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**Datasheet for the decision
of 14 March 2017**

Case Number: T 1097/12 - 3.5.05

Application Number: 07764817.8

Publication Number: 2160673

IPC: G06F3/041

Language of the proceedings: EN

Title of invention:

IMPROVEMENTS IN OR RELATING TO USER INTERFACES AND ASSOCIATED
APPARATUS AND METHODS

Applicant:

Nokia Technologies Oy

Headword:

Multiple touches detection on touch interface/NOKIA

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 1097/12 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 14 March 2017

Appellant: Nokia Technologies Oy
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 9 December 2011
refusing European patent application
No. 07764817.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair A. Ritzka
Members: P. Cretaine
D. Prietzel-Funk

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division, posted on 9 December 2011, to refuse European patent application No. 07764817.8. The application was refused on the grounds of lack of clarity (Article 84 EPC) with respect to a main request, a first auxiliary request, and a third auxiliary request, of non-compliance with Article 123(2) EPC with respect to a second auxiliary request and to the third auxiliary request, and of lack of novelty (Article 54 EPC) with respect to all requests, having regard to the disclosure of D1: US 2003/063073.
- II. Notice of appeal was received on 8 February 2012 and the appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 18 April 2012. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of a main request, a first auxiliary request, or a second auxiliary request, all requests filed with the statement setting out the grounds of appeal. Oral proceedings were requested should any of the requests not be allowed.
- III. A summons to oral proceedings was issued on 22 December 2016. In an annex to this summons, the board gave its preliminary opinion on the appeal pursuant to Article 15(1) RPBA. Objections were raised under Article 56 EPC with respect to all the requests on file, having regard to the disclosure of D1 which the board considered as the closest prior art.

- IV. With a letter dated 13 February 2017, the appellant provided arguments in support of inventive step.
- V. By letter of 28 February 2017 the appellant withdrew the request for oral proceedings and requested a decision based on the state of the written file.
- VI. With a communication dated 9 March 2017, the board informed the appellant that the date fixed for the oral proceedings was maintained.
- VII. Oral proceedings were held as scheduled on 14 March 2017 in the absence of the appellant. After due deliberation on the basis of the pending requests and the written submissions, the decision of the board was announced at the end of the oral proceedings.
- VIII. Claim 1 of the **main request** reads as follows:

"An apparatus for a touch sensor, the apparatus comprising:
circuitry for processing signalling to determine the respective locations of multiple concurrent touch inputs, wherein the circuitry for processing is configured to:
perform a first touch calibration, following the detection of a first touch, to provide a first reference threshold characterised wherein the first reference threshold compensates for the signalling associated with the first touch by resetting a background capacitance signal level, and the circuit for processing is configured to
detect the location of a subsequent next concurrent touch, using the first reference threshold as the reference threshold for detection of the location of said concurrent subsequent touch."

Claim 1 of the **first auxiliary request** reads as follows:

"An apparatus for a touch sensor, the apparatus comprising:
circuitry for processing signalling to determine the respective locations of multiple concurrent touch inputs, wherein the circuitry for processing is configured to:
detect a first touch with respect to a background capacitance signal level; and characterised wherein the circuitry for processing is configured to perform a first touch calibration, following the detection of a first touch, to provide a first reference signal level which compensates for the signalling associated with the first touch by resetting the background capacitance signal level, and detect the location of a subsequent next concurrent touch, using the reset background capacitance signal level for detection of subsequent next concurrent touch."

Claim 1 of the **second auxiliary request** reads as follows:

"An apparatus for a touch sensor, the apparatus comprising:
circuitry for processing signalling to determine the respective locations of multiple concurrent touch inputs, wherein the circuitry for processing is configured to:
detect a first touch based on a comparison of the detected capacitance level with an environmental reference threshold as a background level (B1);

characterised wherein the circuitry for processing is configured to perform a first touch calibration, following the detection of the first touch, first reference threshold which compensates for the signalling associated with the first touch to take into account the impact of the first touch on the detected capacitance level and to provide a new background level (B2), and detect the location of a subsequent next concurrent touch, using the new background level (B2) for detection of the said subsequent next concurrent touch."

Each of the requests contains further independent claims directed to a corresponding method (claim 12) and computer program (claim 13).

Reasons for the Decision

1. The appeal is admissible.
2. Non-attendance at oral proceedings

Notwithstanding the withdrawal of the appellant's request for oral proceedings, the board considered it expedient to hold them on the date set. Nobody attended on behalf of the appellant. However, considering the request of the appellant for a decision based on the state of the written file, the board was in a position to announce a decision at the end of the oral proceedings (Article 15(3) RPBA).

3. Prior art

D1 discloses a touch system and method for determining

the locations of multiple touches which overlap in time, i.e. which are concurrent touches in the sense of claim 1 (see paragraph [0006], first and second sentences; paragraph [0008], last sentence; paragraph [0038], last sentence; and paragraph [0040], last sentence). D1 teaches that the detection of a touch may be based on, inter alia, capacitive technology (see paragraph [0007]: "various different touch sensor technologies, for example, capacitive", and paragraph [0009]: "The touch panel can be, for example, a capacitive touch panel"), i.e. that the signalling associated with a touch is represented by a capacitance signal level. A measured signal exceeding a predefined minimum threshold but not exceeding a predefined maximum threshold is considered as defining a single touch, for which a touch location is calculated and reported (see paragraphs [0008], [0067] and [0070], claim 1, part (c)). A further measured signal exceeding the predefined maximum threshold is considered as defining a double touch (see paragraphs [0008], [0067] and [0070], claim 1, part (d)). D1 further teaches the possibility of reporting the measured signal of such a double touch, calculating a corresponding positional data, and subtracting the positional data of the first touch to obtain the location of the second touch of the two touches (see paragraphs [0008], [0067], [0070], claim 2).

It was common ground in the written proceedings that D1 represents the closest prior art to the subject-matter of the application.

4. Main request - Article 56 EPC

The difference between the subject-matter of claim 1 and the disclosure of D1 is that the first measured

signal is used as a first reference threshold for compensating the signalling associated with the first touch by resetting a background capacitance signal level, and that the location of the second touch is detected by using this threshold.

In substance, this difference amounts to compensating for the signalling of the first touch at the level of the measured capacitance signal, whereas in D1 the compensation is performed at the level of the calculated touch locations. The board agrees with the appellant that technical effects of this different approach are that the touch locations for multiple touches are more rapidly reported and that less computing and storage resources are needed.

The objective technical problem can thus be formulated as how to provide a more flexible and efficient double-touch detection system.

D1 discloses however a calibration step wherein the predefined minimum threshold mentioned in point 3 above is set (see paragraphs [0040] and [0067]). This calibration step amounts to resetting a background capacitance level for the measurement of signals caused by single-touch inputs. It would thus be obvious for the skilled person to apply a similar capacitance signal level resetting to take into account the first detected touch of a double touch and to compensate for the signalling associated with this first touch at the level of the measured signal, instead of compensating at the level of the touch-location calculation as in D1.

The appellant argued that a further technical effect of the alleged invention was the ability to distinguish a

higher number of touches. To that end, the appellant submitted that claim 1 could be interpreted as defining an n'th touch calibration as a first touch calibration, the subsequent next concurrent touch being then the n +1'th touch. The board is however not convinced by this argument, firstly because claim 1 defines only a first touch and its subsequent next concurrent touch, and secondly because nothing could preclude the system of D1 from being developed by defining further predetermined thresholds corresponding to multiple touches beyond two.

For these reasons, claim 1 does not meet the requirements of Article 56 EPC, having regard to the disclosure of D1.

The same reasoning applies to independent claims 12 and 13, which are directed to a corresponding method and computer program, respectively.

5. First auxiliary request - Article 56 EPC

Claim 1 adds in substance to claim 1 according to the main request the feature that the first touch is detected with respect to a background capacitance signal level.

This feature is however already disclosed in D1 which describes in paragraph [0040] a calibration stage, wherein a minimum signal magnitude value is set to register a single touch.

The appellant has argued in writing that there was no explicit definition in D1 of the use of a background capacitance level. In the board's judgement however, the use of a capacitive touch panel in D1, as mentioned

in paragraphs [0007] and [0009], implies that the measured signal is a capacitance signal. The minimum value, or minimum threshold, described in paragraph [0040] is thus equivalent to the background capacitance signal level defined in claim 1.

Thus, the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

The same reasoning applies to independent claims 12 and 13, which are directed to a corresponding method and computer program, respectively.

6. Second auxiliary request - Article 56 EPC

Claim 1 adds in substance to claim 1 according to the first auxiliary request the feature that the background (capacitance signal) level is an environmental reference threshold.

D1 discloses in paragraph [0040] a calibration stage wherein a minimum value to register a single touch is set. D1 further discloses in paragraph [0067] that each user calibrates his touch signal magnitude by touching the sensor prior to normal use, and that this information can be used to set threshold values. The first calibration performed in D1 at that stage has the aim of taking into account, in the minimum threshold, any signal level present when there is no touch input. Due to the broad meaning of the term "environmental" in the context of claim 1, the board judges that the minimum value established in D1 during the calibration stage prior to normal use falls under the definition of an "environmental reference threshold as a background level" defined in claim 1.

Therefore, the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D1 (Article 56 EPC).

The same reasoning applies to independent claims 12 and 13, which are directed to a corresponding method and computer program, respectively.

7. In conclusion, none of the three requests is allowable under Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



K. Götz-Wein

A. Ritzka

Decision electronically authenticated