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Datasheet for the decision of 4 February 2016

Case Number: T 1174/12 - 3.4.03

Application Number: 05757855.1

Publication Number: 1745458

IPC: G09G5/00, G09G5/08, G06F1/00

Language of the proceedings: EN

Title of invention:
METHODS AND DEVICES FOR IDENTIFYING USERS BASED ON TREMOR

Applicant:
Hillcrest Laboratories, Inc.

Headword:

Relevant legal provisions:
EPC 1973 Art. 54(2), 56, 84
EPC Art. 123(2)
EPC R. 137(3)

Keyword:
Inventive step - (yes)

Decisions cited:
T 0410/96

Catchword:

Europäisches Patentamt
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Office européen des brevets

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Case Number: T 1174/12 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 4 February 2016

Appellant: (Applicant)	Hillcrest Laboratories, Inc. 15245 Shady Grove Road Rockville, MD 20850 (US)
Representative:	Diehl & Partner GbR Patentanwälte Erika-Mann-Strasse 9 80636 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 30 December 2011 refusing European patent application No. 05757855.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Eliasson
Members:	S. Ward
	C. Heath

Summary of Facts and Submissions

I. The appeal is against the decision of the Examining Division refusing European patent application No. 05 757 855 on the following grounds: the main request and the fifth auxiliary request were not admitted into the proceedings under Rule 137(3) EPC, and the claimed subject-matter of the first to fourth auxiliary requests failed to meet the requirements of Articles 123(2) and 84 EPC and did not involve an inventive step within the meaning of Article 56 EPC.

II. At the end of the oral proceedings held before the Board the appellant requested that the decision under appeal be set aside and that a patent be granted in the following version:

Claims 1 – 7 of the Main Request filed with letter dated 4 January 2016

Description
Pages 3-7, 9-13, 15-31, 33, 36-37 as published;
Pages 2, 8, 8a, 8b as filed with letter dated 4 January 2016;
Pages 14, 32, 34, 35, 38 and 39 as filed during oral proceedings;

Drawings sheets 1 – 11 as published.

III. The following documents cited by the Examining Division (D6 and D7) or in the application (D8) are referred to:

D6: US 2005/0008148 Al

D7: STEVEN STRACHAN, RODERICK MURRAY-SMITH: "Muscle Tremor as an Input Mechanism" UIST'04, 24 - 27 October 2004
XP002473042, Santa Fe, New Mexico, USA

D8: US 5 440 326 A

IV. Claim 1 of the main request reads as follows:

"A method for identifying a current user who is currently holding a handheld free space pointing device from a plurality of users of the handheld free space pointing device,

wherein the handheld free space pointing device is configured so that motions of the handheld free space pointing device in free space are translatable by a user interface into user interface commands;

wherein the method comprises the steps of:

(a) obtaining, for each of the plurality of users, a tremor data set based on tremor associated with the respective user's holding of the handheld free space pointing device;

(b) identifying a class for each of the plurality of users, comprising:

(i) extracting features from each of said tremor data sets to generate an extracted feature set for each of said plurality of users,

(ii) removing features from each of said extracted feature sets to generate a reduced feature set for each of said plurality of users, and

(iii) identifying clusters associated with said reduced feature sets, and

(c) identifying the current user from the plurality of users by means of gathering current hand tremor data of the current user and comparing the current hand tremor data to the identified classes."

Claim 5 of the main request reads as follows:

"A handheld free space pointing device, for identifying a current user who is currently holding the handheld free space pointing device from a plurality of users of the handheld free space pointing device,

wherein the handheld free space pointing device is configured so that motions of the handheld free space pointing device in free space are translatable by a user interface into user interface commands;

wherein the device comprises:

at least one motion sensor capable of generating data associated with movement of the handheld free space pointing device; and

a processing unit configured for detecting current hand tremor data based on said movement data and further configured for identifying the current user of said handheld free space pointing device based on said current hand tremor data by performing operations comprising:

(a) obtaining a plurality of tremor data sets, each of which associated with a different user of the plurality of users;

(b) identifying a class for each of the plurality of users, comprising:

(i) extracting features from each of said tremor data sets to generate an extracted feature set for each of said plurality of users,

(ii) removing features from each of said extracted feature sets to generate a reduced feature set for each of said plurality of users,

(iii) identifying clusters associated with said reduced feature sets, and

(c) identifying the current user from the plurality of users by means of comparing the current hand tremor data to the identified classes."

Reasons for the Decision

1. The appeal is admissible.

2. Article 123(2) EPC and Article 84 EPC 1973

2.1 The subject-matter of claim 1 of the main request is based on the subject-matter of claim 4 (or alternatively claim 23) as originally filed, plus features from the table of Fig. 9, paragraphs [0002] and [0065]-[0073] and claim 1 as originally filed.

The subject-matter of independent claim 5 of the main request is based on the subject-matter of claim 14, plus features from the table of Fig. 9, paragraphs [0002] and [0065]-[0073] and claim 1 as originally filed.

Claim 2 finds a basis in, for example, claims 1 and 25 as filed. Claims 3, 4, 6 and 7 are based on paragraph [0068].

The Board is therefore satisfied that the main request meets the requirements of Article 123(2) EPC.

2.2 Following the amendments made during the appeal procedure, the Board is also satisfied that the main request meets the requirements of Article 84 EPC 1973.

3. Status of documents D6 and D7

3.1 In section 5.1 of the contested decision the Examining Division found that the claim to priority of the present application was invalid, and that documents D6 and D7 consequently formed part of the state of the art within the meaning of Article 54(2) EPC 1973.

In oral proceedings before the Board, following an explicit question from the Chairman, the appellant accepted that documents D6 and D7 are indeed prior art within the meaning of Article 54(2) EPC 1973.

4. Closest prior art

4.1 Documents D6 and D7 are described as "highly relevant" under point 5.1 of the impugned decision, and the Board also regards these documents as constituting the most important prior art. The Board is inclined to regard

document D6 as the closest prior art. Nevertheless, since the Examining Division elected to start from document D7, this possibility will be considered also.

5. *Claim 1 of the main request: Inventive step starting from D6*

5.1 Document D6 discloses a method and system having numerous features in common with the present invention. In particular, during a "training phase", various "micromotions" (possibly including tremor) characteristic of each individual user of a pointing device (a mouse) are obtained and stored, and in a subsequent phase the mouse micromotions of a current user are compared with the stored data (paragraphs [0032], [0065], [0075] and [0079]).

5.2 Claim 1 differs from the the disclosure of document D6 in one respect in that it defines:

"A method for identifying a current user who is currently holding a handheld free space pointing device from a plurality of users of the handheld free space pointing device".

The claimed invention therefore aims to solve the problem of *identification*, i.e. determining which of the known users is currently holding the hand-held device. This enables a variety of interface functions to be performed, for example retrieval of preference settings associated with the identified user in a family (paragraph [0065]).

5.3 By contrast, according to document D6:

"The invention relates to methods and systems for authenticating individuals, and more particularly to authenticating individuals based on an individual's characteristic way of manipulating a mouse device" (Paragraph [0004]).

5.4 Document D6 therefore concerns *authenticating* rather than *identifying*. These two terms used in their proper senses (which is the case in the present application and in document D6) refer to related, but nevertheless distinct, concepts. A method for identifying aims to answer the question: who is this person? A method for authenticating aims to answer the question: is this person who he or she claims to be? For example, is a person who has input a credit card number really the authorised cardholder.

5.5 The principal embodiment in document D6 relates to the authentication of credit card holders attempting to carry out online transactions. For each transaction the card number is input by the purported cardholder using a mouse. This is the *identification* step in document D6, and it does not involve tremor data, but a simple numerical input which identifies the card and hence the authorised user.

The tremor data is used in a subsequent *authorisation* step, in which it is determined whether the purported authorised user is actually the genuine authorised user. The tremor data corresponding to the number entered is accessed and compared with the tremor data of the user who is attempting to make a purchase or transaction (paragraphs [0032], [0065], [0075] and [0079]).

5.6 Hence, document D6 does not disclose a method for *identifying* a current user by means of a comparison of tremor data, and the Board fails to see any reason why a skilled person would be motivated to incorporate one, as such a measure would appear to have little to do with the approach to online security proposed in document D6.

5.7 Even supposing *arguendo* that, starting from document D6, the skilled person wished, for some reason, to incorporate an automatic identification method, the method proposed in present claim 1 would not, in the opinion of the Board, be obvious or even feasible.

Although the number of cardholders may typically run to many millions, the method of document D6 represents a practical authentication procedure, since each transaction requires only a single comparison of two data sets, namely the tremor data set of the current user and the tremor data set corresponding to the card number entered by the current user.

However, to use the tremor data sets of document D6 for *identifying* a current user would require the tremor data of the current user to be compared with the tremor data of every one of the many millions of authorised card users in the master database. Not only is there no teaching in the available prior art which would point the skilled person towards such a solution, but the feasibility of uniquely identifying an individual from among millions of credit card holders on the basis of comparisons of hand tremor data must be doubted.

6. Claim 1 of the main request: Inventive step starting from D7

6.1 Document D7 discloses a mobile device (a pocket PC, hence not a pointing device) in which tremor is used as an input. As a possible application, "owner identification" is mentioned (second page, right-hand column). This is not further described, and it cannot be determined with certainty what is meant. However, the singular "owner" appears to imply a method distinguishing between an authorised user (the owner) and unauthorised users.

6.2 In another passage ("Demo 1: Pick Me Up", second page, left-hand column) hand tremor is used to convey to a device that it is currently "in hand". The user holds the device for a few seconds during which tremor in the user's arm is determined. The device is then placed on a table where it rings until lifted by the user. The characteristic spectrum of the users tremor appearing again in the power spectrum indicates that the device is "in hand", whereas basic movement of the device, e.g. from being carried in a bag or jacket, is not sufficient.

6.3 In neither of these passages is there any disclosure or hint of a method involving obtaining a tremor data set from each of a plurality of users, and identifying a current user from the plurality of users by means of comparing the hand tremor data of the current user with the tremor data sets obtained.

Moreover, according to document D7, when the device is ringing on the table, "if a different user picks up the phone it will not necessarily stop ringing, as the tremor characteristics vary among individuals". Hence, even if, for some reason, it occurred to the skilled person to attempt to identify different users within a plurality of users by means of their different hand

tremor data, the teaching of document D7 is that such a method might fail, but "not necessarily". It is unlikely that the skilled person would regard this as providing a reliable basis for identifying different users.

7. The subject-matter of claim 1 of the main request is therefore considered to involve an inventive step within the meaning of Article 56 EPC 1973.

8. Claim 5 of the main request

8.1 Claim 5 seeks protection for a handheld free space pointing device. The device is at least in part defined as being configured essentially to carry out the method defined in claim 1. This is to be interpreted as defining a device which is thus configured, and not merely one which could be thus adapted (T 410/96, Reasons, point 6). Since the method defined in claim 1 is novel and inventive, a device configured to carry it out is also novel and inventive.

8.2 For completeness it is also remarked that claim 5 defines a processing unit which performs, *inter alia*, the comparison of hand tremor (current user versus previously obtained data), the processing unit being *comprised in the pointing device*. For the arrangement of document D6 to be adapted to include this feature would require that a user carrying out an internet transaction as disclosed should have access to a mouse in which is stored the tremor data sets (and presumably credit card numbers) of every authorised credit card holder. Not only is this not disclosed, it is clearly entirely unrealistic.

8.3 The subject-matter of claim 5 of the main request is therefore considered to involve an inventive step within the meaning of Article 56 EPC 1973.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

Claims 1 – 7 of the Main Request filed with letter dated 4 January 2016

Description
Pages 3-7, 9-13, 15-31, 33, 36-37 as published;
Pages 2, 8, 8a, 8b as filed with letter dated 4 January 2016;
Pages 14, 32, 34, 35, 38 and 39 as filed during oral proceedings;

Drawings sheets 1 – 11 as published.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated