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Datasheet for the decision of 9 November 2023

Case Number: T 1782/21 - 3.5.06

Application Number: 17163551.9

Publication Number: 3249576

IPC: G06K9/00

Language of the proceedings: EN

Title of invention:
BIOMETRIC INFORMATION PROCESSING DEVICE, BIOMETRIC INFORMATION PROCESSING METHOD AND BIOMETRIC INFORMATION PROCESSING PROGRAM

Applicant:
FUJITSU LIMITED

Headword:
Vein and skin patterns/FUJITSU

Relevant legal provisions:
EPC Art. 83
RPBA 2020 Art. 13(2)

Keyword:
Sufficiency of disclosure (no) - completeness of disclosure - common general knowledge - one patent document
Amendment after summons - taken into account (yes)

Decisions cited:
T 1294/16, T 0412/09

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 1782/21 - 3.5.06

D E C I S I O N
of Technical Board of Appeal 3.5.06
of 9 November 2023

Appellant: (Applicant)	FUJITSU LIMITED 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8588 (JP)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 14 May 2021 refusing European patent application No. 17163551.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Müller
Members:	T. Alecu
	B. Müller

Summary of Facts and Submissions

I. The appeal is against the decision of the Examining Division to refuse the application for lack of compliance with Article 83 EPC. The Appellant requests that the decision be set aside and that a patent be granted on the basis of the first auxiliary request underlying the decision.

II. With the grounds of appeal the Appellant filed the following two documents:

D7: Tsuyoshi Takatani et Al., "Decomposition of reflection and Scattering by Multiple Weighted Measurements", 2011, and

D8: Mizuki Watanabe et Al., "Examination of vein extraction by color conversion and annealing method", 15 March 2016,

along with translations from Japanese into English.

III. In a reply to the Board's preliminary opinion, provided in an annex to oral proceedings, the Appellant filed document:

D10: EP2838068 B1

IV. The decision was announced during oral proceedings before the Board.

V. Claim 1 of the sole request defines:

A biometric information processing device characterized by comprising:

a pattern extraction means (11, 12) configured to extract a surface pattern and a blood vessel pattern of a living body from a biometric image;
a feature point extraction means (13) configured to extract a feature point of the surface pattern;
a local region setting means (14) configured to set a local area that includes the feature point and is smaller than the biometric image; and
a feature extraction means (15) configured to extract a feature of the blood vessel pattern from the local area when a ratio of pixels of the blood vessel pattern to pixels of the region is equal to or more than a threshold value,
wherein the pattern extraction means (11, 12) extracts the surface pattern by extracting information reflected at a surface of the living body from the biometric image, and
wherein the pattern extraction means (11, 12) extracts the vessel pattern by separating the surface pattern from the biometric image.

Reasons for the Decision

The application

1. The application relates to biometric authentication using vein patterns of e.g. a palm or a finger. The positions of the vein pattern for matching are normally defined in respect of the outline of the considered region, which requires the acquisition of the entire region (paragraph 3; all references herein are to the A1 publication). For speed reasons it is desired to perform vein authentication using partial patterns (paragraph 4). The application proposes to use the surface skin patterns, such as skin wrinkles, and characteristic points thereof, to define positions of

areas for vein pattern matching (paragraph 5; see figures 5 to 7).

2. Regarding the sensor used the application states at paragraph 11:

"The biometric sensor 105 is a sensor for acquiring biometric information of a user, and acquires a palm image of the user in a non-contact manner ... The biometric sensor 105 can acquire a surface pattern such as wrinkles of the palm based on information of a visible light or a near-infrared ray, for example. Further, the biometric sensor 105 can acquire a blood vessel pattern such as a vein pattern with the use of the near-infrared ray."

3. Regarding actual acquisition and processing, the application states for instance in view of palm images (paragraph 17):

"the biometric sensor 105 acquires the palm image of the user that holds a hand over the biometric sensor 105 ... the surface pattern extraction unit 12 extracts information reflected at the surface of the palm from the palm image acquired at step S2 to extract the surface pattern of the palm (step S11).

and at paragraph 20:

"the blood vessel pattern extracts the vein pattern from the palm image acquired at step S2 (step S21)".

Similar statements are made in relation to embodiments using finger or face biometric regions.

Sufficiency of disclosure (Article 83 EPC)

4. The Examining Division refused the application for lack of disclosure of the following claimed feature:

"*a pattern extraction means (11, 12) configured to extract a surface pattern and a blood vessel pattern of a living body from a biometric image*"

reasoning that the skilled person did not know, from the application, or from the common general knowledge, how to extract the two different patterns from one single image, e.g. how to separate the skin lines from the vein lines in figure 5.

5. The question at stake is whether the application "*disclose[s] the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art*" (Article 83 EPC).

5.1 It is undisputed that it is not self-evident how to extract from a single image, rather than from two separate ones, two biometric patterns which are formed, respectively, at the surface of a living body and below the surface (subcutaneously). It is also undisputed that the application does not provide any information on how to do this, and hence how to carry out the quoted claimed feature.

5.2 According to the case law of the Boards of Appeal, the skilled person may supplement the information in the patent application by common general knowledge.

5.3 In order to establish that the missing disclosure was indeed common general knowledge - and that, therefore, the skilled person would have known how to implement

the feature in question - the Appellant referred to documents D7, D8 and D10.

5.4 For this argument to succeed, it must be shown that these documents disclose the missing knowledge, but also that it was "common general knowledge".

Documents D7 and D8

6. Regarding D7, the Appellant stated in the grounds of appeal at V.1 that:

"Document D7 discloses technologies where diffuse reflection and specular reflection are extracted from an image, see for example the abstract of document D7. Diffuse reflection corresponds to the vessel pattern of the independent claims in AR1, while specular reflection corresponds to the surface pattern. [...] D7 explains that separation of the diffusion reflection and the mirror reflection is known (has been performed from long ago)."

7. During the oral proceedings before the Board the Appellant further made reference to section 4.1 and figure 1. In section 4.1 it was explained that the diffusion reflection was scattered in the surface layer whereas the mirror/specular reflection took place at the interface of the surface layer with the environment. Figure 1 also showed that after a certain depth (marked as "unfocused depth" at the bottom of the figure) only diffuse reflection could be observed. In the Appellant's view this made clear that diffuse reflection occurred when imaging the vessel pattern beneath the surface and specular one when imaging the surface.

8. The Board agrees that D7 shows that "*separation of the diffusion reflection and the mirror reflection*" was known.

8.1 However, D7 makes no mention of the separation of vein from surface patterns, and, as the Board understands, the two phenomena discussed in D7, i.e. diffuse and specular/mirror reflection, take place at the surface layer of the same considered object. The scattering in the surface layer remains at the surface of the object, and does not concern objects below it. This can be seen in figure 1, where different objects (see the pentagon and oval shaped objects) may show both types of reflection.

8.2 This is different to the case considered by the application, where the veins and the surface layer are two different objects, the veins being *below* the surface layer of the skin. The depth in figure 1 of D7 is depth of *focus* and is therefore not to be equated with the depth below the surface in a finger. Notably, the light grey background shape does not depict an object but the inspection area.

8.3 Furthermore, there is no reason to assume a specular (mirror-like) reflection at the skin surface; the skin rather reflects in a diffuse manner. The application otherwise does not refer to any specular or diffuse reflection components, but merely talks about reflection at the skin surface, which may encompass both phenomena discussed in D1.

9. Thus the Board is not convinced by the Appellant's statement that "*Diffuse reflection corresponds to the vessel pattern ... while specular reflection corresponds to the surface pattern*" and, in view of the

foregoing, that D7 discloses what is missing in the application at hand.

10. Regarding D8, the Appellant stated in the grounds of appeal at V.2:

"Document D8 discloses a technology in which a vein image is generated by using a red component and a green component which are extracted from an image. Although vein patterns are usually acquired using infrared light and detectors, the technology disclosed in document D8 was developed to allow identifying a vein pattern using visible light such as for example using digital cameras in a mobile phone. More specifically:

'The present document recites a method for generating a vein image by using a red component and a green component, and extracting a vein by using a distance image and a skeleton image'".

11. This is true. However, D8 also states (abstract):

"*It is thought that a vein image cannot be captured without a near-infrared radiation in a conventional vein authentication technology ... The present authors have been studied an algorithm for identifying a vein by limiting the visible light*".

Hence D8 rather points out that standard technology required infrared light for vein pattern acquisition, which also corresponds to what the current application teaches when presenting the vein pattern acquisition (see above point 2).

12. Because of this the Board does not believe that the "*visible light*" technology of D8 is suitable for

providing what is missing from the application, where the biometric sensor appears to rely on near-infrared light.

12.1 This opinion was communicated to the Appellant in the Board's preliminary opinion. During the oral proceedings before the Board, the Appellant indicated to have no further arguments based on D8.

13. Thus neither D7 nor D8 disclose sufficient information to enable the skilled person to implement the feature in question (see point 4 above), irrespective of whether the disclosure of D7 or D8 could qualify as common general knowledge.

Document D10

14. Document D10 was filed by the Appellant in response to the communication of the Board containing this assessment. The Appellant states that this submission was triggered "*based on the importance given by the Board to the specific wavelengths used for obtaining the image in relation to document D8*", i.e. infrared and not visible light (letter of 9 October 2023, 2.2 and 2.3).

14.1 In the Board's view, this is insufficient to establish exceptional circumstances which might justify admittance (Article 13(2) RPBA 2020). Though the Board's emphasis may have been new, the insufficiency objection at stake had been the main objection in the decision under appeal.

14.2 Nonetheless, in this case, the Board decides to admit the request because it was pertinent and the Board found itself in a position to consider the submission

without considerably affecting procedural economy (as to the latter criterion, see T 1294/16, reasons 18.2 and 18.3), more precisely:

(a) it was clear from the Appellant's letter that the submission was pertinent to the discussion and why, and

(b) the submission was filed sufficiently ahead of the oral proceedings for the Board to have time to analyse it.

15. The Appellant stated (letter of 9 October 2023, 3.1 and 3.2) that D10 taught a method of separating vein patterns from surface skin patterns (paragraphs 38-54) using light containing infrared wavelengths (paragraphs 18-22).

15.1 It also stated (ibid. 1.2) that "*Generally, common general knowledge can be considered the information contained in basic handbooks, monographs and textbooks. However, when the subject is specialistic like in the present case, also patents can be considered common general knowledge*".

15.2 During the oral proceedings the Appellant further argued that the technical field of the application, i.e. biometric sensing and authentication, was a competitive and fast moving one, and suggested that, therefore, every patent would quickly become known in the interested circles. D10 was granted more than one year before the priority date of the application, during which time it could be assumed to have become known to the person skilled in the art.

16. The Board agrees with the Appellant that D10 discloses that which is missing in the application. To overcome the insufficiency objection, however, it must also be shown that what D10 discloses constitutes common general knowledge.

16.1 Normally, as the Appellant correctly noted, that certain knowledge is indeed common general knowledge is demonstrated by reference to encyclopedias, textbooks, monographs or such like. At the same time, patent literature such as D10 is normally not sufficient for this purpose. It has been accepted (see T 412/09, reasons 2.1.3 and references therein) that, exceptionally, a series of patent publications can be sufficient if it "*provides a consistent picture that a particular technical procedure was generally known and belonged to the common general knowledge in the art at the relevant date*". However, D10 is not only not a "series", but also does not support the Appellant's view on common general knowledge. Specifically, D10 does not present the method in question as commonly known but as an invention made at the time (paragraph 7).

16.2 Thus the Appellant's position turns on its argument that the field is so competitive and fast moving that the skilled person would follow all developments and therefore get to know all new methods, including that of D10, soon after they are published. This allegation is not supported by any evidence. The Board has no reason to believe that the field is special nor that D10 itself is. Moreover, the extraordinary idea that any published patent application in some field might become common general knowledge in little time is not convincing, at least not in general.

16.3 The Board is therefore of the opinion that D10 does not show that the knowledge missing from the application had been part of the common general knowledge at the relevant time.

17. The Board concludes from the above that the requirements of Article 83 EPC are not fulfilled.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

L. Stridde Martin Müller

Decision electronically authenticated