one of auxiliary requests 1 to 4 filed with the grounds of appeal.

III. In a communication preparing the oral proceedings, the Board indicated its preliminary opinion that the subject-matter of the independent claims of the main request lacked novelty and that the subject-matter of the independent claims of auxiliary requests 1 to 4 lacked an inventive step.

IV. At the end of the oral proceedings which were held in the previously indicated absence of the appellant, the Chairman announced the decision of the Board.

V. Claim 1 of the main request has the following wording (labeling added by the Board):

A method comprising determining (404) a first area at which a user gazes on a display screen (212), the method characterized by:
a) identifying (406) a first screen region that does not overlap the first area, wherein the first screen region includes a first portion and a second portion;
b) determining (412) a first distance between the first area and the first portion;
c) determining (412) a second distance between the first area and the second portion;
d) assigning (414), based on the first distance, a first value to the first portion;
e) assigning (414), based on the second distance, a second value to the second portion, wherein
f) the second value is different from the first value;
g) darkening (416) the first portion to a first brightness level based on the first value; and
h) darkening (416) the second portion to a second brightness level based on the second value, wherein
i) the second brightness level is different than the first brightness level.

VI. Claim 1 of auxiliary request 1 differs from claim 1 of
the main request in that features b) and c) are replaced by the following features b1) and c1), respectively (labeling added by the Board):

b1) calculating (412) a first distance between the first area and the first portion, wherein the calculating the first distance comprises:
determining a third distance in a horizontal direction with respect to a plane of the display screen between the first area and the first portion,
determining a fourth distance in a vertical direction with respect to the plane of the display screen between the first area and the first portion, and
determining the first distance based on the third and fourth distances;
c1) calculating (412) a second distance between the first area and the second portion,
wherein the calculating the second distance comprises:
determining a fifth distance in a horizontal direction with respect to the plane of the display screen between the first area and the second portion,
determining a sixth distance in a vertical direction with respect to the plane of the display screen between the first area and the second portion, and
determining the second distance based on the fifth and sixth distances;

VII. Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that features b) and c) are replaced by the following features b2) and c2), respectively (labeling added by the Board):

b2) calculating (412) a first distance between the first area and the first portion, wherein the calculating the first distance comprises:
determining a third distance in a horizontal direction with respect to a plane of the display screen between the first area and the first portion,
determining a fourth distance in a vertical direction with respect to the plane of the display screen between the first area and the first portion, and
determining the first distance by calculating a square root of the sum of the square of the third distance and the square of the fourth distance;
c2) calculating (412) a second distance between the first area and the second portion, wherein the calculating the second distance comprises:
determining a fifth distance in a horizontal direction with respect to the plane of the display screen between the first area and the second portion, determining a sixth distance in a vertical direction with respect to the plane of the display screen between the first area and the second portion, and determining the second distance by calculating a square root of the sum of the square of the fifth distance and the square of the sixth distance;

VIII. Claim 1 of auxiliary request 3 differs from claim 1 of the main request in that features b) and c) are replaced by the following features b3) and c3), respectively (labeling added by the Board):

b3) calculating (412) a first distance between the first area and the first portion, wherein the calculating the first distance comprises: determining a third distance in a first direction with respect to a plane of the display screen between the first area and the first portion, determining a fourth distance in a second direction with respect to the plane of the display screen between the first area and the first portion, and determining the first distance based on the third and fourth distances,

c3) calculating (412) a second distance between the first area and the second portion, wherein the calculating the second distance comprises: determining a fifth distance in the first direction with respect to the plane of the display screen between the first area and the second portion, determining a sixth distance in the second direction with respect to the plane of the display screen between the first area and the second portion, and
determining the second distance based on the fifth and sixth distances;

IX. Claim 1 of auxiliary request 4 differs from claim 1 of the main request in that features b) and c) are replaced by the following features b4) and c4), respectively (labeling added by the Board):

b4) calculating (412) a first distance between the first area and the first portion, wherein the calculating the first distance comprises:
  determining a third distance in a first direction with respect to a plane of the display screen between the first area and the first portion,
  determining a fourth distance in a second direction with respect to the plane of the display screen between the first area and the first portion, and
  determining the first distance by calculating a square root of the sum of the square of the third distance and the square of the fourth distance,

c4) calculating (412) a second distance between the first area and the second portion, wherein the calculating the second distance comprises:
  determining a fifth distance in the first direction with respect to the plane of the display screen between the first area and the second portion,
  determining a sixth distance in the second direction with respect to the plane of the display screen between the first area and the second portion, and
  determining the second distance by calculating a square root of the sum of the square of the fifth distance and the square of the sixth distance;

X. The arguments of the appellant, as far as they are relevant for the present decision, may be summarised as
follows (see in particular the grounds of appeal, page 2, antepenultimate paragraph to page 3, paragraph 3):

The mere fact that D3 disclosed gradually darkening the area around the focus area 590 did not imply that D3 disclosed the determination of distances and assigning values based on the distances as required by claim 1.

For example, the gradual reduction of lighting shown in figure 5B could merely entail reducing the brightness of a row of pixels bordering the focus area 590, reducing the next row of pixels by an additional amount and so on until the end of the screen is reached.

Therefore, D3 did not disclose
- identifying a first screen region that includes a first portion and a second portion,
- determining corresponding first and second distances,
- assigning a first and a second value based on the respective distances to the first and second portions, and
- darkening the first and the second portions to first and second brightness levels based on the first and second value,
- wherein the second brightness level is different than the first brightness level.

The Board notes that the features identified as differentiating features by the appellant correspond essentially to features a) to i) of claim 1 of the main request.
Reasons for the Decision

1. The appeal is admissible.

2. If a party duly summoned to oral proceedings before the European Patent Office does not appear as summoned, the proceedings may continue without that party according to Rule 115(2) EPC. In particular, the Board is not obliged to delay its decision in such a case according to Article 15(3) RPBA. In the present case, no reply to the preliminary opinion of the Board was received from the appellant. Therefore, the case was ready for decision at the conclusion of the oral proceedings (Articles 15(5) and (6) RPBA).

3. D3
Document D3 relates to a method and apparatus for lighting a display where only a relevant portion of the display screen is fully illuminated, while reduced illumination is used on the remaining portion of the display screen. Thereby the power consumption of the display screen is decreased (abstract). The relevant portion (or focus area) of the display screen may be determined based on the user's eye movement ([14] and [31]). The remaining portion of the display screen may turned off completely or parts of it may be illuminated to a lesser extent than the relevant portion. Alternatively, there may be a gradation of lighting from the relevant portion outward ([15]).

4. Main request, claim 1
4.1 Disclosure of D3
The appellant did not dispute that D3 discloses, in the wording of claim 1 of the main request, a method comprising determining a first area (focus area or relevant portion) at which a user gazes on a display screen (see [31] and [41]).

Further, as noted above, D3 discloses a graduated darkening (or illumination) of the area outside the focus area/relevant portion, around the focus area/from the relevant portion outward; see [15] and [54]). This was also accepted by the appellant (grounds of appeal, penultimate paragraph of page 2).

That is, according to D3, the area outside the focus area/the remaining portions does not overlap the focus area/relevant portion and thus corresponds to the first screen region of claim 1. Further, a graduated darkening of an area implies that this area is divided into a plurality of portions which are to be darkened (or illuminated) to different brightness levels. Thereby, D3 implicitly discloses feature a).

Further, it is the understanding of the Board that graduated darkening around the focus area/from the relevant portion outward as disclosed in D3 means that different ones of these portions are illuminated to different brightness levels in a graduated manner. That is, the different portions are not darkened/illuminated to different brightness levels in a random manner, but must be darkened/illuminated such that the brightness levels of the different portions decrease monotonically with their distance from the focus area/relevant portion.
In order to be able to provide such a monotone decrease of brightness levels, the respective distances between each portion and the focus area/relevant portion must be determined in one way or another. Thus, D3 also implicitly discloses features b) and c).

In addition, in order to be able to provide the monotone decrease mentioned above, brightness levels must be assigned to individual ones of the different portions based on their individual distances to the focus area/relevant portion. Thereby, D3 also implicitly discloses features d) and e).

It is furthermore indispensable to actually darken/illuminate the different portions according to these brightness levels during use to obtain a graduated lighting pattern. Thus, D3 also implicitly discloses features g) and h).

Finally, a monotone decrease of brightness implies that there are at least two different portions which are darkened/illuminated to different brightness levels. Thereby, D3 also implicitly discloses features f) and i).

Document D3 thus at least implicitly discloses all the features of claim 1 of the main request, including features a) to i), contrary to the argument of the appellant.

4.2 Embodiment of figure 5B
The Board accepts the argument of the appellant that in the embodiment shown in figure 5B of D3, graduated darkening could be performed row by row. The Board notes that such a darkening would then imply that the brightness level of a given row decreases
monotonically with the number of rows between that given row and the focus area 590.
However, determining a number of rows or, more generally, counting rows (or pixels) is nothing more than one generally known way of determining a distance on a (computer) display screen as required by claim 1 of the main request.

Therefore, the above considerations with respect to features a) to i) also apply to the embodiment shown in figure 5B of D3, contrary to the arguments of the appellant.

4.3 Conclusion
It follows from the above that D3 discloses all the features of claim 1 of the main request. Its subject-matter is therefore not new according to Article 54 EPC 1973.

The Board thus comes to the same conclusion as the Examining Division in the contested decision (point 1.1).

5. Auxiliary requests 1 to 4
The independent method claims of auxiliary requests 1 to 4 differ from independent method claim 1 of the main request in that features b1), c1), b2), c2), b3), c3), b4) and c4), respectively, specify in more detail than features b) and c) how the first and second distances are determined/calculated.

Document D3 discloses the determination of the distances between the different portions of the area with the graduated darkening and the focus area in an
implicit manner and is silent about how they are determined. Starting from D3, the skilled person would thus be confronted with the problem to find a way to determine these distances.

One immediately obvious way to do so would be to count pixels, as mentioned above. Another equally obvious way would be to use the Pythagorean theorem, which has been a generally known way of determining a distance for a very long time. Therefore, the skilled person would, starting from D3 and using his common general knowledge, readily consider to use the Pythagorean theorem to determine the distances required.

The Board acknowledges that each of the independent method claims of auxiliary requests 1 to 4 is formulated in a slightly different manner. Nonetheless, calculating the first and second distances by means of the Pythagorean theorem falls under the definition of each of these claims.

Thus, the skilled person would, by starting from D3 and using the Pythagorean theorem to determine the distances required, arrive at the subject-matter of each of the independent method claims of auxiliary requests 1 to 4.

Therefore, the subject-matter of these claims is not inventive according to Article 56 EPC 1973.

6. It follows from the above that the independent method claim of the main request as well as the independent method claims of auxiliary requests 1 to 4 do not fulfill the requirements of the EPC. Thus, the appeal must fail.
Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated