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Datasheet for the decision of 16 February 2018

Case Number: T 1011/12 - 3.5.04

Application Number: 06721118.5

Publication Number: 1864481

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Language of the proceedings: EN

Title of invention:
Systems and methods of processing scanned data

Applicant:
Kofax, Inc.

Headword:

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - main request, first and second auxiliary requests (no)

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Catchword:

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Case Number: T 1011/12 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 16 February 2018

Appellant: (Applicant)	Kofax, Inc. 16245 Laguna Canyon Road Irvine, CA 92618 (US)
Representative:	Retter, Jocelyn Anna Urquhart-Dykes & Lord LLP 12th Floor Cale Cross House 156 Pilgrim Street Newcastle-upon-Tyne NE1 6SU (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 9 December 2011 refusing European patent application No. 06721118.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	C. Kunzelmann
Members:	R. Gerdes
	T. Karamanli

Summary of Facts and Submissions

I. The appeal is directed against the decision to refuse European patent application No. 06 721 118.5, published as international application WO 2006/104627 A1.

II. The patent application was refused on the grounds that the subject-matter of the independent claims of each of the requests then on file lacked novelty in view of document:

D1: US 2002/0054693 A1.

In addition, the independent claims of the second auxiliary request were found not to be clear, contrary to Article 84 EPC, and the independent claims of the third auxiliary request were found to relate to added subject-matter, contrary to Article 123(2) EPC.

III. The applicant appealed against this decision and with the statement of grounds of appeal re-filed the claims of the main request underlying the decision under appeal. It also submitted amended claims of first to fourth auxiliary requests.

IV. The board issued a summons to oral proceedings and indicated in an annex to the summons *inter alia* that it considered the subject-matter of claim 1 of all the requests to lack an inventive step in view of D1.

V. In response, with a set of letters dated 12 January 2018, the appellant submitted amended claims of a main and first to sixth auxiliary requests, replacing the claims of all previous requests.

VI. Oral proceedings were held before the board on 16 February 2018. The appellant confirmed its initial requests that the decision under appeal be set aside and a patent be granted on the basis of the claims of the Main Request or, in the alternative, of one of the 1st to 6th Auxiliary Requests, all requests filed with letters dated 12 January 2018, respectively.

The matter was then discussed with the appellant.

After the discussion on the Main Request and the 1st and 2nd Auxiliary Requests, all requests filed with letters dated 12 January 2018, respectively, the appellant filed claims 1 to 5 according to a new Main Request and withdrew the Main Request and the 1st and 2nd Auxiliary Requests, filed with letters dated 12 January 2018, respectively.

After the discussion on this new Main Request, the appellant filed claims 1 to 5 according to a new Main Request "13:33" and withdrew the new Main Request, filed during the oral proceedings of 16 February 2018, and the 3rd and 4th Auxiliary Requests, filed with letters dated 12 January 2018, respectively.

After the discussion on the new Main Request "13:33", the appellant withdrew it and filed claims 1 to 5 according to a new Main Request "14:21".

After the discussion on the new Main Request "14:21", the appellant stated that the 5th and 6th Auxiliary Requests, both requests filed with letters dated 12 January 2018, respectively, became its First and Second Auxiliary Requests.

Then the appellant's First and Second Auxiliary Requests were discussed.

After that discussion, the appellant confirmed that its final requests were as follows:

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the Main Request "14:21", filed during the oral proceedings of 16 February 2018, or, in the alternative, of the First Auxiliary Request, filed as 5th Auxiliary Request with letter dated 12 January 2018, or the Second Auxiliary Request, filed as 6th Auxiliary Request with letter dated 12 January 2018.

VII. Claim 1 of the main request "14:21" reads as follows:

"A computer-implemented image data processing method comprising:

receiving raw or normalized image data from a data capture device (101);

storing the raw or normalized image data as received from the data capture device in a computer accessible storage medium (105);

analyzing at least portions of the raw or normalized data, by means of a first analytic engine (714), to determine whether the raw data is within a first set of parameters and if not, generating, by means of the first analytic engine, a first set of processor settings;

after the generating by means of the first analytic engine, retrieving the raw or normalized data, as received from the data capture device, from the computer accessible storage medium (105) and processing the raw or normalized data with the first set of processor settings using a data processor;

comparing, by means of a second analytic engine (718), the quality of the data processed using the data processor to a predetermined metric,

characterised by

selecting, by means of the second analytic engine, new processor settings based on the quality of the processed data as determined by the metric;

re-retrieving the raw or normalized data, as received from the data capture device, from the computer accessible storage medium (105); and

reprocessing the re-retrieved raw or normalized data, as received from the data capture device, with the new processor settings using the data processor;

wherein the second analytic engine sends to the first analytic engine or the data processor metadata containing a location of the raw or normalized data as received from the data capture device in the computer accessible storage medium."

VIII. Claim 1 of the first auxiliary request reads as follows:

"A computer-implemented image data processing method comprising:

(a) receiving raw or normalized image data from a data capture device (101);

(b) storing the raw or normalized image data as received from the data capture device in a computer accessible storage medium (105);

(c) analyzing at least portions of the raw or normalized data with a first analytic engine (714) to determine whether the raw data is within a first set of parameters;

(d) in response to determining that the raw or normalized data is not within the first set of parameters, generating with the first analytic engine a first set of processor settings;

(e) after the analyzing with the first analytic engine, retrieving the raw or normalized data, as received from the data capture device, from the computer accessible storage medium (105) and processing the raw or normalized data with the first set of processor settings using a data processor;

(f) analyzing at least portions of the data processed using the data processor with a second analytic engine (718) to determine whether the processed data is within a second set of parameters; characterised by in response to determining that the processed data is not within the second set of parameters, generating with the second analytic engine a second set of processor settings to reprocess the raw or normalized data;

(g) sending, from the second analytical engine, to the first analytical engine or the data processor, the

second set of processor settings and metadata containing a location of the raw or normalized data as received from the data capture device in the computer accessible storage medium;

(h) re-retrieving the raw or normalized data, as received from the data capture device, from the computer accessible storage medium (105);

(i) reprocessing the re-retrieved raw or normalized data, as received from the data capture device, with the second set of processor settings using the data processor; and

(j) reiterating steps (c) to (i) until the processed data are within the second set of parameters;
wherein the second set of parameters is a predetermined metric."

IX. Claim 1 of the second auxiliary request reads as follows:

"An image data processing system comprising:

a computer accessible storage medium (105) configured to store raw or normalized image data from a data capture device (101);

a first acquisition controller (714) in communication with the computer accessible storage medium, the first acquisition controller configured to analyze at least portions of the raw or normalized data to determine whether the raw or normalized data is within a first set of parameters and if not, the first acquisition controller generates a first set of processor settings;

a processor in communication with the first acquisition controller wherein the processor is configured to process the raw or normalized data with the first set of processor settings; and

a second acquisition controller (718) in communication with the processor;
characterised in that in the first acquisition controller the analyzing includes orientation detection, one of the processor settings being for orthogonally rotating an output orientation of the image data and the processor orthogonally rotates the orientation of the image data based on the one of the processor settings, and the second acquisition controller is configured to analyze at least portions of the processed and rotated data to determine whether the processed data is within a second set of parameters and if not, generate a second set of processor settings that the processor uses to reprocess the raw or normalized data in the computer accessible storage medium."

X. In the decision under appeal, the examining division held that the analysing step of the raw or normalised data with the first analytic engine and the generation of a first set of processor settings was implicit in block 604 of D1. For example, if it was determined that there were problems of "image skew", such problems had to be resolved. If such problems were not present, then the correction of image skew did not need to be carried out.

D1, paragraph [0034], also disclosed providing settings for the reprocessing (see Reasons, point 11.1, middle of page 4 together with point 11.2.2 and point 12.1).

XI. The appellant's arguments, as far as relevant for the present decision, may be summarised as follows:

D1 did not disclose generating with the second analytic engine a second set of processor settings to reprocess the raw or normalised data. Because the second analytic engine analysed portions of the data and updated the second processor settings, it could select the second set of processor settings to be optimum settings for the particular data. In contrast to the present invention, D1 provided no flexibility to react to different problems inherent in the raw or normalised data. It only taught to try a fixed sequence of sets of processor settings in subsequent iterations of the image processing steps that were stored in a configuration file (see D1, paragraphs [0034], [0035] and [0038]). The present invention provided the option to react dynamically to different input conditions as was evidenced by paragraph [0013] of the application as published.

The objective technical problem resulting from the above distinguishing feature was to decrease processing time and increase processing capacity. It could also be regarded as improving image quality in an efficient manner or to increase the efficiency of the document processing (see statement of grounds of appeal, section on the then main request and the second auxiliary request, and letter dated 12 January 2018, section on the main request).

One additional benefit of having the different engines performing different processing was an increase in speed, in that the two engines were specialised to perform a specific set of tasks. D1 did not provide a

solution to that problem (see statement of grounds of appeal, section on the then second auxiliary request).

The appellant also argued that D1 did not disclose a separate storage of image data in a computer accessible storage medium nor a processor that was separate from from the first analytic engine. These features were useful in increasing speed of processing as well as avoiding reintroduction of processing errors. The corresponding technical problem was to enhance the image prior to a character recognition step taking place (see statement of grounds, page 4).

Furthermore, the appellant argued that sending metadata containing a location of the raw or normalised data allowed the processor to identify and retrieve only a portion of the data, using the metadata (see also paragraph [0121] of the application as published). By enabling reprocessing of only a portion of the data, processing speed was greatly increased. As specified in paragraph [0036], reiteration until the processed data were within a predetermined metric allowed to iterate the process until sufficiently improved settings had been determined (see statement of grounds, section on the then third auxiliary request, and letter of reply dated 12 January 2018, section on the then fourth auxiliary request).

With respect to the second auxiliary request, the appellant argued that orthogonally rotating (i.e. a rotation of 90 degrees) was not the same as the de-skewing of D1. The resulting technical problem was to improve the OCR functionality of the present invention (see statement of grounds, section on the then fourth auxiliary request).

Reasons for the Decision

1. The appeal is admissible.

Main request
Inventive step, Article 56 EPC 1973

2. D1 may be considered as the closest prior art with respect to the subject-matter of claim 1.

2.1 D1 discloses a computer-implemented image data processing method for the processing of documents (see abstract, Figure 6, paragraphs [0003] to [0014] and [0033]). The data processing method of D1 is divided into multiple steps such as image enhancement, segmentation and text recognition. As in the present application, D1 avoids reacquisition of a document if the document processing yields insufficient results in a first iteration of the method. Instead, D1 retrieves the raw or normalised image data as acquired in an initial scanning step from a data storage to reprocess these data with a different parameter setting (see D1, Figure 6 and paragraphs [0012] and [0041] as compared with the application as published, paragraph [0009]).

D1 discloses the steps of receiving raw or normalized image data from a data capture device and storing the raw or normalized image data as received from the data capture device in a computer accessible storage medium (see Figure 6: 602 and paragraph [0031]). The board agrees with the decision under appeal (see point X above) that D1, Figure 6: 604, implicitly discloses an analysing step of the raw or normalised data with a first analytic engine and the generation of a first set of processor settings, for example to determine a necessary angle for a de-skewing process (see also

paragraphs [0032] and [0040]). The raw or normalised data are processed with the first set of processor settings, *inter alia* the de-skewing angle, using a data processor. In further steps, the quality of the resulting data is analysed and compared with a predetermined metric (see D1, Figure 6: 620 and paragraphs [0012], [0026], [0033] and [0034]).

D1 does not explicitly refer to a first and a second analytic engine and a data processor. It is, however, implicit from D1 that the corresponding functionality is provided by the host computer and the subroutines of D1 (see paragraph [0033] and Figure 6). Similarly, a computer accessible storage medium must be present in D1 to store the scanned data.

2.2 The appellant indicated that the following features of claim 1 were not disclosed in D1 (see also its choice of the two-part form and statement of grounds, section on inventive step of the main request and on the fourth auxiliary request):

(a) selecting, by means of the second analytic engine, new processor settings based on the quality of the processed data as determined by the metric;
(b) re-retrieving the raw or normalized data, as received from the data capture device, from the computer accessible storage medium (105); and
(c) reprocessing the re-retrieved raw or normalized data, as received from the data capture device, with the new processor settings using the data processor;
(d) wherein the second analytic engine sends to the first analytic engine or the data processor metadata containing a location of the raw or

normalized data as received from the data capture device in the computer accessible storage medium.

2.3 The board agrees that feature (a) is not disclosed in D1 insofar as D1 is not conclusive on whether the new processor settings are selected by the same components that may be designated as second analytic engine in D1. According to D1, processor settings are adjusted by "the process" (see last sentence of paragraph [0033]). In particular, the new processor settings may be retrieved from a preset configuration file (see paragraphs [0035] or [0041]). However, the choice to select new processor settings based on the quality of the processed data as determined by a metric is disclosed in D1; see paragraphs [0012], [0033], [0038] and Figure 6: 620, 624, where the metric is, for example, the confidence level associated with a text string recognised by the text recognition subroutine.

D1 also does not disclose feature (b) inasmuch as the data are re-retrieved from the same computer accessible storage medium in which they had been stored "as received from the data capture device".

In contrast, feature (c) is disclosed in D1 (see for example last sentence of paragraph [0033]).

The board agrees with the appellant that feature (d) is not disclosed in D1. D1 only refers to "parameter settings" which are adjusted for subsequent runs of the sub-routines 604 to 612 (see paragraphs [0033] and [0035] to [0041]).

2.4 In addition, the appellant argued that the separation in different analytic engines performing different processing resulted in an increase in speed, since the

two engines were specialised to perform a specific set of tasks (see point XI above). This argument presumes that the first and second analytic engines are not disclosed in D1. Similarly, the appellant stated that D1 did not disclose a processor that was separate from the first analytic engine.

2.5 The board is not convinced by these arguments. D1 refers to a sequence of image processing steps, subroutines 604 to 612 and "the host computer operating the recognition routine" (see Figure 6 and paragraphs [0033] and [0035]). The different designation of the subroutines and the host processor as "first analytic engine", "second analytic engine" and "data processor" in the present application cannot distinguish the claimed subject-matter from D1, because these expressions do not have a clear meaning which would imply structural features going beyond the functionality provided by the subroutines and the host processor of D1.

2.6 Hence, the board concludes that the subject-matter of claim 1 is distinguished from D1 by aspects of features (a), (b) and (d).

3. The appellant argued that several technical effects were caused by the distinguishing features.

3.1 Most importantly, the selection, by means of the second analytic engine, of new processor settings (feature (a)) served to decrease processing time and increase processing capacity. It could also be regarded as improving image quality in an efficient manner and served to increase the efficiency of the document

processing or to enhance the image prior to a character recognition step taking place.

In particular, because the second analytic engine analysed portions of the data and updated the second processor settings, it could select the second set of processor settings to be optimum settings for the scanned data. The present invention provided the option to react dynamically to different input conditions as was evidenced by paragraph [0013] of the application as published (see point XI above).

3.2 The board cannot agree that these effects are actually achieved by the distinguishing features. Feature (a) requires the new processor settings to be selected by the second analytic engine based on the quality of the processed data as determined by the metric. However, there is no specification in claim 1 as to how these new processor settings are selected. Notably, this feature does not exclude the new settings being predetermined and sequentially retrieved from a configuration file as disclosed in D1 (see for example paragraph [0041]). It is also noted that the appellant's interpretation of feature (a) as implying a dynamic reaction to different data and a choice of optimised settings for the scanned data is not supported by the example given in the present application, according to which the resolution at which the data are analysed is sequentially increased from 200 dpi to 400 and 600 dpi if the document text is not recognisable at a lower resolution (see paragraphs [0116] to [0122]). Quite to the contrary, this example discloses that the new processor settings may be predetermined and sequentially used in subsequent iterations. Also paragraph [0013] does not

exclude retrieving the optimised settings from a configuration file.

Hence, the board was not convinced that image quality was improved by the features of claim 1, nor that the efficiency or capacity of the document processing was increased or processing time decreased.

3.3 The appellant also argued that feature (b) of re-retrieving the raw or normalized data from the computer accessible storage medium was useful in increasing speed of processing as well as avoiding reintroduction of processing errors (see point XI above).

3.4 The board regards this feature as pertaining to data handling operations in the computer-implemented image data processing method. This operation specifies an implementation step detailing from which storage to retrieve the scanned data for the next iteration. The retrieval of the image data from the same computer accessible storage medium in which they had been initially stored "as received from the data capture device" might or might not increase the speed of the processing depending on the access speed to that storage medium. It is noted that the application refers to a cache as a computer accessible storage medium (see paragraphs [0009] and [0011]). However, claim 1 is not restricted in that sense.

3.5 Concerning distinguishing feature (d) the appellant argued that sending metadata containing a location of the raw or normalised data allowed the processor to identify and retrieve only a portion of the data (see also paragraph [0121] of the application as published). By enabling reprocessing of only a portion of the data,

processing speed was greatly increased (see point XI above).

3.6 The board was not convinced that this effect is achieved by the features of claim 1. Claim 1 only refers to "metadata containing a location of the raw or normalized data" being sent to the first analytic engine or the data processor. It neither specifies how the metadata are used nor does it imply any restriction to the effect that the subsequent processing in the next iteration was restricted to a portion of the data. Hence, feature (d) can be interpreted as only referring to the scanned data using a pointer.

3.7 It follows that, in the context of claim 1, the distinguishing features do not provide specific technical advantages. Instead, they only refer to a different or specific implementation of the computer-implemented image data processing method of D1. In detail, these steps specify where and when to generate the new processor settings for the subsequent iteration, from which storage medium to retrieve the scanned image data and how to indicate the location of the raw or normalised data. The board also sees no synergistic effect of the different distinguishing features.

Starting from D1 the resulting technical problem may therefore be regarded as to provide further or alternative implementation steps, respectively.

3.8 The generation of the new processor settings by the second analytic engine only refers to an alternative implementation to that of D1. Indeed, the method of claim 1 may even be equivalent to the implementation in D1, in which the new settings are retrieved from a

configuration file, which option is not excluded by claim 1.

The retrieval of the scanned image data from the same storage medium that is employed to store the scanned image data as received from the data capture device is a straightforward choice, which is obvious in view of the fact that the data are already available in that storage medium.

In addition, the use of metadata such as a pointer to indicate a location of the raw or normalised data for a specific image processing subroutine is common in the art.

3.9 Hence, the subject-matter of claim 1 lacks an inventive step in view of D1 and the common general knowledge of the skilled person.

First auxiliary request

4. Apart from some reorganisation and rewording of features, claim 1 according to the first auxiliary request essentially differs from claim 1 of the main request in the following additional feature:

"(j) reiterating steps (c) to (i) until the processed data are within the second set of parameters;
wherein the second set of parameters is a predetermined metric."

4.1 This feature is disclosed in D1, see Figure 6 together with paragraphs [0012], [0033] and [0038].

4.2 Hence, the reasons regarding inventive step of the subject-matter of claim 1 of the main request apply similarly to claim 1 of the first auxiliary request. As a consequence, the subject-matter of claim 1 does not involve an inventive step (Article 56 EPC 1973).

Second auxiliary request

5. Claim 1 of the second auxiliary request is directed to an image data processing system having features corresponding to the method features of claim 1 of the main request. Apart from the change of category of the claim, it essentially differs from claim 1 of the main request in the following additional feature:

(e) in the first acquisition controller the analyzing includes orientation detection, one of the processor settings being for orthogonally rotating an output orientation of the image data and the processor orthogonally rotates the orientation of the image data based on the one of the processor settings.

5.1 The expression "the first acquisition controller" is interpreted as being synonymous with "the first analytic engine" (see paragraph [0084] of the application as published).

5.2 Feature (e) is not disclosed in D1. It refers to an adaptation of the first acquisition controller to allow for carrying out a particular one of the geometric analysis and processing steps listed in the present application (see paragraphs [0084] and [0160] to [0164]).

5.3 D1 discloses similar image analysis and processing steps in Figure 6: 604 and 606, with examples such as image skew correction, widening of individual pixel representations and image filtering (see paragraphs [0032] and [0040]), which all belong to the group of geometric analysis and processing steps. Orientation detection and orthogonal rotation of scanned images is a further and generally known example of such steps.

Hence, the skilled person would have considered implementing such an analysis and processing step if required by the circumstances, without the exercise of inventive skill. With regard to the appellant's arguments (see point XI above), it is accepted that orientation detection and orthogonal rotation is not the same as de-skewing. Nevertheless, such a step is usual practice in the art.

5.4 As a consequence, the subject-matter of claim 1 does not involve an inventive step (Article 56 EPC 1973).

Conclusion

6. It follows from the above that none of the appellant's requests is allowable. Thus the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke C. Kunzelmann

Decision electronically authenticated