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Datasheet for the decision
of 16 October 2014

Case Number: T 1692/11 - 3.5.05

Application Number: 04255568.0

Publication Number: 1517228

IPC: G06F3/033

Language of the proceedings: EN

Title of invention:
Gesture recognition method and touch system incorporating the same

Applicant:
PixArt Imaging Inc.

Headword:
Camera-based gesture recognition/PIXART

Relevant legal provisions:
EPC 1973 Art. 54

Keyword:
Novelty - main and auxiliary request (no)

Decisions cited:

Catchword:

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 1692/11 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 16 October 2014

Appellant: (Applicant)	PixArt Imaging Inc. 5F, No. 5, Innovation Road I Science-Based Industrial Park Hsin-Chu City 300 (TW)
Representative:	Becker Kurig Straus Patentanwälte Bavariastrasse 7 80336 München (DE)
Decision under appeal:	Decision of the Examining Division of the European Patent Office posted on 16 February 2011 refusing European patent application No. 04255568.0 pursuant to Article 97(2) EPC.

Composition of the Board:

Chair	A. Ritzka
Members:	K. Bengi-Akyuerek
	G. Weiss

Summary of Facts and Submissions

I.   The appeal is against the decision of the examining
        division, posted on 16 February 2011, to refuse
        European patent application No. 04255568.0 on the
        grounds of lack of novelty in respect of a main and
        first auxiliary request and lack of inventive step in
        respect of a second and third auxiliary request, having
        regard to the disclosures of

        D1:   US-A-4 746 770;
        D3:   WO-A-99/28812;
        D5:   J. Rekimoto: "SmartSkin: An Infrastructure for
               Freehand Manipulation on Interactive Surfaces",
               Proceedings of the Conference on Human Factors
               in Computing Systems CHI 2002, pp. 113-120,
               April 2002,

        and on the ground of added subject-matter
        (Article 123(2) EPC) in respect of a fourth auxiliary
        request.

        Furthermore, in an *obiter dictum*, the decision under
        appeal stated that claim 1 of the fourth auxiliary
        request also lacked an inventive step in view of D1.

II.   Notice of appeal was received on 26 April 2011. The
        appeal fee was paid on the same day. With the statement
        setting out the grounds of appeal, received on
        27 June 2011, the appellant filed a new set of claims
        according to a main request and first and second
        auxiliary requests. It requested that the decision of
        the examining division be set aside and that a patent
        be granted on the basis of the main request or either
        of the auxiliary requests.

III.   A summons to oral proceedings scheduled for 16 October 2014 was issued on 5 June 2014. In an annex to this summons, the board gave its preliminary opinion on the appeal pursuant to Article 15(1) RPBA. In particular, objections were raised under Article 52(1) EPC in conjunction with Article 54 and/or 56 EPC 1973, mainly having regard to D1, and under Article 123(2) EPC in respect of the second auxiliary request.

IV.   With a letter of reply dated 28 July 2014, the appellant submitted counter-arguments to the objections raised in the board's communication under Article 15(1) RPBA, and requested that a patent be granted on the basis of the main request or either of the auxiliary requests.

V.   Oral proceedings were held as scheduled on 16 October 2014, during which the pending second auxiliary request was withdrawn.

        The appellant's final request was that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to the main request or the first auxiliary request, both requests submitted with the statement setting out the grounds of appeal.

        At the end of the oral proceedings, the decision of the board was announced.

VI.   Claim 1 of the **main request** reads as follows:

        "A gesture recognition method for use in a camera-based touch system, the method comprising: capturing images of a touch surface from different vantages using imaging devices that look

generally across said touch surface;

processing the captured images to detect
different successive pointers being brought into
contact with said touch surface, said different
successive pointers being part of the gesture to be
recognised;

following detection of said different
successive pointers brought into contact with the touch
surface, examining the relative positions of the
successive pointer contacts and subsequently detecting
relative movement of the pointers along the touch
surface to recognize said gesture; and

when said gesture is recognized, causing an
applications program to execute a command associated
with said recognized gesture."

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

"A gesture recognition method for use in a
camera-based touch system, the method comprising:

capturing images of a touch surface from
different vantages using imaging devices that look
generally across said touch surface;

processing the images and generating pointer
data when one or more pointers exist in the captured
images;

processing the pointer data to detect multiple
pointers being brought into contact with said touch
surface, said multiple pointers being part of a gesture
to be recognized;

examining the relative positions of the
multiple pointer contacts and the pointer types, and
subsequently detecting relative movement of the
pointers along the touch surface to recognize said
gesture; and

when said gesture is recognized, causing an
applications program to execute a command associated
with said recognized gesture."

Reasons for the Decision

1.   The appeal is admissible.

2.   MAIN REQUEST

        This request is identical to the main request
        underlying the appealed decision.

2.1   Article 52(1) EPC: Novelty and inventive step

        In the board's judgment, claim 1 of this request does
        not meet the requirements of Article 52(1) EPC in
        conjunction with Article 54 EPC 1973, for the following
        reasons:

2.1.1   The board concurs with the finding of the decision
        under appeal that D1, relating to an optical gesture
        recognition system like the present invention,
        discloses all the limiting features of claim 1:

        A gesture recognition method for use in a camera-based
        touch system (see Fig. 1) comprising the steps of:
          A) capturing images of a touch surface ("display
             image region 4") from different vantages using
             imaging devices ("sensor assemblies 20, 24, 28,
             34") that look generally across said touch surface
             (see e.g. column 3, lines 66-67: "... The sensors
             function as cameras ...");
          B) processing the captured images to detect different
             successive pointers ("multiple light occluding

objects") being brought into contact with said
touch surface, said different successive pointers
being part of the gesture to be recognised (see
column 6, lines 49-54: " ... to detect positions,
angles, and velocities of multiple light occluding
objects ... to provide an inexpensive means of
recognizing ... complex gestures ...");

C) following detection of said different successive
pointers brought into contact with the touch
surface, examining the relative positions of the
successive pointer contacts and subsequently
detecting relative movement of the pointers along
the touch surface to recognise said gesture (see
e.g. column 8, lines 26-32: "... the user has
placed fingers 59, 60 respectively near the top
and bottom peaks of the displayed waveform ... The
amplitude of the generated waveform changes ... in
proportion to the movement of the fingers 59,
60 ..." in conjunction with Figs. 14a and 14b);

D) when said gesture is recognised, causing an
applications program ("waveform function
generator") to execute a command associated with
said recognised gesture (implicitly disclosed e.g.
by column 8, lines 22-25: "... two fingers 59, 60
are used to control the frequency and amplitude of
a square wave 61 produced by a waveform function
generator").

2.1.2   The appellant contended that D1 did not disclose
features B) and C), i.e. detecting successive pointer
contacts to recognise a gesture, since D1 - according
to column 8, lines 14-18 and Fig. 13 related to
rotating a knob - only required that the pointer
contacts were in the vicinity of the knob and that
there was a relative rotational movement of the two
fingers, and since the subsequent detection of finger

contacts in D1 was done solely to aid in pointer
disambiguation as to imaginary and actual pointer
positions according to column 7, lines 5-36 rather than
for gesture recognition (cf. statement setting out the
grounds of appeal, page 2, last two paragraphs).
Moreover, the appellant argued in its letter of reply
dated 28 July 2014 and during the oral proceedings that
column 6, lines 49-54, column 8, lines 19-22 and
column 8, lines 26-32 of D1 only disclosed that
multiple fingers were pressed onto the touch surface
simultaneously rather than in a *successive* manner.

However, the board finds that at least Figures 14a and
14b in conjunction with column 8, lines 19-32 of D1
demonstrate clearly that multiple-finger gestures for
manipulating instrument curves are recognised based on
the relative positions and movements of the respective
fingers. Furthermore, the board is convinced that D1
also shows that the temporal sequence of *successive*
finger contacts are detected in D1 for the purpose of
gesture recognition (see e.g. column 12, lines 65-68:
"... RTN makes it easy to represent sequences of finger
positions ..." in conjunction with Figs. 26 to 28 and
column 14, lines 3-5: "... finger 2 passes behind
finger 1 ..." together with Fig. 35).

2.1.3   For the above reasons, the subject-matter of claim 1 of
        this request lacks novelty.

2.2   In conclusion, the main request is not allowable under
        Article 54 EPC 1973.

3.   FIRST AUXILIARY REQUEST

        This request differs from the main request basically in
        that the term "different successive pointers" has been

replaced by the expression "multiple pointers" in the
present claims and in that claim 1 as amended further
specifies that

  E) <u>pointer data</u> is generated when one or more
     pointers exist in the captured images (emphasis
     added);
  F) the relative positions of the multiple pointer
     contacts and the <u>pointer types</u> are examined
     (emphasis added).

The board is satisfied that feature E) is based on
page 6, lines 26-31, whilst feature F) is supported by
page 3, lines 30-31 and page 11, line 27 to page 12,
line 8 of the application as filed.

3.1   Article 52(1) EPC: Novelty and inventive step

3.1.1   The feature analysis and observations set out in
         points 2.1.1 and 2.1.2 above concerning the main
         request apply *mutatis mutandis* to claim 1 of this
         auxiliary request.

3.1.2   Moreover, the board holds that feature E) is also
         clearly anticipated by document D1 (see e.g. column 9,
         lines 5-8: "... the host computer 60 has the (a)
         "TrackObjects" function which determines the x, y and z
         axis coordinates of the occluding objects ...").

3.1.3   As to feature F), the appellant argued in the written
         proceedings that D1 merely disclosed the detection of
         the *size* of the "light occluding objects" used and did
         not make any differentiation as regards the *type* of the
         pointer. The board notes however that, firstly, D1 in
         fact teaches that different pointer types may be
         applied (see column 3, lines 15-21: "... the term

'light occluding object(s)' ... shall expressly
include ... fingers, ... pencils, brushes and other
items ...") and, secondly, that due to the broad
meaning of the term "pointer type" as claimed the
teaching of D1 that different numbers of fingers (such
as "clustered fingers") are detected for gesture
recognition (see e.g. D1, column 10, lines 26-29)
corresponds to detecting at least two different pointer
types and thus falls within the ambit of feature F).
That broad interpretation of the expression "pointer
type" is, moreover, also corroborated by the present
application itself (see e.g. claim 2 of the present
first auxiliary request: "... wherein said multiple
pointers comprise different fingers"). The appellant
did not add any arguments regarding the patentability
of this request at the oral proceedings before the
board.

3.1.4   Accordingly, the subject-matter of claim 1 of this
auxiliary request is likewise not new over the
disclosure of D1.

3.2   In conclusion, the first auxiliary request is also not
allowable under Article 54 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz-Wein   A. Ritzka

Decision electronically authenticated