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Datasheet for the decision of17 December 2012

Case Number: T 1505/08 - 3.5.04

Application Number: 00124936.6

Publication Number: 1102210

IPC: G06T7/00

Language of the proceedings: EN

Title of invention:
Image processing apparatus, image processing method and recording medium

Applicant:
FUJIFILM Corporation

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (no)

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Case Number: T 1505/08 - 3.5.04

D E C I S I O N
of the Technical Board of Appeal 3.5.04
of17 December 2012

Appellant: (Applicant)	FUJIFILM Corporation 26-30, Nishiazabu 2-chome Minato-ku Tokyo (JP)
Representative:	Klunker . Schmitt-Nilson . Hirsch Patentanwälte Destouchesstraße 68 80796 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted 4 March 2008 refusing European patent application No. 00124936.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: F. Edlinger
Members: A. Dumont
B. Müller

Summary of Facts and Submissions

I. The applicant appealed against the decision of the examining division refusing European patent application No. 00124936.6, *inter alia* on the ground that the subject-matter of the claims then on file lacked either novelty or inventive step over prior-art document:

D1: WO 99/06940 A1.

II. With a letter dated 14 November 2012 the appellant filed a set of amended claims, in particular with claim 1 amended to include the features of claims 1, 3 and 8 on which the decision under appeal was based.

III. Oral proceedings took place before the board on 17 December 2012.

IV. The appellant requested in the oral proceedings that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 7 filed with letter of 14 November 2012.

V. Claim 1 reads as follows:

"An image processing apparatus, comprising an image data input unit (200) for inputting image data of an object, comprising:

a range setting unit (204, 264, 504) for restricting a searching range, said searching range defining a restricted depth range in the depth direction corresponding to the distance between an imaging apparatus and each part of said object, for searching a main subject from the object included in the input image data;

a partial image extracting unit (206, 506) for extracting from said image data, the part of an object included in said searching range as a partial image, and
a distinctive part detecting unit (208) adapted to detect from said partial image a distinctive part that should be included in said main subject,
a main subject detecting unit (208, 210) for detecting said main subject from said partial image and receiving main subject information, wherein
said range setting unit (204) divides the depth range that includes said object in said image data based on said depth distribution information and sets a plurality of searching ranges;
said partial image extracting unit (206) extracts from said image data, the part of said object included in each of said plurality of searching ranges as a plurality of partial images; and
said main subject detecting unit (208, 210) detects said main subject from each of said plurality of partial images and receives a plurality of main subject informations [sic]."

VI. The relevant reasoning in the appealed decision may be summarised as follows:

Document D1 discloses an image processing apparatus with means for identifying a region of slowly-varying depth as a target region, defining a restricted depth range in the foreground isolated from the background. This defines a partial image in which a main subject, for instance the silhouette of a person, has a high probability of being detected. Thus depth information is used to define a searching range in order to restrict to the partial image the detection of a

distinctive part, for instance the person's face. This makes detection faster and more reliable.

Different kinds of main subject information are received in the method of D1.

Dividing the depth into a plurality of ranges, and applying the detection procedure to each of these ranges constitutes a minor implementation detail selected from well-known procedures and is thus not inventive.

VII. The appellant essentially argues as follows:

D1 needs to analyse the image content to gain depth information, in order to track a moving person through slowly-varying regions. There is no depth range in D1 defining a searching range within which the main subject may or may not be included.

According to the invention, the depth range is divided into a plurality of searching ranges at different distances, independently of the image content, so as to extract a plurality of partial images and detect a main subject from each partial image. Thus if it is detected that the main subject is not included in one partial image, the detection process is carried out in a different partial image. Furthermore, a plurality of main subjects (persons) may be detected. The invention allows these subjects to be detected without misunderstanding and in a shorter time. There is no disclosure in D1 of the depth range being divided into such a plurality of searching ranges.

Reasons for the Decision

1. The appeal is admissible.

2. Document D1 discloses an image processing apparatus, comprising an image data input unit (video cameras 20 and 25 in figure 1) for inputting image data of an object and a distinctive part detecting unit (face detection module 240 in figure 2) adapted to detect from said image data a distinctive part, for instance a face, that should be included in a main subject, for instance a person, and a main subject detecting unit (250) for detecting the main subject from said image and receiving main subject information.

   This is not contested by the appellant.

3. The apparatus of D1 further comprises a unit which analyses the image data to estimate the distance from the cameras to a person or another object to be isolated from the background and to be detected in the foreground. It identifies several target regions, each of slowly varying range or depth. The apparatus of D1 thus comprises a range setting unit ("RANGE COMPUTATION AND FOREGROUND SEGMENTATION" (210) in figure 2) for dividing the image data and setting a searching range defining a depth range in the depth direction corresponding to the distance between the imaging apparatus and each part of an object (likely to be) included in the input image data (see D1, page 6, lines 1 to 6 and lines 21 to 24).

   The wording of claim 1 does not expressly limit the range setting unit to setting a searching range independently of the image content. Incidentally, a partial range appears to be set in the embodiments

described in the present application on the basis of information about depth distribution, which in turn is derived from parallactic image data, i.e. from the image content (see for instance figures 3 and 4). Thus, interpreting the searching ranges of claim 1 as being predefined and independent of image data, as argued by the appellant, would also not be justified in the light of the description.

4. Range setting in D1 results in (a) partial image(s) corresponding to the target region(s) being isolated in the global scene (see the result of "RANGE ESTIMATION" in figure 5). D1 further discloses that face detection is performed by the distinctive part detecting unit (module 240 in D1) within the target region, i.e. the range setting unit restricts a searching range (see D1, page 8, lines 20 to 22; page 10, lines 27 to 31, as well as claims 1 and 7). In doing so, the same beneficial effects are achieved in D1 as by the present invention, namely a fast and reliable detection in real-time situations (see page 11, line 31 to page 12, line 6 in D1; and paragraph [0004] in the present application as published).

Thus D1 discloses a range setting unit and a partial image extracting unit for extracting from the image data the part of an object included in a restricted searching range as a partial image, as set out in claim 1.

5. D1 cursorily mentions the possibility of different persons positioned at different distances (see D1, page 8, lines 12 to 14) and the possibility of simultaneously identifying multiple persons of interest, with separate target regions being determined

for each person (see D1, page 16, line 28 to page 17, line 2). However, D1 does not expressly disclose a *modus operandi* in such a case.

6. The technical problem solved in the present invention may thus be formulated as implementing an apparatus for detecting multiple persons in a fast and reliable way.

7. The skilled person starting from D1 and trying to solve this problem would have envisaged dividing the depth range and setting a plurality of searching ranges according to the image content (which is not excluded in claim 1; see point 3 above). In accordance with the teaching of D1, the apparatus would first extract plural partial images corresponding to these ranges and subsequently restrict distinctive-part and main-subject detection for multiple main subjects to these partial images in order to also achieve fast and reliable detection.

The apparatus would further receive main-subject information for each of the detected main subjects, for instance in order to allow their identification (see D1, page 3, lines 14 to 17).

8. In conclusion, when confronted with the problem of implementing the apparatus known from D1 for identifying multiple persons, the skilled person would have adapted the known apparatus and arrived at the invention as set out in claim 1 without exercising inventive activity.

9. As a result, the subject-matter of claim 1 does not involve an inventive step and claim 1 is not allowable under Article 52(1) EPC and Article 56 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke F. Edlinger

Decision electronically authenticated