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Datasheet for the decision of 14 March 2013

Case Number: T 1896/09 - 3.5.05

Application Number: 02025488.4

Publication Number: 1288773

IPC: G06F 3/033, G06K 11/06

Language of the proceedings: EN

Title of invention:
Object position detector with edge motion feature and gesture recognition

Applicant:
SYNAPTICS, INC.

Headword:
Object position detector/SYNAPTICS

Relevant legal provisions:
EPC Art. 52(1), 56
EPC R. 112(2)

Keyword:
"Inventive step - yes"
"Substantial procedural violation - no"
"Re-imbursement of appeal fee - no"

Decisions cited:
-

Catchword:
-

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Case Number: T 1896/09 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 14 March 2013

Appellant: (Applicant)
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Representative:
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted 9 February 2009 refusing European patent application No. 02025488.4 pursuant to Article 97(2) EPC.

Composition of the Board:

Chair: A. Ritzka
Members: P. Corcoran
F. Blumer

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse the European patent application no. 02 025 488.4, publication no. EP 1 288 773. The decision was announced during oral proceedings on 21 January 2009 with written reasons being dispatched on 9 February 2009.

II. The decision under appeal was based on a request comprising a set of claims 1 to 8 filed with the letter dated 16 December 2008. The examining division found that claim 1 of said request lacked an inventive step in the light of the following documents:

D1: EP 0 490 001 A;

D2: US 4 914 624.

III. Notice of appeal was received at the EPO on 3 April 2009 with the appropriate fee being paid on the same date. A statement setting out the grounds of appeal was received at the EPO on 5 June 2009. With the statement setting out the grounds of appeal the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 8 filed with the letter dated 16 December 2008 or on the basis of claims 1 to 8 of an auxiliary request filed with the written statement. The appellant further requested the refund of the appeal fee due to an alleged procedural violation on the part of the examining division.

IV. In a communication accompanying a summons to oral proceedings to be held on 14 March 2013, the board made reference *inter alia* to the following additional prior

art documents which it considered to be of relevance to the question of inventive step:

D3a: Jim Louderback, "Cirques's GlidePoint technology could cure track ball-mung blues", PC Week, Vol.11 No.18, May 1994, p.142, ISSN: 0740-1604.

D3b: Harry McCracken, "Trackball Alternative: Let Your Finger Do the Mousing", PC World, Vol.12, July 1994, p.91, ISSN: 0737-8939.

D4a: GB 2 139 762 A.

D4b: B. Donnelly, "Mobile professional computer system uses micro disks and memory capsules", Electronics Industry, Vol.7, No.9, September 1983, pp.9 and 11, ISSN: 0307-2401.

D5: US 5 327 161.

D3a and D3b relate to the Alps/Cirque Glidepoint referred to in [0022] of the published application.
D4a and D4b relate to a portable computing device which was developed and marketed by the Gavilan Computer Corporation. D4a is cited as a reference in US 5 543 591 which is related to the present application insofar as it claims priority from the same US application, *viz.* No. 320158 filed on 7 October 1994. A family member of D4a, *viz.* FR 2544103, was cited in the search report of WO 96/24095 referred to in item 29. of the written statement setting out the grounds of appeal.
D5 relates to the UnMouse referred to in [0023] of the published application.

V. In its communication, the board expressed the preliminary opinion that the appellant's requests were

not allowable. The board stated that it had not been convinced by the appellant's submissions concerning the inventive step objection based on D1 and it further noted that the question of the inventive step might require further consideration in the light of the additional prior art referred to in the communication, in particular D3a/D3b, D4a/D4b and D5.

VI. With a letter of reply dated 1 February 2013, the appellant filed two further auxiliary requests designated as the second and third auxiliary requests.

VII. With a letter of reply dated 8 March 2013, the appellant filed an amended version of the second auxiliary request to replace the previously filed version.

VIII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request as filed during the oral proceedings before the board, or subsidiarily on the basis of the first auxiliary request as filed with the statement setting out the grounds of appeal dated 4 June 2009, the second auxiliary request as filed with the letter dated 8 March 2013, or the third auxiliary request as filed with the letter dated 1 February 2013. The appellant further requested the refund of the appeal fee.

IX. Claim 1 of the main request reads as follows:
"A method for recognizing a gesture made on a touch pad (10) in a touch-sensing system providing X and Y position information to a host, including:

detecting a first presence of a conductive object (8) on said touch pad;

comparing a duration of said first presence with a first reference amount of time;

initiating a first gesture signal (OUT) to said host if said duration of said first presence is less than said first reference amount of time;

detecting a second presence of said conductive object on said touch pad;

comparing a duration between said first presence and said second presence with a second reference amount of time;

comparing a duration of said second presence with a third reference amount of time;

terminating said first gesture signal if said duration between said first presence and said second presence is greater than said second reference amount of time; and

maintaining said first gesture signal (OUT) and repeatedly sending X and Y position information to said host until an occurrence of a terminating event if said amount of time between said first presence and said second presence is less than said second reference amount of time and if said duration of said second presence is greater than said third reference amount of time."

X. Insofar as they are relevant to the present decision, the written and oral submissions made on behalf of the appellant during the present appeal proceedings, may be summarised as follows:

(i) At the claimed priority date, the mouse was the most common input device used with so-called WIMP

("Windows, Icons, Menus, Pointer") graphical user interfaces. A mouse is an input device which effectively has two separate input channels:
(a) it is used for performing cursor control operations by means of its movement over a surface; and
(b) it is additionally provided with a plurality of binary switches in the form of buttons which can be used for performing selection operations and similar tasks.

(ii) Although the mouse is a convenient input device it also has some drawbacks and this has led to the development of alternative input devices, in particular for portable computers. One known alternative is a combination of a touchpad (or "trackpad") with buttons. A general aim of designers of such touchpad systems is to enable a user to emulate actions typically performed using a mouse. Touchpad and button combinations are, however, not as easy to use as a computer mouse, particularly for novice users.

(iii) The present invention addresses the problem of providing a convenient implementation of a drag operation using a touchpad input device. The claimed solution is based on using a single tap gesture executed with a conductive object (e.g. the user's finger) to initiate a "drag" operation followed by a movement of the conductive object to perform the dragging action.

(iv) Claim 1 of the main request defines a specific sequence of user interactions and timing

constraints for implementing a drag operation using a touchpad input device. To perform a drag operation the user taps once, quickly brings the finger back in contact with the touchpad, then moves the finger in a desired direction in the X-Y plane of the touchpad (cf. published application: [0209]). More specifically (cf. published application: Fig. 15b and [0211] and [0212]), the drag operation is initiated by the user making a single tap gesture according to which a first contact ("presence") of a conductive object with the touchpad for less than a first reference amount of time is detected. The drag action itself is performed by means of a second contact ("presence") of the conductive object with the touch pad which must follow the first contact within a time period less than a second reference amount of time and which must last for a duration greater than a third reference amount of time.

(v) The appellant submitted that there were many other possible approaches to implementing a drag operation using a touchpad input device, for example based on the force profile of the touch stimuli or based on other types of gesture sequences. No combination of the available prior art documents would lead the skilled person to the subject-matter of claim 1 of the main request.

(vi) D1 discloses a system which is enabled "to distinguish between cursor movement commands and button click commands issued via an absolute position pointing device without requiring a separate, manually operable push button"

(column 2, lines 28 to 31). Most of the disclosure of Dl relates to the problem of unintended movement of the object tapping the screen when performing a button click command. A virtual button click is generated when the force exerted by the touching object goes over a threshold. The duration of the contact is not considered at all in detecting a virtual button click and there is no disclosure or suggestion of emulating a mouse-based "drag" operation as defined in the present invention.

(vii) D3a and D3b relate to the Alps/Cirque Glidepoint referred to in [0022] of the published application and disclose a relative-positioning electrostatic touchpad that provides support for a tap gesture which can be employed as an alternative to clicking a mechanical button and for a drag operation in the form of a "double-click and drag motion" to hold and move objects on-screen. However, neither D3a nor D3b provide any detailed technical information as to how specific gestures are detected or how the drag operation is implemented.

(viii) D4a and D4b relate to a portable computer which comprises a touchpad input device and uses tap gestures to generate control signals. The prior art of D4a and D4b documents only discloses that a tap gesture is recognised by measuring the time and movement parameters of a contact and that such a gesture can be used, for example, to make a menu selection. There is no disclosure or suggestion to

use the tap gesture in the context of implementing a drag operation.

(ix) D5 discloses a touchpad device for emulating a mouse input device. D5 is particularly concerned with supporting pointing and dragging interactions and relies on a mechanical button or drag switch for activating a "drag mode". Because a mechanical button is used, there is no need for gesture interpretation.

(x) No combination of the aforementioned prior art documents would lead the skilled person to arrive at the claimed invention in an obvious manner and there is no apparent motivation for the skilled person to implement a drag operation using a touchpad in the specific manner defined by claim 1 of the main request.

(xi) Concerning the alleged procedural violation, it was submitted that the inventive step objection raised in the decision under appeal could not be clearly understood and that it appeared to be a decision based on some kind of preconceived policy which was not properly reasoned.

XI. At the end of the oral proceedings the chair announced the board's decision.

Reasons for the Decision

1. The appeal is admissible (cf. Facts and Submissions, item III. above).

Main request

2. *Articles 84 and 123(2) EPC*

2.1 The board judges that the claims of the main request, in particular claim 1, define the matter for which protection is sought in a manner which complies with the requirements of Article 84 EPC.

2.2 The subject-matter of claim 1 is supported by the disclosure of Fig. 15b and the associated passages of the description, in particular [0209], [0211] and [0212] of the published application which correspond to p.42 l.16-20, p.42 l.30-35 and p.43 l.1-9 of the originally filed application.

2.3 In view of the fact that the passages of the description which provide support for the subject-matter of claim 1 form part of the originally filed application documents, the board is also satisfied that the requirements of Article 123(2) are met.

3. *Observations re D1*

3.1 D1 relates to a coordinate processor for a computer system having a pointing device such as a touch sensitive display screen.

3.2 D1 is concerned with enabling the operator of a computer system to issue button click commands via a touch sensitive display screen. A button click command is issued via a touch screen by applying an corresponding sequence of touch stimuli to the touch screen within a predetermined time period (col.1 l.48-53). The system of D1 is arranged to distinguish stimuli applied to the touch screen to issue button click commands from stimuli to move the cursor within the display area (cf. col.3 l.18-24).

3.3 In a preferred embodiment of D1, an icon within the data display area is used to provide a graphical representation of a push button, (cf. Fig. 3; col.6 l.47 - col.7 l.2). A depression of the button is detected by determining that the force imparted to the screen by the touch stimulus increases above a predetermined threshold value (cf. col.5 l.30-36). The subsequent release of the button is detected by determining that the force imparted by the touch stimulus decreases below the threshold value within a predefined timeout period (cf. col.5 l.10-31). Using this approach, multiple clicks on a button can also be detected (cf. Fig. 4; col.7 l.3 et seq.).

3.4 The board does not concur with the appellant's submission to the effect that in D1 the duration of the contact is not considered in detecting a virtual button click (cf. Facts and Submissions, item X(vi) above) as D1 clearly indicates the use of a predefined timeout period in the context of detecting a button click. Nevertheless, the teaching of D1 is essentially limited to detecting button click operations and it uses an approach which relies primarily on detecting changes in

the force imparted to the screen. In particular, there is no disclosure or suggestion of implementing any kind of drag operation. For this reason the board judges that D1 is too remote from the subject-matter of claim 1 of the main request to prejudice the inventive step of the claimed invention.

4. *Observations re D3a and D3b*

4.1 The prior art of D3a and D3b relates to the Alps/Cirque Glidepoint referred to in [0022] of the published application and discloses a relative-positioning electrostatic touchpad which is additionally provided with left and right buttons located below the touch pad (cf. D3b: col.2 l.5-8).

4.2 D3a discloses that the touchpad is responsive to single and double tap gestures as an alternative to clicking a button and that it is further responsive to a "double-click and drag motion" to hold and move objects on-screen (cf. D3a: first paragraph of col.2).

4.3 As noted by the appellant (cf. Facts and Submissions, item X(vii) above), neither D3a nor D3b provide any technical teaching as to how tap gestures are recognised or how the "double-click and drag motion" referred to in D3a is actually implemented.

4.4 In order to arrive at the claimed invention starting from D3a, the skilled person would have to implement a drag operation using a single click (i.e. tap) action as specified in claim 1.

4.5 Although the drag operation of claim 1 can be considered as a simplification of the "double-click and drag motion" of D3a, the skilled person does not appear to have any motivation to contemplate such a simplification because D3a states that the user is able to easily adapt to the "double-click and drag motion" (cf. D3a: first paragraph of col.2).

4.6 Even if, for the sake of argument, it were to be supposed that the skilled person would contemplate a simplification of the "double-click and drag motion" of D3a, the board judges that the lack of a specific technical teaching concerning its implementation means that the level of technical disclosure in D3a and D3b does not suffice to lead the skilled person to the subject-matter of claim 1 in an obvious manner.

4.7 The board notes in this regard that it concurs with the appellant's submissions to the effect that there are various approaches to detecting a tap gesture (cf. Facts and Submissions, item X(v) above) and that various possibilities exist for defining the relationship between a tap gesture indicating the commencement of a drag operation and the subsequent touch stimulus used to perform the drag action. Since it is not apparent from D3a how the "double-click and drag motion" is implemented, it is unclear what specific technical modifications would be required in order to arrive at the claimed invention.

4.8 Under the given circumstances, the board judges that the subject-matter of claim 1 cannot be derived in an obvious manner starting from the prior art of D3a and D3b.

5. *Observations re D4a and D4b*

5.1 D4a and D4b relate to a portable computer which comprises a touchpad input device and uses tap gestures to generate control signals (cf. D4a: p.1 l.46-55; p.1 l.126 - p.2 l.30; p.6 l.1-53; D4b: p.11 "Touch panel provides cursor control"). The tap gesture is recognised by measuring the time and movement parameters of a contact.

5.2 According to D4a (cf. D4a: p.2 l.12-26), the tap gesture is used to cause a desired execution at the location of the cursor. D4b discloses that the cursor can be positioned over a menu choice such that a tap or "touch" results in the execution of the selected function (D4b: last paragraph of col.2 on p.11). There is no disclosure that the tap gesture can be used to initiate a drag operation. Given that D4a and D4b relate to a computer having an MS-DOS type of operating system (cf. D4b: Table 1 on p.9) which does not have a WIMP type graphical user interface, there is no apparent need for such a computer to support a drag operation.

5.3 Thus, the board concurs with the appellant's submissions to the effect that the prior art of D4a/D4b does not disclose or suggest the use of a tap gesture in the context of implementing a drag operation (cf. Facts and Submissions, item X(viii)).

5.4 Even if, for the sake of argument, upgrading the system of D4a/D4b with a operating system having a WIMP type graphical user interface were to be considered an

obvious desideratum and it were to be further supposed that the skilled person would be motivated by such an upgrade to attempt to provide support for pointing and dragging functionality, there is no evident basis for assuming that he would choose to implement a drag operation in the specific manner defined in claim 1.

5.5 In particular, it is noted that if the skilled person were to consult D3a in this regard he would find that it merely discloses a drag operation in the form of a "double-click and drag motion" rather than the single click and drag operation specified in claim 1.

5.6 In view of the foregoing, the board judges that the subject matter of claim 1 cannot be derived in an obvious manner starting from the prior art of D4a and D4b.

6. *Observations re D5*

6.1 D5 discloses a touchpad input device for emulating a mouse input device. D5 is particularly concerned with supporting pointing and dragging interactions and relies on a mechanical drag switch for activating a "drag mode" (cf. D5: Abstract; col.1 l.10 - col.2 l.20; col.3 l.64 - col.4 l.18).

6.2 According to D5, the user initiates a drag operation by applying sufficient pressure to actuate a mechanical "drag switch" disposed beneath the touchpad (cf. D5: Figs. 2A and 2B; col.3 l.64 - col.4 l.2; col.5 l.67 - col.6 l.9).

6.3 The board concurs with the appellant's submission to the effect that because the system of D5 is provided with a mechanical switch (cf. Facts and Submissions, item X(ix) above), there is no apparent need to make any provision for detecting a tap gesture in the context of implementing a drag operation.

6.4 Even if, for the sake of argument, it were to be supposed that the skilled person would contemplate replacing the mechanical switch of D5 with a gesture-based interaction, there is no evident basis for assuming that he would choose to implement a drag operation in the specific manner defined in claim 1.

6.5 In particular, as previously noted under 5.5. above, if the skilled person were to consult D3a in this regard he would find that it merely discloses a drag operation in the form of a "double-click and drag motion" rather than a single click and drag operation as specified in claim 1.

6.6 In view of the foregoing, the board judges that the subject matter of claim 1 cannot be derived in an obvious manner starting from the prior art of D5.

7. *Inventive step*

7.1 The board therefore concludes that, as submitted by the appellant (cf. Facts and Submissions, item X(x) above), no combination of the aforementioned prior art documents would lead the skilled person to the subject-matter of claim 1 of the main request. On this basis, said claim is judged to involve an inventive step over the available prior art.

8. Having regard to the board's findings in respect of the main request, it is not necessary to consider the appellant's auxiliary requests.

Request for reimbursement of the appeal fee

9. *Alleged procedural violation*

9.1 The board is not convinced by the appellant's submissions to the effect that the decision under appeal involved a substantial procedural violation due to the allegedly deficient reasoning of the decision (cf. Facts and Submissions, item X(xi) above).

9.2 According to said decision, the application was refused because the subject-matter of independent claim 1 on file did not involve an inventive step.

9.3 In support of this finding, the decision refers to documents D1 and D2 which are said to disclose input devices supporting touch-based interactions and which are able "to recognize and differentiate between gestures mapped to different commands". This is followed by a line of argumentation based on generic considerations to the effect that defining gestures for interaction with such devices is inherently non-technical and the implementation of a defined gestural sequence to generate a desired sequence of commands does not involve an inventive step.

9.4 As may be inferred from its observations set forth above, the board does not concur with the line of argumentation advanced by the examining division in the

impugned decision. Nevertheless, even if the board takes the view that the reasons for the decision are not well-founded this does not mean that the decision is not reasoned at all in the sense of Rule 111(2) EPC (formerly Rule 68(2) EPC 1973). Consequently, there is no procedural violation in this respect.

9.5 In view of the foregoing, the appellant's request for refund of the appeal fee is refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the following documents:
   - claims 1-8, submitted as Main Request during the oral proceedings before the Board.
   - description:
     - pages 1—5 and 7—60 as originally filed;
     - pages 6 and 6a as filed on 21 November 2006.
   - drawing sheets 1—26 as originally filed.

3. The request for refund of the appeal fee is refused.

The Registrar: The Chair:

K. Götz A. Ritzka