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**Datasheet for the decision
of 12 September 2018**

Case Number: T 0934/16 - 3.4.02

Application Number: 02780468.1

Publication Number: 1436659

IPC: G02B26/08, H04N1/047, G06K7/10,
G06K9/42

Language of the proceedings: EN

Title of invention:
LINEAR IMAGER RESCALING METHOD

Applicant:
Accu Sort Systems, Inc.

Headword:

Relevant legal provisions:

EPC Art. 123(2)
RPBA Art. 12(4)
EPC R. 137(3)

Keyword:

Amendments - main request - added subject-matter (yes)
Admissibility of first and second auxiliary request (no)

Decisions cited:

Catchword:



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Case Number: T 0934/16 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 12 September 2018

Appellant: Accu Sort Systems, Inc.
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Hatfield, PA 19440-1944 (US)

Representative: Williams, Ceili
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 19 November
2015 refusing European patent application No.
02780468.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. J. Narganes-Quijano
Members: A. Hornung
B. Müller

Summary of Facts and Submissions

I. The applicant lodged an appeal against the decision of the examining division refusing European patent application No. 02780468.1.

In its decision the examining division held with respect to the main request and the first and second auxiliary requests then on file that

- the claims of the main and the first auxiliary requests did not satisfy the requirements of Article 123(2) EPC, and

- the second auxiliary request was not admitted into the proceedings under Rule 137(3) EPC because it was found *prima facie* not compliant with the requirements of Article 123(2) EPC.

II. With the statement setting out the grounds of appeal the appellant filed sets of claims according to a main request and first and second auxiliary requests, the set of claims of the main request being identical to that of the main request underlying the decision under appeal. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the main and the first and second auxiliary requests.

III. In a communication annexed to a summons to oral proceedings, the board informed the appellant about its provisional and non-binding opinion according to which, *inter alia*, claim 1 of the main request contained subject-matter extending beyond the application as filed, and the first and the second auxiliary requests should not be admitted into the appeal proceedings.

IV. The board's opinion concerning the unallowable amendments of claim 1 of the main request was worded as follows (see points **5.1** and **5.2** of the communication annexed to the summons):

"5.1 Amendments

The board, in its preliminary view, agrees with the examining division that present claim 1 contravenes the requirement of Article 123(2) EPC. Indeed, the method step "determining the distance between the lens and the box-shaped object or portion thereof being scanned using the determined speed" seems to have no basis in the application as filed.

5.1.1 First of all, as explained in point 2.2.1 of the appealed decision, the description, [0029], discloses that "[t]his distance can be calculated by providing the camera information regarding **the height of the portion of the box** in question and the speed of the conveyor". Claim 1 misses the feature that the distance is calculated by taking account of the height. There appears to be no basis in the application as filed for such a generalization of the step of determining the distance.

The applicant argued (pages 2 and 3 of the grounds of appeal) that the skilled person would understand that the height measurement was not essential to a calculation of the distance between the box and the camera. He referred inter alia to figures 1 to 3 and 6.

This argument is not found convincing by the board. On the contrary, it appears that the application as a whole does not provide sufficient information about how to determine the distance at all (see point 5.2 below). Therefore, the skilled person, not being enabled to understand how the

distance is determined at all, would not be in a position to understand why the height measurement was not essential for determining the distance, contrary to the statement in the description, [0029], that information regarding the height is used. Moreover, since claim 1 leaves open the relative orientation and positioning of the camera, the object and the direction of travel, a meaningful interpretation of an image of the moving object seems to require at least the information of the height of the object. Finally, referring to figures 1 to 3 and 6 does not appear to be helpful in the present case since they are purely schematic drawings not being described in the description by relevant information about the determination of the distance.

5.1.2 In addition, the examining division, in points 2.2.2 to 2.2.4 of the appealed decision, raised further objections under Article 123(2) EPC relating to the exact definition of the distance to be determined. The board tends to agree with the examining division that the distance to be determined according to claim 1, i.e. the distance "between a lens and the box-shaped object", has no basis in the application as filed. Indeed, paragraph [0029] as originally filed refers to the determination of the distance "between the **nodal plane** of the lens system and the **portion** of the box being scanned", although only in the context of properly focusing the lens, and paragraph [0038] of the application as originally filed refers to the distance between the lens and the object constituted by a box, but in the context of determining the resolution at a given distance, and not in the context of determining the mentioned distance.

The applicant "acknowledged that the specification as originally filed refers to and describes the distance required for calculating a scan line resolution in a number of different ways", but concludes that these are "descriptions of the same distance employing greater or less

precision" (grounds of appeal, page 3, penultimate paragraph). The applicant referred inter alia to standard focal lengths for typical cameras between 50 mm and 100 mm. Therefore, the differences between the various descriptions of the distances were "*de minimis*" (grounds of appeal, page 4, second paragraph).

This argument is also not found convincing. The application as originally filed does neither explicitly nor implicitly disclose the applicant's allegation that the different ways of describing the distance are effectively describing the same distance. On the contrary, as objected by the examining division, point 3.2 of the appealed decision, defining the same distance D1 in various ways, each definition providing different values for the same distance, appears to create a severe clarity problem. Since the application as originally filed does neither disclose numerical values for the focal lengths of the camera nor for the distance between the camera and the scanned object, nor the size and height of the scanned object, the board cannot follow the applicant's argument about the differences between the various descriptions of the distances being "*de minimis*".

5.2 Sufficiency of disclosure

(...)

According to claim 1, the objective of the invention of claim 1 is "to electronically correct for perspective distortion between scan lines in the image". A major condition for achieving this objective is, according to claim 1, "determining the distance between the lens and the box-shaped object or portion thereof being scanned using the determined speed". The description discloses that the height of the object is used, in addition. However, determining the distance of a moving object by using merely its speed and

its height does not appear to be physically possible. Since it is indispensable for carrying out the invention to know the distance between the lens and the moving object, and since the application as filed does not provide sufficient information about how such a variable distance between a lens and a moving object can be determined from the speed and the height of the object only, the application appears to lack sufficiency of disclosure within the meaning of Article 83 EPC 1973. This lack of disclosure is all the more severe in the present case where the relative orientation and positioning of the lens, the object and its direction of travel is undefined. See also point 2.3 of the appealed decision.

(...)"

- V. The board's opinion concerning the admissibility of the set of claims of the first auxiliary request was worded as follows (see point **6.** of the communication annexed to the summons):

"6. First auxiliary request - Admissibility

6.1 The present set of claims of the first auxiliary request has been filed for the first time with the grounds of appeal.

According to the appealed decision, point 1, eleven substantive communications from the examining division (including the minutes of a first oral proceedings, one fully reasoned and appealable decision and three extensive minutes of telephone conversations), as well as six letters from the applicant (including one earlier statement of grounds of appeal) and apparently a total of fifteen amended versions of claim requests, were exchanged between the examining division and the applicant before filing the

present notice of appeal. In other words, a very ample exchange of views has taken place during the first-instance examination proceedings.

6.2 The board is of the preliminary opinion that the first auxiliary request should not be admitted into the proceedings under either Rule 137(3) EPC or Article 12(4) RPBA, especially in view of the facts that

- a very extensive exchange of views has already taken place during the first-instance proceedings,
- the applicant declined to be present during the second oral proceedings before the examining division for defending its case orally,
- claim 1 was not filed before the examining division, and hence, was not examined during the first-instance proceedings,
- it is doubtful whether the specific features introduced in claim 1 and/or the resulting specific combination of features of claim 1 have been covered by the search (Article 92(1) EPC 1973),
- the amendments do not appear to overcome at least the existing objection raised under Article 83 EPC 1973,
- the amendments appear to introduce new objections under Article 123(2) and Article 84 EPC 1973. For instance:

(i) There appears to be neither a basis in the application as originally filed for a line scanner "arranged with its sight line orthogonal to the direction of travel" (as explained below, the meaning of "sight line" is ambiguous so that this feature cannot be derived unambiguously from the application as filed; figure 3 is only a schematic drawing), nor for a line scanner "aligned with the front surface of the box-shaped object" (see in

particular the misalignment of the image of the object with respect to the image frame in the uncorrected sections of Fig. 2, 6, 8 and 10).

- (ii) There appears to be also no basis for "determining a distance between the **line scanner** and the portion of the box-shaped object". The passage referred to by the applicant, i.e. lines 6-7 of [0039], discloses a distance between the **sensor** and the portion of the object. It seems that the line scanner, contrary to the applicant's assertion, cannot be equated to the sensor, since the line scanner of claim 1 includes a lens and a sensor can generally not include a lens.
- (iii) It appears to be unclear from the wording of the claim and the description what the expression "sight line" of a line scanner precisely means (e.g. the axis between the line scanner and the scanned object?; the image viewed by the line scanner?).
- (iv) The amended feature "the determined distance which is **inversely proportional** to the scan line resolution" seems to be unclear since it lacks clear support from the description, see paragraph [0038] disclosing that the resolution is **proportional** to the distance and/or that the resolution DPI can be determined by an equation lacking any proportional relationship with the distance "D1".

6.3 The applicant requested that the board exercise its discretion under Rule 137(3) EPC so as to admit the first auxiliary request into the proceedings essentially for the reason that the present amendments were prompted by the explanation about the Article 123(2) EPC objection relating to "determining a distance", the explanation appearing "for

the first time in this form" in the decision under appeal (see grounds of appeal, page 1, last paragraph).

This argument is not found convincing because it would appear, contrary to the applicant's statement, that the objection of added subject-matter relating to "determining a distance" had been explained by the examining division to the applicant prior to the issuance of the appealed decision. See, for instance, the examining division's summons to the second oral proceedings, point 3, using nearly the same wording as in the appealed decision. Anyway, the issue relating to the feature "determining a distance" was an on-going issue during the first-instance proceedings, at least since the feature had been introduced into claim 1 (see e.g. communication of 21 April 2011, points 2.4 and 2.5, results of a telephone consultation dated 7 September 2011, middle paragraph on page 2, and communication dated 22 April 2013, point 1). Moreover, claim 1 comprises further amendments which do not relate to the issue of added subject-matter of the feature "determining a distance" and, hence, for which the applicant's reasoning is invalid.

The applicant refers to figure 2, 3, 6 and 8 for explaining the basis of the amendments.

However, these figures are purely schematic drawings and cannot be used to deduce concrete features therefrom without clear indications in the description that these features were actually intended."

VI. The board's opinion concerning the admissibility of the set of claims of the second auxiliary request was worded as follows (see point 7. of the communication annexed to the summons):

"7. Second auxiliary request - Admissibility

The board is of the preliminary opinion that the second auxiliary request should not be admitted into the proceedings under either Rule 137(3) EPC or Article 12(4) RPBA for essentially the same reasons as those applying to the first auxiliary request.

In addition, present claim 1 differs from claim 1 of the first auxiliary request merely in that the distance between the **nodal plane of the lens** and the portion of the object being scanned is determined. However, there appears to be no basis for a scan line resolution being calculated on the basis of such a distance. In particular, paragraph [0029] refers to the determination of a similar distance, but for the purposes of appropriately focusing the lens. Therefore, the amended feature of present claim 1 referred to above seems to infringe at least the requirements of Article 123(2) EPC."

VII. In response to the summons to oral proceedings, the appellant informed the board with its letter dated 25 August 2018 that it would not be attending the oral proceedings. The appellant did not file any comments concerning the board's preliminary opinion as annexed to the summons, nor any new requests.

VIII. Oral proceedings were held on 12 September 2018 in the absence of the appellant.

The Chairman noted that the appellant had requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the main and the first and second auxiliary requests, all requests filed with the statement setting out the grounds of appeal.

At the end of the oral proceedings the chairman announced the decision of the board.

IX. Independent claim 1 of the main request reads as follows:

"A method of correcting an image of a box-shaped object moving along a transport device (114) having a top surface, the box-shaped object being arranged with a surface facing towards the direction of travel, the method comprising: scanning at least a portion of the box-shaped object using a line scanner (110) including a lens (116) to create a plurality of scan lines, each scan line comprising captured image data, and rescaling the plurality of scan lines of the box-shaped object or portion thereof, characterised by determining a height of the box-shaped object above the top surface of the transport device (114); determining a speed at which the box-shaped object moves along the transport device (114); determining the distance between the lens (116) and the box-shaped object or portion thereof being scanned using the determined speed; and calculating a scan line resolution (dots per unit length) for each of the plurality of scan lines based on the determined distance, the rescaling being based upon the calculated scan line resolution to electronically correct for perspective distortion between scan lines in the image by reducing the calculated scan line resolutions of the plurality of scan lines so that the resolution of each of the plurality of scan lines after rescaling is equal to the resolution of every other of the plurality of scan lines."

Independent claim 1 of the first auxiliary request reads as follows:

"A method of correcting an image of a box-shaped object moving along a transport device (114) having a top surface, the box-shaped object being arranged with a front surface facing towards the direction of travel, the method comprising:

scanning the front surface and a top surface of the box-shaped object using a line scanner (110) which includes a lens (116), the line scanner (110) being arranged with its sight line orthogonal to the direction of travel and aligned with the front surface of the box-shaped object to create a plurality of scan lines, each scan line of the plurality of scan lines comprising captured image data of a portion of the front surface or top surface of the box-shaped object, and

rescaling the plurality of scan lines, characterised by

determining a height of the box-shaped object above the top surface of the transport device (114);

determining a speed at which the box-shaped object moves along the transport device (114);

using the determined height and the determined speed to determine the distance between the line scanner (110) and the portion of the box-shaped object being scanned; and

calculating a scan line resolution (dots per unit length) for each of the plurality of scan lines based on the determined distance which is inversely proportional to the scan line resolution, the rescaling being based upon the calculated scan line resolution to electronically correct for perspective distortion between scan lines in the image by reducing the scan line resolutions of the plurality of scan lines in the image so that the resolution of each of the plurality of scan lines in the image after rescaling is equal to the resolution of every other of the plurality of scan lines."

Independent claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that the step "using the determined height and the determined speed to determine the distance between the line scanner (110) and the portion of the box-shaped object being scanned" has been replaced by the step "using the determined height and the determined speed to determine the distance between the nodal plane of the lens (116) and the portion of the box-shaped object being scanned".

Reasons for the Decision

1. *Main request*

In the communication annexed to the summons, the board expressed its preliminary view, along with the underlying reasons, that claim 1 of the main request infringed the requirement of Article 123(2) EPC (see point IV. above). The appellant did not attempt to rebut the board's provisional opinion. The board sees no reason to deviate from its preliminary opinion regarding the non-compliance of claim 1 of the main request with the requirement of Article 123(2) EPC, which therefore becomes final.

It follows that claim 1 of the main request does not fulfil the requirement of Article 123(2) EPC.

2. *First and second auxiliary requests*

In the communication annexed to the summons, the board expressed its preliminary view, along with the underlying reasons, that the first and second auxiliary requests should not be admitted into the appeal proceedings under either

Rule 137(3) EPC or Article 12(4) RPBA (see points V. and VI. above).

The appellant neither attempted to rebut the board's provisional opinion, nor submitted any new requests aiming at overcoming the objections. During the oral proceedings the board saw no reason to deviate from its preliminary opinion regarding the non-admissibility of the first and second auxiliary requests, and decided not to admit the first and the second auxiliary requests into the proceedings for the reasons already given in the mentioned communication.

Order

For these reasons it is decided that:

The appeal is dismissed

The Registrar:

The Chairman:



M. Kiehl

F. J. Narganes-
Quijano

Decision electronically authenticated