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Datasheet for the decision of 12 June 2019

Case Number: T 1386/14 - 3.4.01

Application Number: 07843633.4

Publication Number: 2100253

IPC: G06K9/00

Language of the proceedings: EN

Title of invention:
FRAUD RESISTANT BIOMETRIC FINANCIAL TRANSACTION SYSTEM AND METHOD

Applicant:
EYELOCK LLC
Hoyos, Hector T.
Hanna, Keith

Headword:
Fraud resistant biometric financial transaction / EYELOCK LLC

Relevant legal provisions:
EPC 1973 Art. 56, 84

Keyword:
Inventive step - mixture of technical and non-technical features
Claims - clarity (no)

Decisions cited:
T 0119/11

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Case Number: T 1386/14 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 12 June 2019

Appellant: (Applicant 1)	EYELOCK LLC 355 Lexington Avenue, 12th Floor New York, NY 10017 (US)
Appellant: (Applicant 2)	Hoyos, Hector T. 1965 Broadway, Apt. 24H New York, NY 10023 (US)
Appellant: (Applicant 3)	Hanna, Keith 1965 Broadway, Apt. 20J New York, NY 10023 (US)
Representative:	Murgitroyd & Company Scotland House 165-169 Scotland Street Glasgow G5 8PL (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 18 December 2013 refusing European patent application No. 07843633.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	P. Scriven
Members:	P. Fontenay J. Geschwind

Summary of Facts and Submissions

I. This is the Board's decision on the applicant's appeal filed against the Examining Division's decision to refuse European patent application 07 843 633.

II. The application was refused because the Examining Division held that the claims of the main request and of auxiliary requests 1, 3, and 4 defined added subject-matter, contrary to Article 123(2) EPC; and were not clear, contrary to Article 84 EPC.

With regard to auxiliary request 2, the Examining Division held that the subject-matter of independent claims 1 and 13 was not new in view of document:

D1: J. Kittler et al., "BioSecure - Biometrics for Secure Authentication, 14 June 2005, pages i-iii, 1-22;

and, also not inventive in view of document

D8: M. Uwe Bubeck, "Multibiometric Authentication - An Overview of Recent Developments", 1 January 2003, pages 1-11,

combined with the skilled person's common general knowledge as attested to in D1.

III. With the statement setting out its grounds of appeal, the appellant requested that the Examining Division's decision be set aside and a patent be granted on the basis of a main request or else one of first to fifth

auxiliary requests, all filed with the statement of grounds.

The main request coresponds, in essence, to auxiliary request 2 object of the impugned decision. It differs therefrom by clarifications and corrections of language in claims 1, 2, 10 and 13.

The claims of the first auxiliary request correspond exactly to said former auxiliary request 2 of the impugned decision. The second auxiliary request is a new request. The third, fourth and fifth auxiliary requests correspond, respectively, to auxiliary requests 1, 3 and 4 of the impugned decision.

IV. In the statement of grounds, the appellant provided arguments as to why the claims of the main and first auxiliary requests defined new and inventive subject-matter in view of documents D1 and D8, contrary to the view expressed by the Examining Division.

With regard to the second auxiliary request, the appellant argued that, although new, its substance had been considered as part of auxiliary request 1 in the appealed decision. The Examining Division had considered the additional feature (in claims 1 and 13) had no basis in the application as filed, and the appellant argued against that view, and, further, that the feature clarified the difference between the invention and the prior art known from D1.

For the third auxiliary request, the appellant argued that the additional feature (claims 1 and 14) had a basis in the application as filed, and that the Examining Division had been wrong to find a lack of

clarity on the basis that a probability could not take a value outside the range 0 to 1.

The objections of added subject-matter and lack of clarity which had been raised against the claims of the fourth and fifth auxiliary requests (auxiliary requests 3 and 4 in the decision under appeal) were contested on the basis that they relied on interpretations detached from the respective context.

V. The Board arranged oral proceedings in accordance with the appellant's request, and set out its provisional view in a communication under Article 15(1) RPBA.

VI. The oral proceedings were later cancelled, following the appellant's indication that it would not attend.

VII. The appellant did not comment on the Board's communication, and the requests have not been altered.

VIII. Claim 1 of the main request reads:

A method of authenticating financial transactions comprising acquiring biometric data from a person, calculating probability of liveness, Pp, of the person and probability of a match, Pm, between the person and known biometric information, and providing an authentication decision, D, based on a combination of Pp and Pm.

Claim 2 is a dependent claim. It reads:

> The method of claim 1 wherein authentication decision D is calculated as function of Pm and Pp according to the formula D = P(p) * (K + P(m)), wherein K is a number between 0.5 and 1.5.

Claim 13 of the main request defines a system corresponding to the method of claim 1.

IX. Claim 1 of the first auxiliary request reads:

> *A method of authenticating financial transactions comprising acquiring biometric data from a person, calculating probability of liveness, Pp, of the person and probability of a match, Pm, between the person and known biometric information, and providing and [sic] authentication decision, D, based on a combination of Pp and Pm.*

Claim 2 reads:

> The method of claim 1 wherein an [sic] D is calculated as a function of Pm and Pp according to the formula D = P(p) * (K + P(m)), wherein K is a number between 0.1 and 100, preferably a number between 0.5 and 1.5.

X. Claim 1 of the second auxiliary request reads:

A method of authenticating financial transactions comprising:
- acquiring biometric data from a person;
- calculating probability of liveness, Pp, of the person;
- calculating a probability of a match, Pm, between the person and known biometric information, and
- calculating an authentication decision criterion, D, as a function of both probabilities Pp and Pm, such that, for a given Pm, the decision criterion, D, is moved towards acceptance when the probability of liveness, Pp, is near 1.

Claim 2 reads:

The method of claim 1 wherein said authentication decision criterion, D, is calculated as a function of Pm and Pp according to the formula D = P(p) * (K + P(m)), wherein K is a number between 0.5 and 1.5.

Claim 13 of the second auxiliary request refers to a system. It reads.

A system for authenticating financial transactions comprising means to acquire biometric data from a person and calculate probability of liveness, Pp, of the person and probability of a match, Pm, between the person and known

biometric information and means for providing an authentication decision, D, based on a function of both probabilities Pp and Pm, wherein Pp and Pm are combined such that, for a given Pm the decision criterion, D, is moved towards acceptance when the probability of liveness, Pp, is near 1.

XI. Claim 1 of the third auxiliary request reads:

A method of authenticating financial transactions comprising:
- acquiring biometric data from a person;
- calculating a probability of liveness, Pp, of the person;
- calculating a probability of a match, Pm, being a probability of matching between the person and known persons whose biometric information has previously been acquired;
- calculating a decision probability, D, as a function of both probabilities Pp and Pm, and
- making a decision to authenticate or not-authenticate based on said decision probability D,
wherein said function is such that for a given probability of matching Pm a transaction is more likely to be authorised when the probability of liveness Pp is high.

Claim 14 of the third auxiliary request defines a system.

XII. Claim 1 of the fourth auxiliary request reads:

A method of authorising financial transactions comprising:
- acquiring biometric data from a person;
- calculating a probability of liveness, Pp, being a probability that biometric data has been acquired that can be used to identify the person after the fact;
- calculating a probability of a match, Pm, being a probability of matching between the person and known persons whose biometric information has previously been acquired;
- authorising or not authorising said transaction based on a combination of probabilities Pp and Pm in such a manner that transactions will be authorised when the probability of liveness is high even if the probability of a match is poor, and wherein in the event of non authorisation the person is not informed whether non-authorisation was based on a low probability of liveness or a low probability of matching.

Claim 14 of the fourth auxiliary request defines a corresponding system.

XIII. Claim 1 of the fifth auxiliary request reads:

A method of authorising financial transactions comprising:
- acquiring biometric data from a person;
- calculating a probability of liveness, Pp, of the person;
- calculating a probability of a match Pm, being a probability of matching between the person and known persons whose biometric information has previously been acquired;
- authorising or not authorising said transaction based on a combination of probabilities Pp and Pm in such a manner that transactions will be authorised when the probability of liveness is high even if the probability of a match is poor, and wherein in the event of non-authorisation the person is not informed whether non-authorisation was based on a low probability of liveness or a low probability of matching; and
- storing the acquired biometric data to permit identification of the person if required at a later date.

Claim 13 of the fifth auxiliary request defines a corresponding system.

Reasons for the Decision

Main request - Clarity (Article 84 EPC)

1. Claim 1 of the main request concerns a method of authenticating financial transactions. The claimed method comprises a step of "providing an authentication decision, D, based on a combination of Pp and Pm".

2. Claim 2 specifies that "authentication decision D is calculated as a function of Pm and Pp according to the formula D=P(p)*(K+P(m))...".

   This wording in claim 2 does not affect the fact that parameter D, as defined in independent claim 1, is just a number and not a decision as designated.

3. The description confirms that D is a number, but also adds to the confusion, since it defines D as a "decision probability" (cf. paragraph [0028]), although it may have values exceeding 1.

   In effect, the description defines D as a number which serves as basis for a decision to be taken with regard to authentication of a financial transaction (cf. paragraph [0039]).

4. The discrepancy between the definitions of parameter D within the claims and in the description makes it impossible to identify the invention for which protection is sought.

5. For the same reasons, the subject-matter of independent claim 13 is not clearly defined.

6. The claims of the main request do not meet the requirements of Article 84 EPC as to clarity.

First auxiliary request

7. The first auxiliary request is identical to auxiliary request 2 in the impugned decision. Claims 1 and 2 differ from those of the main request only in that the claims do not include the linguistic clarifications.

8. Concretely, dependent claim 2 specifies that "D is calculated as a function of Pm and Pp according to the formula D=P(p)*(K+P(m)".

9. These differences do not affect the conclusions reached above with regard to the main request.

10. The claims of the first auxiliary request are not clear contrary to Article 84 EPC because the meaning of the parameter D cannot be understood.

Second auxiliary request

11. In claim 1 of the second auxiliary request, parameter D is defined as an "authentication decision criterion". Although quite vague, the term "criterion" does not contradict the wording of claim 2 and is something of a clarification of the claimed subject-matter.

12. Independent claim 13, however, refers to both the "authentication decision D", and the "decision criterion D". For the reasons developed above with regard to the main request, the claimed system is not clearly defined.

13. Moreover, the terms "such that, for a given Pm, the decision criterion, D, is moved towards acceptance when the probability of liveness Pp is near 1", in independent claims 1 and 13, are as such also ambiguous.

Specifically, it is unclear what dynamic is associated with the value of parameter D, as expressed, for example, by the formula of claim 2. Acceptance reflects the fact that the value of D exceeds a predetermined threshold (cf. paragraph [0039] in the published application). By contrast, the claimed wording suggests that D is a monotonically increasing function of time when Pp is near 1.

14. The claims of the second auxiliary request are not clear, contrary to Article 84 EPC.

Third auxiliary request

15. Claim 1 (and similarly claim 14) of the third auxiliary request do not meet the requirements of Article 84 EPC as to clarity because the concept of a "decision probability" in said claims does not reflect the range of values that parameter D can take. The fact that D may be coded on any arbitrary scale, as submitted by the appellant, does not affect this. While a value of 2 or 255 may indeed be indicative of a probability when expressed according to preselected scales, these values do not, as such, express the probability of an event.

16. The wording "wherein said function is such that for a given probability of matching Pm a transaction is more

likely to be authorised when the probability of likeness Pp is high" is unclear because it does not specify with regard to which situation the transaction is "more likely" to be authorised.

17. Moreover, the current wording can be interpreted such that a transaction is "more likely" to be authorised when taking into account Pp, assuming that Pp is high, in contrast to a situation in which Pp would not intervene in the expression of D. This interpretation, however, is not supported by the description. The fact that Pp<1, combined with the expression of D, as reproduced for example in claim 2 (D=Pp*(K+Pm)), shows that D decreases when incorporating parameter Pp in its expression.

18. It follows that independent claims 1 and 14 of the third auxiliary request do not meet the requirements of Article 84 EPC as to clarity.

Fourth auxiliary request - Inventive step

19. Document D8 concerns biometric authentication techniques. It focuses on the merits of multibiometric systems, that is, on systems making use of multiple biometric sensors for data acquisition.

20. In one category of multibiometric systems, data are fused together at the decision level, that is, at the end of the decision process. Such a configuration, as described in section "2.2 Fusion at the Matching Score Level" of D8, was considered as closest prior art by the Examining Division in its rejection of auxiliary request 2 (then pending) for lack of inventive step.

21. In view of the fact that multibiometric systems indeed address the problems of reliability and accuracy of matching and further attempt to remedy the problems of spoofing identified with regard to previous techniques (cf. D8, section "Introduction", first paragraph), the selection of D8 as starting point is justified.

22. In the Examining Division's view, it would have been obvious to use "liveness" as one of the biometric modalities.

23. Although details are lacking, it seems that the Examining Division meant that it would have been obvious either to replace one of the sensors of Figure 3 in D8 by a sensor indicative of "liveness" or to add such a sensor.

24. The Examining Division defined neither the objective technical problem solved by the claimed invention, nor the technical features distinguishing the claimed subject-matter from D8.

25. Both are, however, essential in the problem - solution approach. A prerequisite for the existence of an inventive step is the existence of a technical difference that provides a technical effect.

26. As emphasised throughout the application, the problem addressed by the invention is to improve accuracy in the authentication of financial transactions.
The claimed inventions serve, primarily, financial purposes and thus fall within a field of activity normally excluded from patentability (Article 52(2)c) EPC). The case law of the boards of appeal recognises, however, that the implementation of non-technical ideas may involve the solution of problems of a technical

nature. For these reasons, it is necessary to assess whether the implementation of the claimed inventions indeed involves technical considerations.

27. It is inherent to fusion techniques, such as the one disclosed in section "2.2 Fusion at the Matching Score Level" of D8, that authorisation (or denial of authorisation) depends on a combination of probabilities (Match scores) in such a manner that transactions will be authorised when the overall probability of a match is high, even if the probability of a contributing match is poor. It is also inherent to this kind of approach that, in the event of non-authorisation, the person is not informed which poor match prevented authorisation.

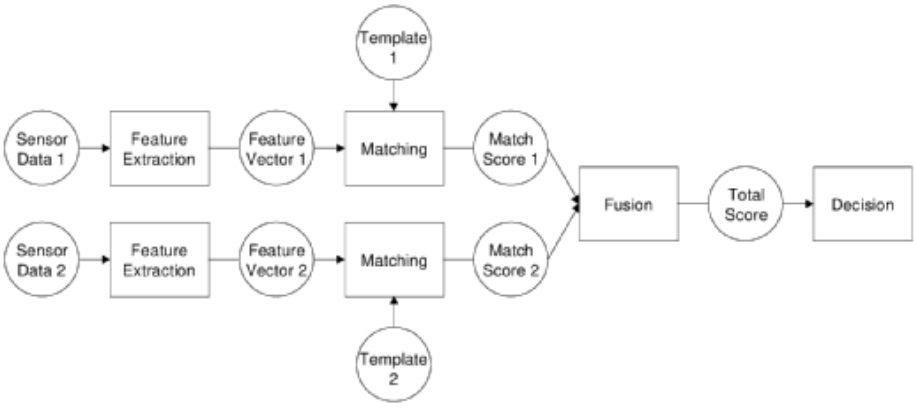

Fig. 3 in D8: Fusion at the feature extraction level

28. The method according to claim 1 of the fourth auxiliary request differs from the method of D8 in that it calculates a probability of "liveness", that is, a probability that biometric data have been "acquired from a live human". (This construes the unclear wording in claim 1, in the appellant's favour, as reflecting the teaching of paragraph [0012] of the published application). The choice of "liveness" as criterion is a non-technical decision as to what sort of

identification is acceptable. The combination of probabilities, itself, is a mathematical operation and does not contribute to the technical character of the claimed method, at least insofar as it is construed as referring to mere calculations carried out on the available biometric data. The Board notes that the claim is not concerned with the technical means by which "liveness" is measured, but only with the fact that it is "liveness".

29. The same conclusion would apply to the system of independent claim 14, which requires a corresponding calculating means for calculating the probability of "liveness". Since the system of D8 also comprises calculating means, the contribution is limited to the calculation being carried out, as such.

30. A consequence of the previous analysis is that no distinction of a technical nature can be identified between the claimed inventions and the disclosure of D8 (cf. T 119/11, for example).

31. A further consequence is that the existence of an inventive step is to be denied under Article 56 EPC.

Fifth auxiliary request

32. The step of "storing the acquired biometric data to permit identification of the person if required at a later date" in claim 1 (and the corresponding means in independent claim 13) serve prosecution purposes. Alternatively, the added features may serve the purpose of publicly disclosing said data (cf. paragraphs [0028], [0029]).

33. The storing of the acquired biometric data is certainly of a technical nature.

34. This additional distinguishing feature is, however, not sufficient to justify the existence of an inventive step. The storing of data for later use or archiving purposes reflects standard procedures and is necessitated by non-technical requirements.

35. The subject-matter of claims 1 and 13 according to the fifth auxiliary request is thus not inventive in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

R. Schumacher P. Scriven

Decision electronically authenticated